Dive deeper into Yogic Vyaayaam

Research papers by SYI Volunteers

By Swasth Yog Institute

Contents

'**Sphota**' in Sanskrit implies the process of articulation that occurs through the inner consciousness releasing bursts (sphotas) of energy in which the unity pervades. A simplification of the process of production of sound is as follows (Fig 1):

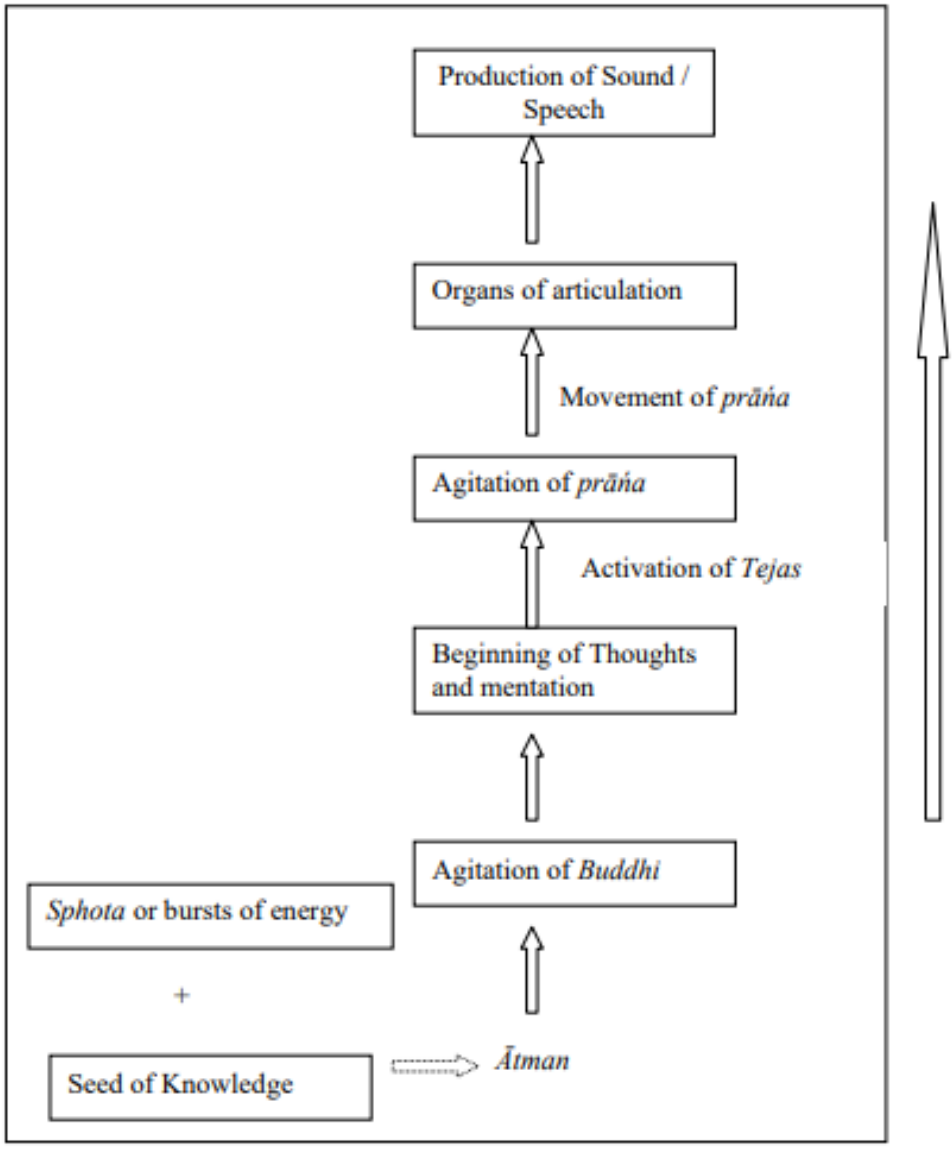


Figure 1 Process of development of Sound / Speech (Usharbudh Arya, 1985)

1. The seed of knowledge bursts into the **Ātman**, the spiritual self.
2. Ātman, through its will, infuses it into **Buddhi**, the faculty of intelligence.
3. The process of mentation is begun; the Buddhi is agitated, vibrant.
4. The syllables are thought, becoming **Mantra** or secular words.
5. The mind awakens **tejas,** the illuminatory power that runs the entire personality systems.
6. This tejas impels the **prāńa** which moves the air.
7. The air pressed through the organs of articulations becomes the **spoken word**.
8. The volume or the force of the spoken word may vary but **sphota**, the process of consciousness, is an invariable constant. (1)

Mechanism of action on body, energy (yogic)

The balance and flow of Prana in the body is regulated by energy centres, which vibrate at particular frequencies. Often, these energy centres vibrate at undesirable frequencies, disturbing the flow of Prana within our bodies and leading to various physical and mental ailments. Chanting of mantras generates desirable frequencies at the energy centres and harmonizes flow of Prana within the body.

Every organ in the human body vibrates at its own specific basal frequency and the collective effect of these individual organ frequencies results in a particular frequency that is unique to an individual. When the basal frequency of an organ is not as it should be, diseases manifest. It is believed that chanting specific mantras in a specific manner, and consistently can produce vibrations that restore basic organ frequencies, and cure specific ailments.

According to the Wave Theory, **resonance** between two waves occurs when the two waves traveling in the same direction and having the same frequencies, overlap. The chanting of mantras does exactly this.

The frequencies of vibrations needed to create resonance between an individual's frequency and the cosmic vibrations are unique to every individual (due to variations in physical, mental, social and spiritual characteristics). Hence, the probability of a common mantra working for different individuals is low. However, there are general mantras such as Gayatri Mantra, Mahamrityunjaya Mantra, AUM etc. which benefit all without exception.

Chanting AUM induces vibrations within the body which are synchronous with the natural vibrations of the cosmos, thus inducing oneness with the universe. These vibrations massage the organs, tissues, nerve cells, the endocrine glands etc. resulting in efficient functioning of the body. Chanting improves lung capacity. With regular practice, the practitioners experience recession of thoughts, concentration improves, stresses and tensions are released, thus calming the mind-body complex. (2)

Naad Yoga- the yoga of sound (2b)

Ancient scriptures say that the ability to hear is the most powerful of all the five senses. In the cycle of birth and death, it is the first one to appear and the last one to disappear. Naad Yoga uses sound, tone, rhythm, singing and listening in order to awaken the consciousness. Any time we speak, chant or make a sound, we start a new vibration. To create vibrations that elevate is the goal of Naad Yoga. Chanting is

an easy tool because you can chant anywhere, out loud or silently and change your state of being. When we chant sacred mantras our tongue touches the roof of the mouth in a very specific manner. This creates a chain reaction resulting in changes in the brain. When the chemistry of the brain is balanced our state of mind and outlook on life improves dramatically. Everything has a particular vibratory frequency. Every thought, every word and every emotion we have defines our vibration. We create our world based upon that vibration. Sound is an incredibly powerful vibration. By utilizing mantra, we can create vibrations that have a positive effect on our lives. ***Mantras are specific sound syllables that create healing vibrations.*** Mantra allows us to tune in to different levels of consciousness. This is the Science of Naad Yoga. Naad is the essence of all sound. It is a basis for all languages. All languages come from one common source or sound current.

The science of Naad Yoga works through the movement of the tongue in the mouth. There are ***84 meridian points located in the roof of the mouth.*** The movement of the tongue stimulates these meridian points and therefore stimulates the secretion of chemical messengers. We alter our consciousness by changing the chemical composition of the brain. In the science of Naad, there are three key elements that enhance the experience- rhythm, projection and pronunciation. Maintaining a precise rhythm of the mantra as well as maintaining the correct number of beats with the mantra is crucial to its effectiveness. For example, many mantras are chanted in eight beats. Any mantra chanted with eight beats is called an Ashtang Mantra. When you chant, you connect with the purity of your soul. Proper pronunciation ensures that you are using the correct pressure on the meridian points. Mantras vibrate the tiny Quantum particles that act as blueprints for constructing larger energy patterns. A Bija Mantra is a seed mantra. That is planted in the subconscious. 'Sat Nam' is a Bija Mantra. This "quantum mantra" cuts through the ego and helps you experience your true nature. 'Sat Nam' is a very special sound a primal sound. Each primal sound is created in a particular part of the mouth. When we form a word and we speak it, we utilise the 84 meridian points on the roof of the mouth to stimulate the hypothalamus to change the chemistry of the brain. Not every combination of sounds or words will create patterns of healing or wholeness. Chanting 'Sat Nam' creates patterns that are a perfect weave of rhythm, sound, tone, focus and meaning that act as DNA information for the spirit. These are sounds that align us with our soul. In yogic philosophy there are said to be ***72,000 nadis (energy channels)*** flowing through our body. They form our subtle nervous system. Mantra works on these subtle energies. Mantra directs the flow of 'prana' to wherever it is needed in the body. Swami Mayatitananda says, "The 72,000 nadis or channels that exist in the body are all sensitive to sound, and function through vibrations". He says, "Good sounds increase the vitality of these nadis. Pranas that flow through them also become more charged with vigour. When the pranas are healthy and filled with vitality, they stimulate healthy tissue and organ activity. Vital prana and harmonious sound work together hand in hand. They travel through the mind like a great wave, revitalising the brain cells and inspiring the mind to produce clear, fluent, harmonious thoughts." Yogi Bhajan says, "The tongue stimulates those meridian points, and they in turn stimulate the hypothalamus which makes the pineal gland radiate. When the pineal gland radiates, it creates an impulse, the entire glandular system secretes and a human being attains bliss". Russill Paul says, "The ear is the first organ to develop in the foetus and the last organ to stop functioning during the process of death," He says, "The difference between a poorly pronounced mantra and a correctly pronounced one is comparable to the difference between a movie

and real life: the former can only simulate an effect; the latter is the real thing," "Sanskrit, because of its complex consonants, stimulates an enormous quantity of energy in the body and in the spiritual nervous system."

Marma and mantra (2c)

Mantra Purusha marries the healing sciences of mantra and marma therapy. The mantra and marma connection is very important for healing purposes. The combination of mantra and marma heals the physical body, changes the frequency of the subtle body, and removes negative patterns from the mind. It reduces the karmic code or matrix which resides in the psyche.

Marmas are special, sensitive points on the body; they are junction points where 2 or more tissues meet. They are located at the intersection of blood vessels, bones, and ligaments; they are most commonly found at the joints. The wrist joint is an example of a marma. These locations are places where prana can enter or leave the body. The ancient healing practice of marma is used to shape prana in the subtle body. These special points carry energy information between the mind and the organs and tissues of the body; they are access points to body, mind, consciousness. Marmas are the intersection between: matter and energy, the physical and subtle planes, matter and consciousness, Purusha and Prakriti, ojas and prana. Each marma point contains the energies of Vata, Pitta and Kapha. Another meaning of marma is "secret". This alternative meaning of marma is used in several contexts. One context is that the marma points exist below the surface of the skin. Another context is in connection with keeping the teachings of marma secret until the person is ready for the information. A third context is that this valuable knowledge was known only by kings and warriors to be used judiciously in battle. Sushrut promulgated the science of marma, and he used it in surgery and healing wounds in warrior battles.

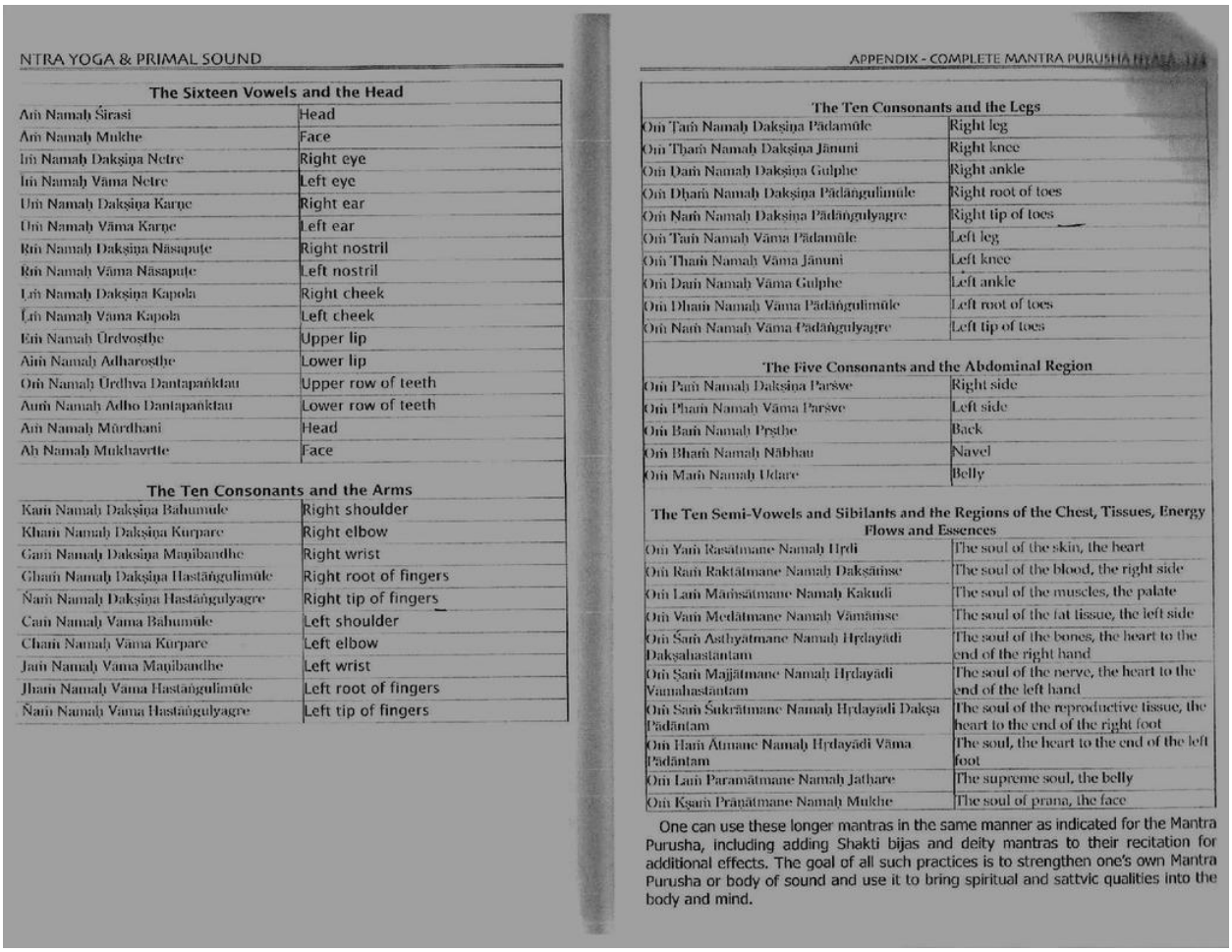
There are 108 marmas; 37 on the head and neck, 22 on the arms, 22 on the lower extremities, 14 on the back, 12 on the chest and stomach. The mind is the 108th marma point.

Mantra finds its origin in the Vedas and is derived from the word "man" which means mind, and "tra" which means tool. Therefore, mantra is a mind tool. ***Mantra is asana for the mind***. "Mantra puts the mind into a certain pose in which it can become a conduit for higher flow of energy and grace". It provides focus, strength, adaptability, and plasticity for the mind by forming new synaptic connections in the brain. Mantra works on many levels and has many purposes.
Mantra:

- Helps one to achieve health and well-being in the pursuit of life's 4 goals: dharma, artha, kama, and moksha,
- Helps one to overcome obstacles,
- Awakens the higher potential in the brain and changes the flow of energy or current in the nervous system,

- Induces higher states of consciousness,
- Helps one to become less vulnerable to external conditioning, external influences, reactive patterns, and samskaras.,
- Breaks up deep seated mental and emotional patterns, and trauma. In other words, it breaks up ama.
- Helps one to remove lower karmas, and bring in higher karmas,
- Creates a protective shield around the body,
- Attunes our bodies and minds to proper resonance coming from our deepest self,
- Has a unique energetic signature and works on a subtle plane by bringing about a specific effect on the mind,
- Lifts one above their personal limitations, and opens one up to their deeper potential. This makes mantra one of the best tools for psychological well-being and for shaping the nervous system.

Mantras are like herbs, they have gunas or particular energetic effects. The energetics of mantra can be deciphered from several factors: the sound factor, pranic factor, and mental factor. The sound factor acts upon the body, the pranic factor acts upon the prana vayus, and the mental factor acts upon the mind and heart.



NTRA YOGA & PRIMAL SOUND

The Sixteen Vowels and the Head	
Aṁ Namaḥ Śirasi	Head
Āṁ Namaḥ Mukhe	Face
Iṁ Namaḥ Dakṣiṇa Netre	Right eye
Īṁ Namaḥ Vāma Netre	Left eye
Uṁ Namaḥ Dakṣiṇa Karṇe	Right ear
Ūṁ Namaḥ Vāma Karṇe	Left ear
Ṛṁ Namaḥ Dakṣiṇa Nāsapuṭe	Right nostril
Ṝṁ Namaḥ Vāma Nāsapuṭe	Left nostril
Ḷṁ Namaḥ Dakṣiṇa Kapola	Right cheek
Ḹṁ Namaḥ Vāma Kapola	Left cheek
Eṁ Namaḥ Ūrdvoṣṭhe	Upper lip
Aiṁ Namaḥ Adhoṣṭhe	Lower lip
Oṁ Namaḥ Urdhva Dantapaṅktau	Upper row of teeth
Auṁ Namaḥ Adho Dantapaṅktau	Lower row of teeth
Aṁ Namaḥ Mūrdhani	Head
Aḥ Namaḥ Mukhavṛtte	Face

The Ten Consonants and the Arms	
Kaṁ Namaḥ Dakṣiṇa Bāhumule	Right shoulder
Khaṁ Namaḥ Dakṣiṇa Kurpare	Right elbow
Gaṁ Namaḥ Dakṣiṇa Maṇibandhe	Right wrist
Ghaṁ Namaḥ Dakṣiṇa Hastāṅgulimūle	Right root of fingers
Ṅaṁ Namaḥ Dakṣiṇa Hastāṅgulyagre	Right tip of fingers
Caṁ Namaḥ Vāma Bāhumule	Left shoulder
Chaṁ Namaḥ Vāma Kurpare	Left elbow
Jaṁ Namaḥ Vāma Maṇibandhe	Left wrist
Jhaṁ Namaḥ Vāma Hastāṅgulimūle	Left root of fingers
Ñaṁ Namaḥ Vāma Hastāṅgulyagre	Left tip of fingers

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The Ten Consonants and the Legs	
Oṁ Ṭaṁ Namaḥ Dakṣiṇa Pādamūle	Right leg
Oṁ Ṭhaṁ Namaḥ Dakṣiṇa Jānuni	Right knee
Oṁ Ḍaṁ Namaḥ Dakṣiṇa Gulphe	Right ankle
Oṁ Ḍhaṁ Namaḥ Dakṣiṇa Pādāṅgulimūle	Right root of toes
Oṁ Ṇaṁ Namaḥ Dakṣiṇa Pādāṅgulyagre	Right tip of toes
Oṁ Taṁ Namaḥ Vāma Pādamūle	Left leg
Oṁ Thaṁ Namaḥ Vāma Jānuni	Left knee
Oṁ Daṁ Namaḥ Vāma Gulphe	Left ankle
Oṁ Dhaṁ Namaḥ Vāma Pādāṅgulimūle	Left root of toes
Oṁ Naṁ Namaḥ Vāma Pādāṅgulyagre	Left tip of toes

The Five Consonants and the Abdominal Region	
Oṁ Paṁ Namaḥ Dakṣiṇa Pārśve	Right side
Oṁ Phaṁ Namaḥ Vāma Pārśve	Left side
Oṁ Baṁ Namaḥ Pṛṣṭhe	Back
Oṁ Bhaṁ Namaḥ Nābhau	Navel
Oṁ Maṁ Namaḥ Udare	Belly

The Ten Semi-Vowels and Sibilants and the Regions of the Chest, Tissues, Energy Flows and Essences	
Oṁ Yaṁ Rasātmane Namaḥ Hṛdi	The soul of the skin, the heart
Oṁ Raṁ Raktātmane Namaḥ Dakṣāṁse	The soul of the blood, the right side
Oṁ Laṁ Māṁsātmane Namaḥ Kakudi	The soul of the muscles, the palate
Oṁ Vaṁ Medātmane Namaḥ Vāmāṁse	The soul of the fat tissue, the left side
Oṁ Śaṁ Asthyātmane Namaḥ Hṛdayādi Dakṣahastāntam	The soul of the bones, the heart to the end of the right hand
Oṁ Ṣaṁ Majjātmane Namaḥ Hṛdayādi Vāmahastāntam	The soul of the nerve, the heart to the end of the left hand
Oṁ Saṁ Śukrātmane Namaḥ Hṛdayādi Dakṣa Pādāntam	The soul of the reproductive tissue, the heart to the end of the right foot
Oṁ Haṁ Ātmane Namaḥ Hṛdayādi Vāma Pādāntam	The soul, the heart to the end of the left foot
Oṁ Laṁ Paramātmane Namaḥ Jathare	The supreme soul, the belly
Oṁ Kṣaṁ Prāṇātmane Namaḥ Mukhe	The soul of prana, the face

One can use these longer mantras in the same manner as indicated for the Mantra Purusha, including adding Shakti bijas and deity mantras to their recitation for additional effects. The goal of all such practices is to strengthen one's own Mantra Purusha or body of sound and use it to bring spiritual and sattvic qualities into the body and mind.

Painful memories are stored as frequencies or sound patterns in our psyche. The liver stores unresolved anger, the gall bladder stores hatred, the kidneys store fear, the stomach and colon store nervousness, the lungs store grief and sadness, and the spleen stores attachments.

Mantras can be used in Ayurvedic preparations; they empower the herbs, foods, and therapies. Since water is a vehicle for prana and emotions, one could energize the water with mantra and then use the water to release and heal the negative experiences and painful memories, and uplift our inner rasa.

The Sanskrit language is the language of the angels. It is the only language that transmits meaning through sound. It is a vibrational language and therefore it can awaken Kundalini and transform us. The Sanskrit alphabet reflects prime powers of creation. The Sanskrit syllables are “Matrikas” or spiritual mothers of our being. They are the root forms of Shakti. There are 50 sounds and each sound relates to a place on the body or a marma. The 16 vowels relate to the head and senses, the first 20 consonants relate to the main joints on arms and legs, the last 5 consonants relate to the abdominal region, the 9 semi-vowels and sibilants relate to the tissues, mind, and soul.

There are also mappings of the language constituents to other facets of the universe. The vowels correspond to consciousness, spirit, Shiva or Purusha. Consonants relate to matter or nature or Shakti, or Prakriti. The sibilants and semi-vowels stand between vowels and consonants, between consciousness and matter.

There is even further mapping of the sounds. Gutturals symbolize pranic urges or impulses in life. Palatals connote emotional energy, and generative power. Cerebrals give stability and form to life. Dentals project force from our being. And labials express our energies to the outside world.

In order to turn the alphabet letters into mantras, an anusvara, or final “m” is added to each of the letters. For example, the letter “ai” becomes the mantra “aim”. This way the recitation of the alphabet becomes a mantra.

The Purusha mantra links marma and mantra; this mantra directs healing energy and higher prana to different places within us that need healing. Each of the 50 letters corresponds to a marma or body location. To awaken the Shakti in each Sanskrit alphabet mantra, one must recite it with deep feeling, awareness of a larger power, and with concentration of the mind and heart. The attached file contains the mantras and body parts chart. There is also a jpeg file associated with this paper that contains a more advanced version of the mantra. You can touch each area with your hands or with your mind, and recite the associated mantra. As you deepen the practice, the mantra begins to speak to you and teach you. You move from speaking the mantra to listening. Grace flows from the mantra when we are in the listening state and receptive to its Shakti. Sanskrit is the language of the angels. Practicing mantra in this way moves us to a state of listening to the angels.

As a final foot note there was an article in the NY Times about Einstein's theory. It explains how there were 2 black holes circling each other (Purusha and Prakriti) and then they finally merged and produced a sound or frequency that was recently measured by the LIGO apparatus in Louisiana. One could surmise that the 2 black holes were Purusha and Prakriti, and the sound produced was OM. OM is the prime mantra of the Atman, or Purusha. It is the seed mantra of all other mantras

Benefits of chanting mantras are as follows:

1. **Healing power of Mantras**: The vibrations induced by chanting of mantras stimulate the cells of specific organs, enhance blood circulation and improve gaseous exchange at the cellular level, thereby inducing vibrant health. The endocrine system gets stimulated and well-regulated by chanting specific mantras. A realignment of the individual's vibrations with those in nature has a wonderfully positive effect on the healing process.

2. **Enhancing the potential of the mind**: a mantra provides the mind with an anchor to focus upon. Regular practice brings about one-pointedness of the mind. The clutter in the mind reduces, focus improves, power of concentration gets enhanced, memory sharpens. Clarity of thought heightens, perspectives about situations become multi-dimensional, enhancing decision-making ability.

3. **Mantras quieten the mind:** Within our body, there exist various states of consciousness which vibrate at different frequencies (every cell of our physical body has a consciousness of its own). This leads to scattering of the pranic energy within. Regular practice of mantra chanting induces vibrations which are strong enough to override the smaller disturbances. As a result, the chanting creates a state where the individual's vibrations are completely in synch with those of the energy represented by the mantra. When all other disturbing vibrations are overcome, tranquility or silence sets in. this silence is pregnant with possibilities and one experiences BLISS, when the mind is transcended.

4. **Mantra chanting is a great stress-buster**: the vibrations induced have a soothing effect on the nervous system. The jangling nerve-endings, during times of stress, are the main cause of discomfort. Mantra chanting helps dissipate the excess electrical energy generated by the whirlpool of thoughts (2)

Benefits of specific chants:

- ***Mind Sound Resonance Technique:***

Mind Sound Resonance Technique (MSRT) is one of the advanced mindful relaxation yoga techniques developed by SVYASA, Bengaluru. This technique uses mantras/chanting to generate resonance, which mainly works on the Manomaya Kosha to induce deeper relaxation for both mind and body. This practice uses both OM chanting and Mahamrutyunjaya Mantra to accomplish physiological and psychological benefits.(3)

- ***AUM chant:***

The sound of AUM exerts their influence by means of vibrations. The different syllables have different vibration patterns which affect different parts of the body. Each syllable resonates with certain organ or

part of the body. For example, by chanting “aaaaaaaa” , one can feel the sensation and resonance of nervous system in the stomach and chest region. Chanting “ooooooo” creates sensations in throat and chest region and resonates with them. Similarly, chanting “mmmmm” resonates with the nasal cavity as well as brain region. When the mantra ‘AUM’ is chanted altogether, it sequentially activates the stomach, spinal cord, throat, nasal and brain regions. The energy moves from the abdomen all the way up to the brain, thereby channelizing energy and activating the spinal cord and brain. In this it activates all the Chakras present in the body and benefitted the body physically, mentally and spiritually. (4)

- ***Brahmari chant:***

Brahmari prnanyama is different from other pranayamas because in this pranayama, acoustic vibration is produced by humming sound along with the yogic body posture. The acoustic vibration might be responsible for the effect produced by Brahmari (by vibrating brain and whole head). In old literature, it has been mentioned that Brahmari is supposed to activate the third eye point, the philosophical eye of wisdom, as concentration is held here during Brahmari. The third eye point is related with pineal gland and has been described as the center of imagination, memory, concentration, intuition, deeper knowledge, and ability to visualize the things.(5)

Results from research:

- ***Research on MSRT:***

1. Yoga relaxation through MSRT adds significant complimentary benefits to conventional physiotherapy for CNP by *reducing pain, tenderness, disability and state anxiety and providing improved flexibility*.(3)

2. MSRT may have a potential role in *reducing state anxiety and enhancing psychomotor performance in patients suffering from generalized anxiety disorder* immediately after the practice. (6)

3. MSRT reduced the *heart rate, blood pressure and state anxiety* in hypertensive patients as compared to supine rest. (7)

4. The practice of MSRT facilitated a reduction in the levels of *stress, anxiety, fatigue, and psychological distress.* The relaxation technique also enhanced the *levels of self-esteem and quality of sleep* among female teachers working in primary schools. (8)

- ***Research on AUM chanting:***

1. OM chant produces vibration around ear, which stimulates auricular branch of vagus nerve. The neurohemodynamic correlates (functional MRI study) of ‘OM’ chanting indicate limbic deactivation. Similar observations have been recorded with vagus nerve stimulation treatment used in depression and epilepsy, thus there is potential role of this ‘OM’ chanting in clinical practice. (9)

2. OM chanting produces EEG changes in the form of significantly increase in theta power. This finding was similar to findings during a state of relaxation. (10)

3. A study of blood flow in the brain using functional near infrared spectroscopy (fNIRS) showed that meditation with OM increased cerebral oxygenation and enhanced performance, which was associated with activation of the prefrontal cortex. (11)

4. Bhramari pranayama and OM chanting for the duration of 10 min/day for the period of 6 days/week for 2 weeks produced significant improvement in lung functions such as peak expiratory flow (PEF), forced expiratory flow (FEF) and maximal voluntary ventilation (MVV) along with a significant reduction in weight in study group. (12)

Another study in mild to moderate bronchial asthma patients showed that breathing exercises (deep breathing, Brahmari, and Omkara anulom vilom,shashankasana, etc.) for 20 minutes twice daily for a period of 12 weeks produced significant improvement in symptoms and lung parameters (FEV1 and PEFR of patients) (13)

5. Chanting of OM produced immediate as well as sustained (after 6 weeks) effect on cardiovascular parameters (heart rate, blood pressure) of hypertensive and pre-hypertensive adults. (14,15)

6. The vibrations produced during the humming sound may help in the ventilation and drainage of the sinuses by dislodging the mucous and reducing mucosal edema. (16)

- ***Research on 'n' chanting (Brahmari):***

1. Brahmari Pranayama has been found to be effective in controlling blood pressure both high and low, reducing tension, bringing relaxation, improving condition of ear, throat, nose and sinus, reducing cerebral tension, hypertension, anxiety and in healing many other mental problems claimed by different subjects. (17). All studies directly or indirectly have found the effect of Bhramari to have parasympathetic predominance and this was the basis for their results derived, namely; reduction in heart rate and BP, reduction in response to cold pressor test, improvement in cognition, reduction in irritability in tinnitus, favorable EEG changes and reduction in stress levels.(18-20)

2. Integrating regular practice of Bhramari pranayama along with the conventional management of chronic rhinosinusitis is more effective than conventional management alone. (21)

Powerful videos

Chanting:
Mantras - How they came into being?
https://www.facebook.com/amiyogaglobal/videos/260517080949136/

AUM chanting:
1. The Hidden Science Behind "AUM" Chanting (Sadguru)
https://www.youtube.com/watch?v=T60J-R1VEkA&feature=youtu.be

2. Is there a science behind chanting the word OM? | Dr K K Aggarwal | Medtalks
https://www.youtube.com/watch?v=nr3_fvc2EfQ&feature=youtu.be

Brahmari
https://www.youtube.com/watch?v=onQiVRq8WLA (Not so great)

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Other resources

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https://www.soundoflife.com/blogs/places/sounding-off-on-spirituality-exploring-chanting-different-cultures

Grounding – by Chhaya

Being grounded refers to being fully present in our body and/or feeling connected to the earth.
In the current fast-paced style of living, people are frequently 'un-grounded' and have lost connect with themselves and their surroundings. Being 'un-grounded' can be observed in many forms- as easy distractibility, constantly over analyzing, being spaced out, engaging in personal dramatics, perpetually worrying, constantly desiring material possessions, being easily deceived, or being over concerned about one's personal image. It can also manifest as physical symptoms such as constant fatigue, poor sleep, chronic pain, poor concentration and inflammation. (1) Thus, it can affect mind, body as well as energy.

Grounding is connecting at both a physical and spiritual level. Thus, this connection/ harmony with the present can be achieved at annamay kosh, manomay kosh and pranamay kosh.

On a physical level, grounding involves practicing yoga asanas that facilitate this connection to Earth, including proper techniques to ensure a solid base, e.g.; making sure all points of the feet are connected to the earth.

On a spiritual level, it means tapping into the grounding energy of the earth (and the universe) which can be achieved through both asana practice and other yog techniques such as meditation, chanting mantras and pranayama breathing exercises. Balancing the *muladhara* (root) chakra also facilitates grounding and offers a sense of security and safety. (2)

Ways to become grounded both physically and spiritually can be: (3) (4)
1. Using our body:

- Feeling the sensation of being connected to the earth/floor by our feet while standing/sitting or while lying down.
- Doing yog asanas, like Tadasana, Vrksasana, Sukhasana, etc.
- Wiggling toes/fingers and feeling the stretch, the tension and relaxation in the muscles as one moves.
- Tapping with our toes and fingers and feeling the rhythm.
- Doing an activity that requires engaging your hands or whole body – gardening, washing dishes, playing with playdoh etc.

2. Noticing with 5 senses:
When practicing grounding techniques, people can focus on the five senses: sight, touch, hearing, taste, and smell. One useful grounding technique reported by people with bipolar disorder is the 5-4-3-2-1 technique. Some people suggest that this technique can help them through a panic attack. The technique uses the five senses. A person should search for five things they can see, search for four things they can touch, search for three things they can hear, search for two things they can smell and search for one thing they can taste

Other sensory grounding techniques may include smelling food or flowers, holding an object, such as a rock or a leaf, in the hands, listening to music or the noise of traffic outside.

3. Self-soothing:

- Doing an activity like bath/shower, making a cup of tea etc. and completing each step with attention and precision.
- Finding a grounding object and feeling it when in need of grounding.

4. Observing one's surroundings:

- Going outside and observing details of surroundings, describing objects that are noticed with attention to details or replicating patterns or details by drawing it.
- Going outside & walking barefoot if possible. Intentionally placing one's feet on the ground and feeling the earth's energy and connection with nature. Earthing, (which simply means taking a walk barefoot) can be done with intention, making it a walking meditation.

5. Journaling about our feelings- feelings about being 'grounded or in touch with our "roots" or core values.

6. Meditation and focusing on our breath.

Concept of grounding in day to day living and child development (4b)

The concept of "grounded" and its counterpart "ungrounded" comes from the Reichian and Bioenergetics era and lineage of body psychotherapy. Being grounded has a basic meaning of how our body-mind is connected to and safe in making contact with each part of the self and of the earth we literally stand on. An ungrounded person has some form of disconnect, split, or dissociation between one or more parts of the body with the rest of the body, or of the body to the earth, or of the mind to the body. The ability to "stay grounded" is then not such a simple state of being which we can each take for granted as being who we are. Just because we have a body and bio-mechanically stand on the ground it is not enough to assume that a person is grounded. The opposite is often true.

Many people in society are not present in their bodies and are not present in this immediate moment in time. They may be unresolved with their past and distract themselves via attention to old wounds, hurts, and issues. Likewise some other people are fantasizing about the future. This alternates between obsessing and thinking about the past and then drifting into future fantasies. Thus, people have a body, they walk on the ground, but they are ungrounded and not present much of the time.

Groundedness starts at birth when we are held and touched and loved by our mother and the wider tribe or family. Any lack of touch and of nurturance, coupled with abandonment creates a lack of safety in the infant and they start to retreat into their heads and become safe and uneasy. Such children fail to achieve secure attachment with their mother and as a result they lose their grounding through the

mother. We then must learn to crawl, stand and walk which all further develops the grounding of the infant to the earth and they learn to use their bodies to stand in their infantile power. As we individuate from our parents, we learn to stand our ground, find our boundaries and develop a self that includes our grounded natures.

A child traumatized in the early years or along its developmental path will show some wounding in the body (Annamay Kosh), the energy system (Prana), and the formation of defenses in the mind and the body (Manomay). Frozen states of musculature create blocks in energy flow and loss of grounding. Play is one of the key developmental tasks that fosters grounding in children and their resulting pleasure and acceptance of their bodies as part of their essential and healthy self; its lack has been linked to susceptibility to depression and lack of well-modulated social abilities.

Many children now play only in front of computers and on gaming consoles inside homes where the head and intellect dominate. The disconnection from the body (Annamaykosh) in our current society is becoming a dominant lifestyle through technology and sedentary habits, aided by real and imagined fears that the outside world of nature and community is unsafe and boring.

The environment can also affect and shape the outcome of childhood development. Studies have shown that we need to engage with our outside environment to remain in mental, physical, emotional and spiritual health. Some therapists now use nature walks with their clients to aid in the healing of such states as depression. The more recent multi high rise apartment living spaces creates an ungrounded environment from which to grow up in. The cultural value system of these countries is geared for heady intellectual achievement and minimizes bodily engaged practices like play and exploration. The key is the relationship to their bodies. The bodies lack identification in their ego and instead power, status and wealth become the dominant drivers of values in a person.

Wilhelm Reich and Alexander Lowen both predicted that if as a society we abandoned our bodies and lived in our heads that distress, disease and ungrounded states of energetic being would result. Body psychotherapy notes that engagement of one’s own body on a daily basis is an essential foundational basis for health.

Our body senses play a key role in the process of learning and take in information that is beyond intellect but yet still information and stimulus that shapes the gene-based transcription function. A key time in life is the early infanthood where our brain and bodies are forming and evolving into their adaptive stance and expression in life. Here the body is the vehicle of learning and experience. In our early years we all need plenty of touching, being held, mirroring and modelling by those around us. In some traditional cultures this somatic or body-based contact and stimulation means that the child may literally never touch the earth or ground until their second or third birthday. The family is the source of grounding long before it becomes that of mother earth.

Such children learn they can trust others to hold them and support them when need be. They in turn then emotionally feel "sure of the ground they stand on" in terms of their own place in the world as being safe, secure and supportive.

Thus, a grounded state involves and engages both our body (Anamaykosh) and our energy systems (prana) which allows for present time awareness to occur. A person achieves psychological health (manomaykosh) when not living in the past or fantasizing about the future. Such a person is self-aware, relaxed, embodied and able then to describe their own reality with clarity and able to play, explore, socialize safely from a potential place of pleasure.

Yogic mechanism:

The Earth's energy carries tremendous negative charge and is an abundant supply of antioxidant and free-radical-busting electrons. During the normal process of metabolism, the body generates reactive oxygen species called free radicals. These free radicals attack and destroy foreign elements within the body, such as bacteria and viruses, however their excess is detrimental to health. Excess free radicals trigger chronic inflammation, chronic pain, atrophy of muscles and joints, and chronic diseases, including heart disease and type 2 diabetes, and neurodegeneration. In short, while it is good to have free radicals, the excess needs to be removed from the body.

One way to neutralize the free radicals is by getting grounded or earthed. There's a constant flow of energy between the body and the earth and when we put our feet on the ground, large amounts of negative electrons are absorbed, and they neutralize of the free radicals, thus limiting their damage to the body systems. (5)

Research on grounding:

1. Reduction of inflammation: A randomized, double-Blind, pilot study of one-hour contact with the Earth's Surface (Grounding) showed improvement in inflammation and blood flow by use of thermal imaging. The results of this study demonstrate that even one-hour contact with the Earth appears to promote significantly autonomic nervous system control of body fluids and peripheral blood flow that may improve blood circulation in the torso and face, facial tissue repair, skin health and vitality and optimize facial appearance. (6)

2. A study on the biologic effects of grounding during sleep showed quantifiable changes in diurnal or circadian cortisol secretion levels which produced changes in sleep, pain, and stress (anxiety, depression, and irritability), as measured by subjective reporting. (7)

3. A study on the effects of grounding on pain and the immune response to injury employed delayed-onset muscle soreness (DOMS) which is the muscular pain and stiffness that takes place hours to days after strenuous and unfamiliar exercise. The grounded subjects experienced less pain, and could tolerate a higher pressure from a blood pressure cuff inflated to produce discomfort. Grounding reduced pain and altered the numbers of circulating neutrophils and lymphocytes, and affected various circulating chemical factors related to inflammation. (8)

4. A study on the effect of grounding on mood showed that one-hour contact with the Earth improved mood more than expected by relaxation alone. (9)

5. Another study showed that grounding increased the surface charge on RBCs and thereby reduced blood viscosity and clumping. It was presented as a simple but profound intervention for helping reduce cardiovascular risk and cardiovascular events. (10)

6. In a study of grounded subjects, there were improvements in heart rate variability (HRV) that were beyond basic relaxation. Since improved HRV has positive impact on cardiovascular status, it was suggested that simple grounding techniques be utilized as a basic integrative strategy in supporting the cardiovascular system, especially under situations of heightened autonomic tone (ie, when the sympathetic nervous system is more activated than the parasympathetic nervous system. (11)

Thus, effects of grounding on body, mind, and energy from literature on research can be summarized as

- **Effect on body-** reduction of inflammation, reduction of chronic pain, reduced viscosity (thickness) of blood, improved circulation and thus reducing cardiovascular risks, reduced pain, parasympathetic tone (6)(8)(10)(11)
- **Effect on mind-** improvement in pain, stress (anxiety, depression, and irritability) (7)
- **Effect on energy-** improved mood, improved sleep (7)(9)

Video Links:

1. The Earthing Movie: The Remarkable Science of Grounding (full documentary): https://www.youtube.com/watch?v=44ddtR0XDVU

2. Earthing & Grounding: Science & Benefits (15 min documentary)
https://www.youtube.com/watch?v=Gw05a1Zgc5w

3. The Surprising Health & Healing Benefits of Grounding (Earthing)! Clint Ober (5 min)
https://www.youtube.com/watch?v=dwWoE9IBQQ8

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3. Six Different Types of Grounding Exercises for Anxiety & Intense Emotions http://www.tothegrowlery.com/blog/2017/4/18/six-different-types-of-grounding-exercises-for-anxiety-intense-emotions

4. Grounding techniques:
    - Step-by-step guide and methods. https://www.medicalnewstoday.com/articles/grounding-techniques#methods
    - Grounding the Body to be in Present Time. https://www.energeticsinstitute.com.au/articles/grounding-body/

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- C. Ober, S. T. Sinatra, and M. Zucker, *Earthing: The Most Important Health Discovery Ever?*Basic Health Publications, Laguna Beach, Calif, USA, 2010. (BOOK)

Pranayama – by Sandip

Mechanism of action on body/energy (yogic)

Praan is distributed throughout the whole body, through the network of the Nadis (nerves). There are 72,000 Nadis in the human body [1]. Of these, there are three Nadis of particular importance. IDA, the "Moon System", correlates with the left nostril and the Parasympathetic Nervous System. PINGALA, the "Sun System", correlates with the right nostril and the Sympathetic Nervous System. SUSHUMNA, the "Central Nadi", penetrates the spinal column and correlates with the Central Nervous System. The practice of Asanas and Pranayamas, harmonise the Ida and Pingala Nadis and has a purifying, strengthening and balancing effect upon the energy flow in all 72,000 Nadis. Praanaayaam and Meditation practice enhance energy flow in the Sushumna Nadi. When spiritual energy begins to flow in the Sushumna certain brain centers and Chakras are activated, creating a development and expansion of our consciousness to higher spiritual levels. **Praan itself is totally pure and neutral, just as the spring water of a river is clear and clean. In its course, the river picks up many substances which change the quality of the water.** Exactly the same occurs with Prana. Praan flows into the body clean and pure, but how it departs depends upon the individual - on their lifestyle, their inner qualities and feelings, the type of food consumed and the environment and company in which one lives. **The quality of the Praan that radiates from people impacts on both the surrounding environment and the individuals themselves**.

Pranas: 10 types and what they impact

Praan is divided into ten main functions [1]:

The five Pranas - Prana, Apana, Udana, Vyana and Samana.

The five Upa-Pranas - Naga, Kurma, Devadatta, Krikala and Dhananjaya.

<u>The Five Pranas</u>

1. **PRANA**

Praan is that special function of the Cosmic Prana, which supplies the human body with essential oxygen. Its energy flows from the nostrils to the level of the heart.

Clean air is vital for health however, on its own air, is not the decisive factor in good health. Some people are prone to illness, even though they are frequently out in the fresh air. On the other hand, people who live in rooms or suburbs with relatively poor air quality remain healthy. Our health is not influenced by external factors only. Health is also governed by our inner condition, by the power of resistance and the inner will - Atmabala - the inner vitality. When Atmabala is strong within, external forces can barely harm us. The practice of "Yoga in Daily Life" strengthens our vitality. Certain techniques in particular activate Praan Shakti, these are Bhastrika, Nadi Shodhana and Ujjayi Pranayama.

2. APANA

Apana Praan influences the lower part of the body from the navel to the soles of the feet. This Praan regulates the elimination process. Diseases that affect the lower abdomen, intestines, kidneys, urinary tract, legs, etc., are the result of disturbed Apana Prana. The techniques of Nauli, Agnisara Kriya, Ashvini Mudra and Mula Bandha serve to strengthen and purify Apana Prana.

3. VYANA

Vyana Praan flows through the nerve channels of the human body. It has an effect upon the whole body and particularly on the Nadis. Poor circulation, impaired nerve stimulation and nervous breakdowns, originate from a deficiency in Vyana Prana. Vyana Praan is activated and strengthened in the practice of Kumbhaka (breath retention). With each natural, relaxed breath that we take, there is an automatic pause between inhalation and exhalation. In the practice of Pranayama, this pause is consciously lengthened. When we retain the breath, we withhold energy in the body with a resultant build up in pressure. This pressure has the effect of releasing energy blockages. Kumbhaka stimulates the nervous system. Anyone who has combined the techniques of Kumbhaka and Maha Bandha, knows the subsequent, pleasant sensation of peace that flows through the body. This is the reason for being able to meditate well after this practice. The feeling is produced by the increased flow of Vyana Praan throughout the whole body. It is highly recommended to perform the following breath exercise several times a day. Inhale deeply and exhale once Again inhale and hold the breath for as long as comfortable (counting to 20, 30, etc.) Exhale and hold the breath again for a while Repeat this exercise 4-5 times. The benefit of this simple breath exercise is quickly noticed and our nerves are truly grateful.

4. UDANA

Udana Praan is the ascending energy that flows from the heart to the head and brain. Udana Praan accompanies the awakening of the Kundalini Shakti. It is with the assistance of Udana Praan that the Astral body separates itself from the physical body. A strong Udana Praan eases the phase of death. With the control of Udana Prana, the body becomes very light and one may gain the ability to levitate. When Udana Praan is in our control, external obstacles such as water, earth or stones no longer obstruct us. Intense practice of the Yoga breath exercises also gives the possibility of walking on water, or even floating in the air. Fakirs who sit or lie on a bed of nails possess the ability to control their Udana Prana. Yogis who live in the forest and remain unaffected by heat, cold, thorns and insects, etc., are protected through the control of Udana Prana. Udana Praan is activated by the practice of Ujjayi Pranayama, Bhramari Pranayama, as well as Viparitakarani Mudra. Bhramari Praanaayaam Technique

Close the ears with the fingers and inhale. While exhaling through the nose, hum like a bumble-bee (the mouth remains closed). After about 5-7 breaths sit motionless and breathe normally with the ears still closed. Concentrate on your inner space and listen to the inner sound. This exercise will calm the nerves and thoughts, promote concentration and bring you into contact with your Self.

5. **SAMANA**

Samana is a very important Praan that connects two main Chakras - Anahata and Manipura Chakras.

Samana Praan distributes the energy of nutrition throughout the human body. We are aware that food not only influences our physical body, but also affects our psyche and consciousness. The quality of our Praan (all types of Prana), is directly associated with the quality of our food. Pure, sattvic, vegetarian food and the practice of Pranaya ma will provide a healthy and balanced body for life. Samana Praan has an influence on the Manipura Chakra, whose corresponding element is fire. When Yogis are able to control Samana Praan it is a pure flame within them. Those in whom Samana Praan is completely pure are surrounded by a radiant aura, which is even noticeable by those who do not have the ability to see auras. This Praan is strengthened through the practice of Agnisara Kriya and Nauli. The practice of these two Kriyas prevents digestive problems and Diabetes. It also improves one's resistance to infectious disease and cancer, due to the digestive fire that is awakened in the whole body, which purifies and cleans. The most effective technique for awakening Samana Praan is Kriya Yoga. The practice of Kriya Yoga warms the entire body. This is due to the rising of Samana Prana. A very aware person can observe the aura of a Kriya practitioner becoming brighter and stronger with each round of practice.

<u>The Five Upa-Pranas</u>

The five Upa-Pranas regulate important functions in the human body.

1. **NAGA - Burping**

Removes blockages of Praan and Apana and prevents gas formation in the digestive system. Constant suppression of Naga can lead to Cardiac Arrhythmia. Other functions include triggering of the vomit reflex due to indigestion and dissolving blockages of Samana Prana.

2. **KURMA - Blinking**

This Upa-Praan functions in the area of the eyes, controlling opening and closing of the eyelids. The energy of this Upa-Praan is active when we are awake and is revitalised when we sleep. Kurma protects the eyes from the penetration of dust and foreign bodies etc. Disturbance of this Upa-Praan causes uncontrolled blinking and twitching of the eyelids. The practice of Trataka provides balance and strength to Kurma, as does the chanting of OM, placing warm palms over the eyes and Asanas where the head is bent forward.

3. **DEVADATTA - Yawning**

The function of Devadatta is similar to that of Samana Prana. Yawning expels gas, reducing tiredness after eating. Certain foods such as grains, onions and garlic cause fatigue. Many Yogis only eat vegetables and some milk products in order to sustain their level of vitality and thereby reduce lethargy.

4. **KRIKALA - Sneezing**

Clears blockages in the respiratory system. Sneezing can also ease headache as it releases energy blockages in the head and neck. A sneeze should not be suppressed, as this may affect vertebrae in the cervical spine. In folk tales it is said that he who sneezes loudly and strongly, has a long life. Weak sneezes indicate weak vitality.

5. DHANANJAYA - Opening and Closing of Heart Valves

Dhananjaya resides close to the Heart. It influences the whole body and in particular the muscles of the heart by opening and closing the heart valves. Cardiac Arrhythmia and even Heart Attack may occur due to a serious disturbance of Dhananjaya.

Research paper 1: Health Impacts of Yoga and Pranayama: A State-of-the-Art Review [2]

Hypertension

It is well known that many antihypertensive agents have been associated with numerous undesirable side effects. In addition to medication, moderately intense aerobic exercise is well known to lower blood pressure. Interestingly, it has been very convincingly demonstrated in a randomized controlled study that even a short period of regular yogic practice at 1 h/day is as effective as medical therapy in controlling blood pressure in hypertensive subjects.[32] Yoga, together with relaxation, biofeedback, transcendental meditation, and psychotherapy, has been found to have a convincing antihypertensive effect.[33] The mechanism of yoga-induced blood pressure reduction may be attributed to its beneficial effects on the autonomic neurological function [Figure 1]. Impaired baroreflex sensitivity has been increasingly postulated to be one of the major causative factors of essential hypertension.[20] The practice of yogic postures has been shown to restore baroreflex sensitivity. Yogic asanas that are equivalent to head-up or head-down tilt were discovered to be particularly beneficial in this regard. Tests proved a progressive attenuation of sympatho-adrenal and renin-angiotensin activity with yogic practice. Yogic practice, through the restoration of baroreceptor sensitivity, caused a significant reduction in the blood pressure of patients who participated in yoga exercise.[20,34] Yoga has proven efficacy in managing secondary cardiac complications due to chronic hypertension. Left ventricular hypertrophy secondary to chronic hypertension is a harbinger of many chronic cardiac complications, such as myocardial ischemia, congestive cardiac failure, and impairment of diastolic function. Cardiovascular response to head-down-body-up postural exercise (*Sarvangasana*) has been shown to be particularly beneficial in preventing and treating hypertension-associated left ventricular hypertrophy and diastolic dysfunction. **In one study, the practice of sarvangasana for 2 weeks caused resting heart rate and left ventricular end diastolic volume to reduce significantly**. In addition, there was mild regression of left ventricular mass as recorded in echocardiography.[35]

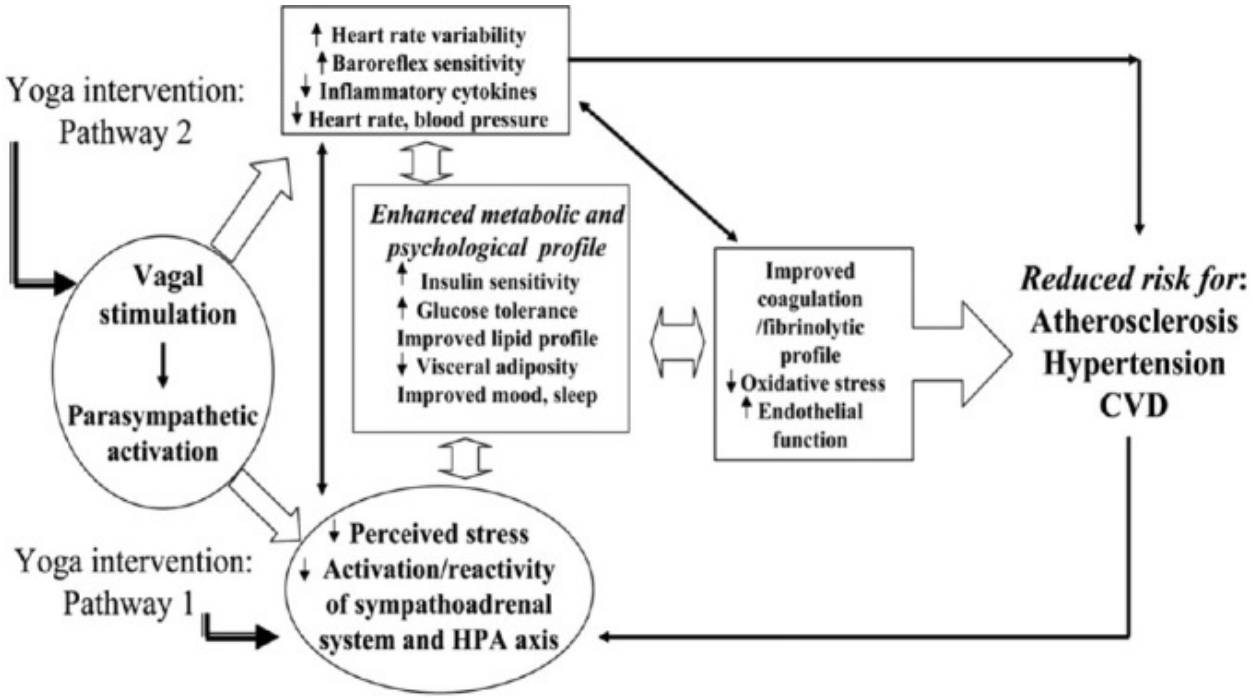

Figure 2 Hypothesized pathways by which yoga intervention may enhance cardiovascular risk profile

Stress and anxiety

Since the 1970s, meditation and other stress-reduction techniques have been studied as possible treatments for depression and anxiety. One such practice, yoga, has received less attention in the medica literature though it has become increasingly popular in recent decades. Available reviews of a wide range of yoga practices suggest they can reduce the impact of exaggerated stress responses and may be helpful for both anxiety and depression. It mainly acts via down-regulating the HPA axis that trigger as a response to a physical or psychological demand (stressor) [Figure 2], leading to a cascade of physiological, behavioral, and psychological effects, primarily as a result of the release of cortisol and catecholamines (epinephrine and norepinephrine).[59] This response leads to the mobilization of energy needed to combat the stressor through the classic “fight or flight” syndrome. Over time, the constant state of hypervigilance resulting from repeated firing of the HPA axis can lead to deregulation of the system and ultimately diseases such as obesity, diabetes, autoimmune disorders, depression, substance abuse, and cardiovascular disease.[60,61]

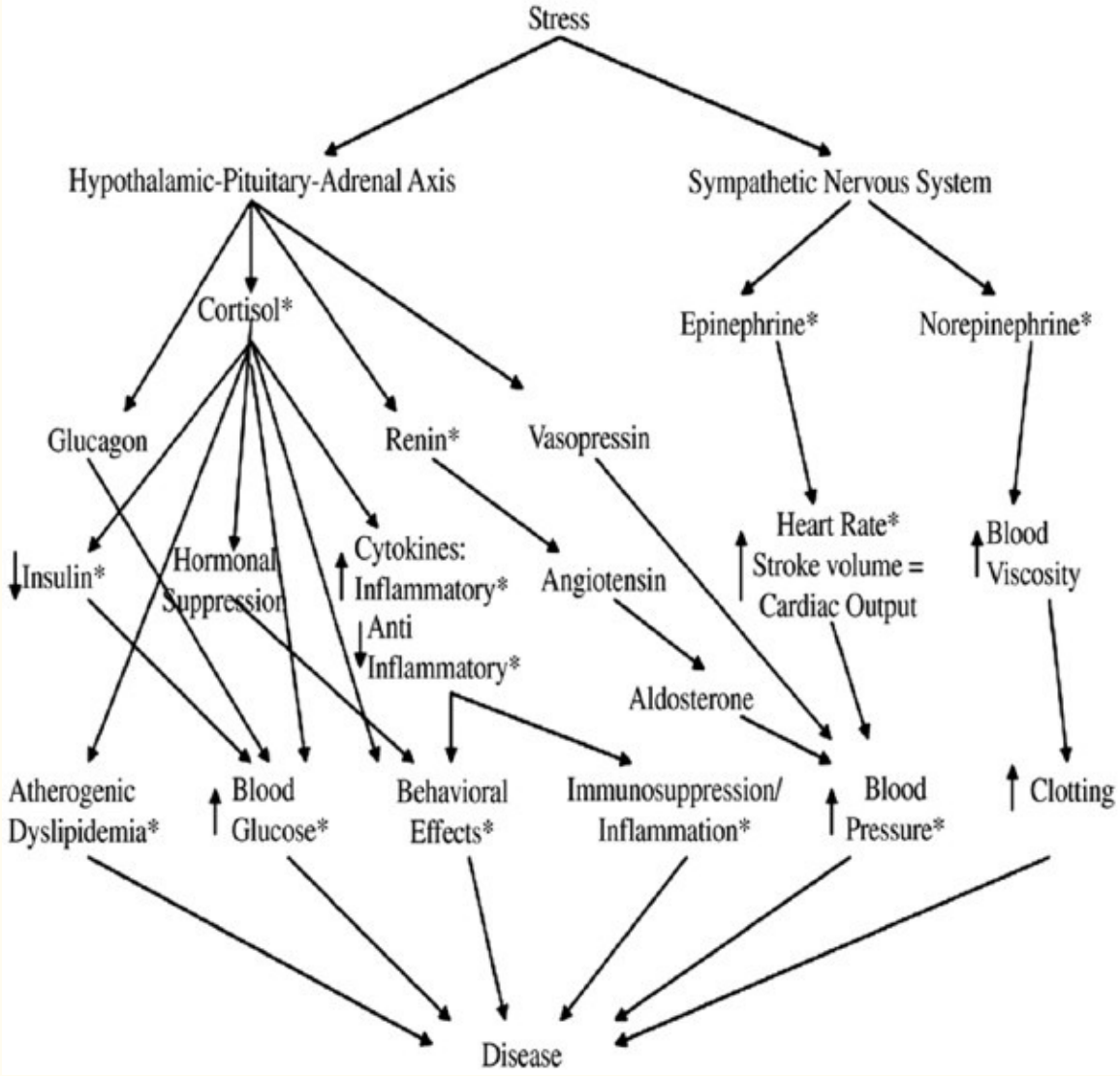

Figure 3 The impact of stress on the hypothalamic–pituitary–adrenal (HPA) axis and the sympathetic nervous system. *Yoga has been shown to have significant beneficial effects in these items

In this respect, yoga functions like other self-soothing techniques, such as meditation, relaxation, and exercise. By reducing perceived stress and anxiety, yoga appears to modulate stress response systems. This, in turn decreases physiological arousal e.g., reducing the heart rate, lowering blood pressure, and easing respiration. **There is also evidence that yoga practices help increase heart rate variability, an indicator of the body's ability to respond to stress more flexibly.** A small but intriguing study further characterizes the effect of yoga on the stress response. **In 2008, researchers at the University of Utah showed that among control subjects and yoga practitioners, by functional MRIs, that yoga practitioner had the highest pain tolerance and lowest pain-related brain activity during the MRI. The study underscores the value of techniques, such as yoga, that can help a person regulate their stress and, therefore, pain responses.[62]** Tooley *et al*.[63] found significantly higher plasma melatonin levels in experienced mediators in the period immediately following meditation compared with the same period at the same time on a control night. It was concluded that meditation can affect plasma melatonin levels.

It remains to be determined whether this is achieved through decreased hepatic metabolism of the hormone or via a direct effect on pineal physiology. Either way, facilitation of higher physiological melatonin levels at appropriate times of day might be one avenue through which the claimed health promoting effects of meditation occur. In another study, Harinath *et al*.[64] evaluated the effects of 3 month hatha yoga practice and Omkar meditation on melatonin secretion in healthy subjects. Yoga group subjects practiced selected yogic asanas for 45 min and praanaayaam for 15 min during the morning, whereas during the evening hours these subjects performed preparatory yogic postures for 15 min, praanaayaam for 15 min, and meditation for 30 min daily for 3 months. Results showed that yoga practice for 3 months resulted in an improvement in cardiorespiratory performance and psychological profile. The plasma melatonin also showed an increase after 3 months of yogic practice. Also, the maximum night time melatonin levels in the yoga group showed a significant correlation with well-being score. These observations suggest that yogic practices can be used as psychophysiologic stimuli to increase endogenous secretion of melatonin, which, in turn, might be responsible for improved sense of well-being. **In some other studies, it has been found that subjects trained in yoga can achieve a state of deep psychosomatic relaxation associated with highly significant decrease in oxygen consumption within 5 min of practicing *savitri praanaayaam* (a slow, rhythmic and deep breathing) and *shavasana*.**[65]

Cancer

Earlier reviews have reported that yoga is beneficial for people with cancer in managing symptoms such as fatigue, insomnia, mood disturbances and stress, and improving quality of life.[67] However, until now the size of the effect has not been quantified. But in some studies, it is found that yoga may have positive effects on psychological health of cancer patients [Figure 3]. Many cancer patients experience cancer-related psychological symptoms, including mood disturbances, stress, and distress.[67] Ledesma and Kumano[68] showed mindfulness-based stress reduction programs may indeed be helpful for the mental health of cancer patients. Thus, yoga may have long-term psychological effects for patients with cancer. According to the some review,[30] no significant differences were observed on the measure of physical health. Because of the limited number of studies and different measurement tools, the effects of yoga on physical health in people with cancer remain unclear. Only one study[69] examined the effects of yoga on physical fitness; therefore, future study could include outcome measures that not only include subjective feelings in questionnaires but also include physical performance, physical strength, endurance, and flexibility. All studies included in the meta-analysis investigated participants with a diagnosis of cancer; however, the types of cancer varied among studies. Of the 10 included studies, 7 investigated breast cancer, 2 recruited mixed cancer populations, and 1 included patients with lymphoma. The result of Cohen's study on lymphoma[70] showed no significant differences between groups in terms of anxiety, depression, distress, or fatigue; thus, it has little influence on our result. Therefore, since the majority of studies focused on breast cancer, future research needs to examine the use of yoga among male cancer patients and female non-breast cancer patients. In addition, various factors are associated with the execution of the intervention such as yoga styles and treatment doses that may influence effect size. Four different styles of yoga were used among the included studies: restorative, integrated, hatha, and Tibetan. Treatment dose, including duration and frequency, and the adherence to yoga intervention and home practice may also affect treatment outcome. According to the Carson's study of yoga for women with

metastatic breast cancer,[71] patients who practiced yoga longer on a given day were much more likely to experience less pain and fatigue and greater invigoration, acceptance, and relaxation on the next day. In summary, most of the studies show potential benefits of yoga for people with cancer in improvements in psychological health. But more attention must be paid to the physical effects of yoga and the methodological quality of future research, as well as to improve these areas in the future.

2. Results from Research (modern)

Research paper of Pranayam effect on cardiovascular parameters

Effect of fast and slow praanaayaam on perceived stress and cardiovascular parameters in young health-care students

Vivek Kumar Sharma, Madanmohan Trakroo, Velkumary Subramaniam, Rajajeyakumar M, Anand B Bhavanani, Ajit Sahai [3]:

Materials and Methods:

Present study was carried out in Departments of Physiology and Advanced Centre for Yoga Therapy Education and Research, JIPMER, Pondicherry. Ninety subjects (age 18-25 years) were randomized to fast praanaayaam (Group 1), slow praanaayaam (Group 2) and control group (Group 3). Group 1 subjects practiced Kapalabhati, Bhastrika and Kukkuriya Praanaayaam while Group 2 subjects practiced Nadishodhana, Savitri and Pranav Paranayama. Supervised

praanaayaam training was given for 30 min, 3 times a week for the duration of 12 weeks to Groups 1 and 2 subjects by certified yoga trainer. Following parameters were recorded at the baseline and after 12 weeks of training; perceived stress scale (PSS), heart rate (HR), respiratory rate, systolic blood pressure and diastolic blood pressure (DBP), mean arterial pressure (MAP), rate pressure product (RPP), and double product (Do P).

Results: There was a significant decrease in PSS scores in both Group 1 and Group 2 subjects but percentage decrease was comparable in these groups. Significant decrease in HR, DBP, RPP, and Do was seen in only Group 2 subjects.

Conclusion:

This study demonstrates that both types of praanaayaam practice are beneficial in reducing PSS in the healthy subjects but beneficial effect on cardiovascular parameters occurred only after practicing slow pranayama

Anulom - Vilom Research work:

Breathing through a particular nostril can alter metabolism and autonomic activities [4]

These practices were carried out as 27 respiratory cycles, repeated 4 times a day for one month. Parameters were assessed at the beginning and end of the month, but not during the practice. The 'right nostril pranayama' group showed a significant increase, of 37% in baseline oxygen consumption. The 'alternate nostril' praanaayaam group showed an 18% increase, and the left nostril praanaayaam group also showed an increase, of 24%. This increase in metabolism could be due to increased sympathetic discharge to the adrenal medulla. The 'left nostril Pranayama' group showed an increase in volar galvanic skin resistance, interpreted as a reduction in sympathetic nervous system activity supplying the sweat glands. These results suggest that **breathing selectively through either nostril could have a marked activating effect or a relaxing effect on the sympathetic nervous system**. The therapeutic implications of being able to alter metabolism by changing the breathing pattern have been mentioned.

3. Powerful videos

Videos from Art of Living:
https://www.artofliving.org/us-en/yoga/breathing-techniques/yoga-and-pranayama

Videos from Patanjali:
https://www.youtube.com/watch?v=7S1CecDFavg

Yoga at Home: 15 Types of Praanaayaam - The World Of Yoga
https://www.youtube.com/watch?v=SEszGjI_T60

4. Alumni case study

Bharamari Pranayam Research: Powerpoint Presentation attached.

5. Useful sites:

General information about Yog and benefits / techniques.
https://www.academia.edu/42802382/Enhancing_self-care_through_Yoga_during_COVID19

Information about importance of breathing:
https://www.scientificamerican.com/article/proper-breathing-brings-better-health/

6. References:

[1] Prana: Yog In Daily Life, Link: https://www.yogaindailylife.org/system/en/the-spiritual-background/prana

[2] Health Impacts of Yoga and Pranayama: A State-of-the-Art Review Pallav Sengupta, Link: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3415184/

[3] Effect of fast and slow praanaayaam on perceived stress and cardiovascular parameters in young health-care students, Vivek Kumar Sharma, Madanmohan Trakroo, Velkumary Subramaniam, Rajajeyakumar M, Anand B Bhavanani, Ajit Sahai, Link:

https://www.academia.edu/42648113/Effect_of_fast_and_slow_pranayama_on_perceived_stress_and_cardiovascular_parameters_in_young_health-care_students

[4] Breathing through a particular nostril can alter metabolism and autonomic activities

S Telles, R Nagarathna, H R Nagendra, Link: https://pubmed.ncbi.nlm.nih.gov/8063359/

Sukshma Vyayaam – by Sujata

In Yoga, it is said that most pranic blockages start in our joints that is why Sukshma Vyayama is done to release any such impurities. Even Ayurveda says that 'Ama' or the toxic and undigested waste material tends to settle in the empty spaces of our body – the joints. Physically they provide us with mobility by connecting two bones, allowing us to move rather than be stiff like a log of wood. However, if the joint was comprised of just the bones then it would soon deteriorate due to friction and erosion. That is why the joint is supported by tissues like cartilage and synovial fluid which help prevent grating of bones against each other. If this cartilage depletes due to age, injury or wear and tear then we start getting issues like joint pain and arthritis. There are many factors that contribute towards keeping our joints healthy, like, nutrition, balanced exercise routine, good posture, stress management etc.

Sukshma Vyayama is a specific ancient technique of yogic postures and dynamic movements which was introduced by Swami Dhirendra Brahmachari. His complete book on Sukshma Vyayama is available for public access on Archive.org (1.1). A video of all sukshma vyayama techniques as performed by him is also available on youtube (in Powerful Videos). These are interesting resources if you'd like to go deeper into his techniques. Yogic sukshma vyayama techniques are supposed to be extremely powerful as they activate the subtle pranic body. Their benefits range from developing memory, intellect, willpower and sharpening the senses). That is why many of these exercises are performed prior to meditation and even Asana practice is not considered necessary if we're doing these. However, care should be taken if there is any underlying injury and any physical practice should be started in consultation with your doctor.

1. Art of Living – Sukshma Yoga

The differentiating quality of these yoga for relaxation techniques is that they are simple, short and subtle.

Sukshma Yoga takes no time or preparation. These little exercises open up subtle energy channels and, in a session, as short as 7 minutes, you can feel a highly palpable difference.

As you practice these techniques, you begin to understand what impact each stretch has on your mind. Each little movement or activity releases some stress and you can slowly start comprehending the mechanism of prana (energy) movement within yourself. This knowledge can only be gained by practice and experience, not by reading. You will find yourself in a zone where your body-mind coordination is effortless and precise.

2. Isha Foundation – Upa Yoga

Upa Yoga is a simple yet powerful set of 10 practices that activate the joints, muscles and energy system, bringing ease to the whole system. Based on a sophisticated understanding of the body's mechanics, Upa Yoga dispels inertia in the body's energy and brings ease to the whole system.

Within the human system, the energy flows along 72,000 pathways called nadis. At the joints, the nadis meet and form nodes, making the joints storehouses of energy. Upa Yoga activates this energy and also lubricates the joints, creating an instant sense of alertness and liveliness. Upa Yoga essentially means "sub-yoga" or "pre-yoga". Because of its many immediate and evident benefits, the word Upa Yoga in Indian languages is commonly used to denote "usefulness." It is a good starting point for those who are new to yoga, and it can be used as a preparation for other yoga practices.

Based on a sophisticated understanding of the body's mechanics, its benefits include:

- Relieves physical stress and tiredness
- Strengthens the joints and muscles
- Rejuvenates the body after periods of inactivity
- Negates the effects of jetlag and long travel

3. Benefits of Joint Exercise in the Practice of Classical Yoga

In a classical yoga session, the preparation of the body and mind begins with the joint exercise or simply known as the Pawanmuktasana series in Sanskrit. This series consists of extremely non-challenging postures, but they should be done with awareness due to its innate characteristics.

From the etymological point of view, the word - pawanmuktasana denotes three aspects which are pawana, mukta and asana. While pawana refers to wind or vital breath, mukta and asana refer to the release and the pose respectively. Simply put, the Pawanmuktasana series or the joint exercise connotes the freeing of wind through a series of asanas. The freeing of the wind helps eliminate blockages which may obstruct the free flow of energy in the entire body and mind. Swami Satyananda Saraswati from the Bihar School of Yoga classified this series of asanas into three distinct groups namely anti-rheumatic, digestive or abdominal, and shakti bandha (energy locks) [2]. While the anti-rheumatic group of asanas help loosen the joints of the body, the digestive and shakti bandha groups of asanas help strengthen the digestive system and improve the energy flow within the body respectively.

It is strongly recommended that a yoga class or session begin with the pawanmuktasana series. It has been established that consistent practice of the three groups of asanas in this series over a duration of a couple of months will bring about not only profound relaxation, but also toning of the entire psycho-physiological structure. While working through these joint movements, one should be mindful of each and every asana performed. Performing the asanas quickly without awareness may be futile or it may bring about more harm than good. The crucial aspect here is to move with the breath and to breathe with awareness.

4. Additional (beyond current scope)

Integrated Approach to Yoga Therapy (IAYT) model developed by S-VYASA

The integrated approach to yoga therapy (IAYT) model developed by Swami Vivekananda Yoga Anusandhana Samasthana (S-VYASA) is based on the principle that "the root of all psychosocial illnesses is in the mind; which causes an internal imbalance due to long standing stressful and demanding

situations of life." Intense surges of uncontrolled excessive speed of responses to these demanding situations at an emotional level (Manomaya Kosa), conflicts between value systems (Vijnanamaya Kosha), and strong likes and dislikes at the psychological level (Manomaya Kosa) are responsible for imbalances at gross levels (Pranamaya and Annamaya Kosas). IAYT slows down the loop of uncontrolled speed of thoughts (stress) through several techniques that use the principle of "successive stimulations followed by progressive relaxation and the rest" to correct the imbalances, promote "mastery over the mind" and harmonize the disturbances at each of the five levels (Pancha Kosa).

5. Others (initial pointers)

The 3 bodies are:

Gross Body (Sthula Sharira)

Subtle Body (Sukshma Sharira)

Causal Body (Karana Sharira)

Shareer Sanchalan

Powerful Videos:

1. **Sukshma Vyayama by Swami Dhirendra Bhramachari**
   https://youtu.be/-gZpf_FGj8o
2. **Isha Upa Yoga Practices**
   https://www.youtube.com/watch?v=Jf5qUhz-FVk
3. **Art of Living Sukshma Vyayama**
   https://www.youtube.com/watch?v=RyFEOPp1BUY

References:

1 https://yoganama.com/activating-the-joints-with-yogic-sukshma-vyayama/

1.1 https://archive.org/details/HindiBook-yogic-sukshma-vyayam-dhirendra-brahmchari-hi

2 https://www.artofliving.org/in-en/yoga/off-yoga-mat/sukshma-yoga-exercises-relax-you-7-minutes

3 https://isha.sadhguru.org/yoga/yoga-programs/upa-yoga/

4 https://www.researchgate.net/publication/330167937_Benefits_of_Joint_Exercise_in_the_Practice_of_Classical_Yoga

5 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4097912/

Modern Research on Understanding & Preventing Yoga Injuries

Most authorities seem to agree with the American Association of Orthopedic Surgeons that "the rewards of basic Yoga outweigh the potential physical risks, as long as you take caution and perform the exercises in moderation, according to your individual flexibility level. Nonetheless, an upturn in injuries has been noted in parallel to the increased popularity of Yoga, and a variety of factors are generally, but nonempirically, listed as the cause. If Yoga is to be welcomed into the healing repertoire of medicine, then in addition to demonstrating its benefits, it is incumbent upon the Yoga community to estimate its liabilities, and determine, to the extent possible, how to "do no harm."

Author Carol Krucoff underscores the issue of attitude right away, saying that she "learned the hard way that there is no showing off in Yoga." After an injury while being photographed, she learned "respect for the importance of warming-up, proper sequencing, and having the right attitude." Krucoff quotes many teachers and experts in the field, who note that Yoga injuries are most commonly caused by overzealousness and unrealistic expectations in students, inadequate training of teachers, poor technique, and large classes.

https://meridian.allenpress.com/ijyt/article/19/1/47/138142/Understanding-and-Preventing-Yoga-Injuries

Additional References:

Yoga & Emotions, Trauma Release:

https://www.yogajournal.com/practice/emotions-in-motion

https://www.yogajournal.com/teach/yoga-for-emotional-trauma

Positioning Yoga in the COVID-19 pandemic:

http://www.ym-kdham.in/article.asp?issn=0044-0507;year=2020;volume=52;issue=1;spage=1;epage=4;aulast=Telles