

## Biopsychology and Yoga Sadhana: Education for Self Knowledge and Social Welfare

The ancient and modern science of biopsychology seeks an understanding of the connection between the mind, body and spirit. This science was first systematized by Ashtabakra over 2000 years ago under the name “Raja dhi Raja Yoga”. P.R. Sarkar, Indian philosopher and spiritual teacher revitalized this science as Biopsychology that synthesized modern science and the ancient understanding of how the chakras are related to mental and emotional states. Sarkar’s elucidation of this knowledge is embodied in how we can use yogic practices or Sadhana to create individual and social balance. In this presentation we will examine how the physical, psychic and spiritual levels of biopsychology support the yoga sadhana practices in the acquisition of self-knowledge and promotion of social welfare. Further consideration will be given to how this science of biopsychology and yoga sadhana is being applied in Neohumanist schools and become a universally applied educational practice to support self-realization and a more cooperative society.

The modern science of biopsychology includes the neuroendocrine science of how the nervous system and endocrine system work together to integrate and regulate the activity of the brain, autonomic nervous system and endocrine glands. Key to the yogic science of biopsychology is the yogic spiritual practices (Sadhana) that help the relationship to ones self and others become more balanced mentally, emotionally, socially and spiritually. Integrated with the physical plexus of nerves and glands are the cakras in the yogic system that represent psychic containers for all of our 50 propensities of the human mind. These propensities (50) can be expressed internally or externally (2) and by five motor and five sensory organs (10) totaling  $50 \times 2 \times 10 = 1000$  potential expressions. These expressions or qualities of the mind are called vrttis. Thus each cakra, translated “wheel”, contains psychic qualities of the mind or vrttis and a plexus of glands and nerves.

It is said “the mind is like a river that runs in two directions- towards the crude (matter) or subtle (Spirit)”. Thus the “occupations” of the mind such as love, hatred, or fear known as vrttis become expressed sentiments. When these externally oriented occupations of the mind run towards the substations or subsidiary glands, those below the pineal and pituitary glands, the cruder or more mundane propensities such as fear are activated whereas when the mind moves towards subtle internal propensities, such as love, attraction towards the Spirit is activated. Thus the cakras and allied glands located along the spinal cord are substations for this journey of individuals and society to travel towards the crude or the sublime expressions. We are choosing moment to moment which direction to travel. Therefore we need a system of spiritual practices (Sadhana) that is methodical and systematic to curb the crude forces of avidya (ignorance) and mount a victory for vidya, the expression of truth and beauty.

Knowledge of the structure and function of cakras and glands that control the vrttis is important for individuals performing spiritual practices. Below are the cakras and their propensities:

The terranean (solid) plexus, or múládhára cakra; located at the mid-point of the last vertebra of the spinal cord:

1. dharma [psycho-spiritual longing]
2. artha [psychic longing]
3. káma [physical longing]
4. mokśa [spiritual longing]

The fluidal plexus, or svádhiśthána cakra: situated on the spinal cord directly behind the root of the genital organ:

1. avaiṇá [indifference]
2. múrcchá [psychic stupor, lack of common sense]
3. prashraya [indulgence]
4. avishvása [lack of confidence]
5. sarvanásha [thought of sure annihilation]
6. kruratá [cruelty]

The igneous plexus, or mañipura cakra; located at the navel:

1. lajjá [shyness]
2. pishunatá [sadistic tendency]
3. iirśá [envy]
4. suśupti [staticity, sleepiness]
5. viśada [melancholia]
6. kaśáya [peevisness]
7. trśńá [yearning for acquisition]
8. moha [infatuation]
9. ghrńá [hatred, revulsion]
10. bhaya [fear]

The anáhata cakra; situated at the center of the chest:

1. áshá [hope]
2. cintá [worry]
3. ceśtá [endeavour]
4. mamatá [mine-ness, love]
5. dambha [vanity]
6. viveka [conscience, discrimination]
7. vikalatá [mental numbness due to fear]
8. ahańkára [ego]
9. lolatá [avarice]

10. kapaítatá [hypocrisy]
11. vitarka [argumentativeness to point of wild exaggeration]
12. anutápa [repentance]

The vishuddha cakra; located at the region of the throat:

1. śádaja [sound of peacock]
2. rśabha [sound of ox]
3. gándhára [sound of goat]
4. madhyama [sound of deer]
5. paiṅcama [sound of cuckoo]
6. dhaevata [sound of donkey]
7. niśáda [sound of elephant]
8. oṅm [acoustic root of creation, preservation, dissolution]
9. hum [sound of arousing kulakuṅḍalinii]
10. phat [practication, i.e., putting a theory into practice]
11. vaśat [expression of mundane knowledge]
12. vaśat [welfare in the subtler sphere]
13. sváhá [performing noble actions]
14. namah [surrender to the Supreme]
15. víśa [repulsive expression]
16. amṛta [sweet expression]

The lunar plexus, or ájijná cakra; located between the eyebrows:

1. apará [mundane knowledge]

These are the forty-nine crude propensities. And the last one [number 2 of the ájijná cakra], that is, the singular subtle propensity, is pará [spiritual knowledge].

The sahasrara cakra associated with the pineal gland contains the seeds of the 1000 propensities located in the brain. The pineal as a structure controls all fifty vṛttis.

### Scientific Evidence of Subtle Energy Associated with Cakras

Dr Hiroshi Motoyama, scientist and Shinto priest, has specifically developed a Chakra Instrument which is designed to detect minute electrical, magnetic and optical changes, which occur in the immediate environment of the experimental subject. The recorded activity of the heart chakra was enough to produce a weak but measurable physical light. Moreover the subject was asked to press a button whenever she thought that she experienced the emission of psi-energy. The subjective feelings corresponded to the objectively measured periods of activity. It was experiments like these which were conducted with 100 subjects which led Motoyama to conclude 'that mental concentration on a chakra activates it'. (1999)

For the past twenty years, Valerie Hunt, a professor of kinesiology [the study of human movement], has measured human electromagnetic output under different conditions. Using an electro-myograph, which records the electrical activity of the muscles, Hunt, like Motoyama recorded radiations emanating from the body at the sites traditionally associated with the chakras. Through her research she made the discovery that certain types of consciousness were related to certain frequencies.

She found that when the focus of a person's consciousness was anchored in the physical world, their energy field registered the frequencies in the range of 250 cps (cycles per second). This is close to the body's own biological frequency. Active psychics and healers, however, registered in a band between 400 and 800 cps. Hunt considered those recorded at 900 cps and above “mystical personalities” who had a firm sense of the cosmic interconnections between everything.

Convincing evidence is presented showing that the pineal, and not the pituitary, is the master gland of the endocrine system. It converts light, temperature and magnetic environmental information into neuroendocrine signals that regulate and orchestrate body functions. It regulates our internal clock—determining our daily sleep–wake patterns and influencing our broader lifetime rhythms. (2005)

Subtle energy is the foundation of *integral physiology*, which is a medical paradigm that unites the contributions of Western medicine and Eastern systems of health. Supported by scientific research, *integral physiology* bridges belief systems and offers a neutral language that people of myriad backgrounds can use to communicate with one other about experiences that extend outside of known science. *Integral physiology* steps beyond the, so-called, body–mind connection to recognize the importance of experiences traditionally called ‘intuitive’ or ‘spiritual’. The theoretical model utilizes a chosen set of thinkers to explain the subtle energy component of a truly integral physiology. Unifying the valuable contributions of Western medicine and the knowledge of ancient energy systems, the theory of *integral physiology* is a harbinger to the hard science that is beginning to emerge. It bridges rigid belief systems of both medical and religious institutions by offering a neutral language and providing a framework by which to discuss the non-physical aspects of healing. Before long, the scientific means to prove the theory and the technology to employ it will be established. Understanding human subtle energy is undoubtedly the next frontier in medical research. (2005)

Candace Pert, founder of MindBody medicine and author of *Molecules of Emotions* (1997), published over 250 research articles on the neuropeptides that are located through out the body. She formulated a theory of the emotions, mediated by receptor active peptides, such as the neuropeptides and immune system cytokines, as the agents that integrated communication between the brain and the body. She also authored the musical guided imagery CD [\*Psychosomatic Wellness: Healing your Body-Mind\*](#) and [\*Healing the Hurting, Shining the Light, A Chakra Meditation for all your BodyMinds\*](#). Candace Pert believed the meditations in these CD’s would help you access subconscious patterns and reprogram them for better health. She coined the term “bodymind” to put an end to mind and body dualism and assert that the mind

is distributed throughout “nodal points” along the spinal cord known as the yogic cakras.

## **Yoga Sadhana: Spiritual Practices for Self-Realization and Social Service**

### Morality: The Foundation of Spiritual Practices

Astaanga yoga (eight limbed yoga) constitutes the sadhana or spiritual practices that are used to control and balance the cakras to achieve personal and social integration. Without the application of morality contained in Yama and Niyama, the first two limbs of astaanga yoga, the mind lacks the equilibrium to meditate or accomplish the other spiritual practices. The application of morality requires that mental balance be maintained with regard to changes in time, place and person as to how we think, speak and act in a given moment. While this avoids dogmatic stances of “one shoe fits all”; the aim of morality is to achieve Infinite Bliss so morality is not merely relative. The ultimate aim in a moral life is not to lie or commit theft but rather to remove from the mind the tendency to lie or steal. The details of the application of Yama and Niyama, beyond are found in Guide to Human Conduct.

### Asanas and Glands

On the physical level of personal development yoga sadhana focuses on the application of asanas, physico-psychic postures to control the propensities (thoughts, emotions and behaviors) of the cakras. The seeds of all propensities (vrttis) are in the brain but their first expression occurs in the glands or substations of the mind.

The glands then become a primary target for balancing the mind’s propensities attached to each chakra and controlling the associated thoughts and behavior. The subglands from the thyroid and parathyroid glands downward control forty-eight propensities. The pituitary gland controls two propensities, worldly knowledge and spiritual knowledge. The pineal gland located above the pituitary gland controls all one thousand propensities. By performing asanas, postures for physical and psychic wellbeing, the glands and subglands are pressurized and depressurized to balance the production of glandular secretion. This gives primary importance to lymphatic glands that supply lymph, the primary hormone, to other glands and the brain. Lymphatic glands or nodes are located throughout the body but the largest groupings are found in the neck, armpits, and groin areas. When lymph comes in contact with an activated gland, other hormones are created. In humans the thyroid and parathyroid glands are more developed than the lymphatic glands. The thyroid and parathyroid glands are more concerned with psychic development and intellectual elevation while the lymphatic glands are more concerned with physical activity. Asanas are designed to correct imbalances in the secretion of these glands and subglands.

This new science of biopsychology of the glands and cakras developed by P.R. Sarkar details how to recognize imbalances and correct them with the application of the proper asana applied by a trained practitioner. The pressurizing and depressurizing of the

glands with the appropriate asanas supplies the needed balance in the production of the secretion of the gland and subglands. This balancing of needed hormonal secretion begins at the level of the glands and affects all of the seeds of the 1000 propensities in the brain, ultimately controlled by the pineal gland. For example the shoulder stand has a pressurizing effect on the thyroid and parathyroid glands, associated with the throat cakra, which results in balancing the secretions of these glands and subglands. This balancing of the thyroid secretions can reduce sleeplessness and nervousness. The shoulder stand and other inverted postures, such as hare and headstand, also result in deactivating the lower cakras as the higher cakras are activated producing a state of clam and focused mind. The peacock pose is instrumental in pressurizing the adrenalin glands associated with the navel cakra resulting in a reduction of fear. The cobra pressurizes the thymus gland behind the breastbone and balances the production of the hormone thymine related to the immune system. When overactive the immune system produces allergies and when underactive fails to protect us from infection. Thus the practitioners should select the asanas they perform carefully with the aid of an experienced yoga teacher.

For proper and timely development of the individual an appropriate amount of lymph must be available. Vegetarians produce more lymph because they get more chlorophyll from green vegetation that aids in the development of the brain and spiritual practices. A sentient environment and good company serve as catalytic agents in manufacture of lymph. Even if one has a sentient diet if the environment is negative it is detrimental to mental progress.

### Initiation: Embracing the Goal

The spiritual practices are designed to strengthen the cakras and control the expression of the propensities. The goal of these practices is “to move with accelerated speed towards that Supreme Shelter, God” uniting the “little I” of the individual soul with the “Big I” of the cosmic soul. The initiation into the practices of Dharma Sadhana is the embracing of this goal by surrendering all of ones physical, mental and spiritual potentialities at the lotus feet of the Supreme. As Yogi Berra, sportsman famous for his pithy quips, once said “if you don’t know where you are going you might end up somewhere else.” This first lesson in astaunga yoga offers withdrawal of the mind from different physical and mental objects, then directing the mind towards the goal with mantra. This is the process of concentration (Iishvara Pranidha’na). Initiates are encouraged to not only perform sitting meditation twice a day but to also recite the mantra while moving through their daily activities to remain immersed in goal of self-realization.

### Withdrawal and Surrender

The nature of the human mind is to always be attached to an object, one object after another, whether our attention is focused outwardly in our daily existence or inwardly for meditation. The monkey-mind predominates our awareness and is a necessary state of our ego to function in the world. However to move towards our spiritual goal the

preoccupation with the objective world needs a transcendental object to be freed of worldly attachments. The best method of withdrawal from these worldly attachments while remaining in the world is to view every object encountered externally as an expression of the Divine. This practice is called Madhuvidya or “honey knowledge”. To practice this honey knowledge we are advised to take everything with the cosmic feeling that the doer of the action, the action and the results of the action are objective manifestations of the Divine. When teaching your students it is the Divine who is the teacher and the Divine who performs the teaching and the Divine who constitutes the results of the teaching. When I am preparing this paper it is the Divine who composes, presents and receives the paper. The part that recipients don’t care for belongs to me, that which inspires you is the work of the Divine.

Now that we have withdrawn all of our propensities from the external world with the practice of Madhuvidya where will these propensities be directed? These withdrawn propensities could cause disturbance in your subconscious or unconscious mind if not directed to some internal moving object. Thus the moving panorama of internal objects is the moving images of the “done I” or objectivized mind (citta) such as the internal image of a horse becomes the direction of withdrawal. The next step in the withdrawal is to guide the propensities towards the “doer I” (ahamtattva) that is not moving but has the potential for movement. Since binding attachment is still a quality of the “doer I”, this “doer I” must be withdrawn to the internal feeling of “I exist” (the mahattattva). While there is little movement in this pure feeling of “I exist” there is still some struggle and attachment. Thus the final surrender and withdrawal is merging this pure “I” feeling of “I exist” into the Cognitive Principle (Pure Consciousness) that is free from all bondage. This is the supreme goal of human existence to merge the “little “I” with the big “I” of Pure Consciousness.

### Breath Control

Pranaya’ma, breath control, is a practice to increase the power of concentration and ideation. Pranayama means “control over the vital power or life force” which gives the practitioner the ability to do meditation for a longer period of time with greater concentration and ideation. It is during the period of pause in the systaltic movement of breath that the individual is most receptive to any sensation or idea. Beyond the five senses in the state of pause it is the “pranendriya”, the yogic “sixth sense” in the center of the yogic heart (not physical heart), that allows for subtle perceptions of soft, hard, harsh, hot, cold, nurturing or noxious in daily life experience. It is within the womb of silence and the pause of the breath that the intuition of the heart cakra flowers.

### Dharana- Concentration

Dharana means, “locating the mind firmly in an area or region of the body” such as a cakra. Dahrana further means, “to hold” an image of the mind. Like a cinema film made up of successive individual pictures dharana is made up of successive external images

converted into internal mental images that are static and don't remain unless immediately followed by other images.

The objective of this practice is to balance the five factors (solid, liquid, luminous, air and ether) associate with each of the first five cakras and thus balance the overall activity of the body and mind. Mantras are used for each cakra as the shape, color and center of each cakra is visualized. Concentrating on the cakra and reciting the mantras balance glands and subglands and associated hormones resulting in a balanced mind.

### Dhyana- Continuous Flow of the Mind

In contrast to Dharana which deals with more static images, Dhyana is dynamic and involves the constant flow of an internal image of the Guru. Dhyana means, "to direct the mind towards the Supreme One". Remembering God is Dhyana. The Guru is none other than Brahma, the spiritual aspirant's own true self. The Guru meditated upon in Dhyana is therefore a "mirror" of that Brahma within everyone and not the physical Guru. This internal concept of the Guru avoids the pitfall of static personality worship or idolatry.

Dhyana is performed by focusing on the guru cakra the internal portion of the crown (sahasrara) cakra. The guru cakra and the sahasrara cakra are virtually the same and associated with the pineal gland that controls all the propensities. Thus if one achieves full concentration on the Guru cakra one becomes omniscient. Omniscience means knowledge regarding past, present and future. One does not perform spiritual practices to become omniscient but rather to please the Lord. Thus the saying, *Guru Krpahi kevalam* ("The grace of the Guru is everything").

### Samadhi – Transcendental States

Once established in dhyana one can attain the transcendental state of samadhi. Samadhi is neither a negative or positive state but rather a state of equilibrium that is attained after meticulous and prolonged spiritual practice. Samadhi is not a goal but the results of ardent application of the other seven limbs of astaunga yoga.

Savikalpa samadhi produces a blissful trance of absorption of the unit mind in the cosmic mind and helps achieve self-realization. Nirvakalpa samadhi produces a state of absolute vacuity beyond all qualities or propensities of the mind that is associated with final salvation. Even after the state of vacuity in Nirvkalpa Samadhi ends the spiritual waves of exhilaration continue to flow and may last for days. These trailing waves of exhilaration and joyous exuberance keep reminding the intuitional practitioner that their state beyond the mind had been one of absolute bliss.

Great aids in goading the mind towards Samadhi are dhruvasmrti and anudhyana. Dhruvasmrti means developing a "fixed memory" on the Supreme Entity. The overwhelming desire to run after and catch hold of the object of meditation is termed "anudhyana". This intense desire to "catch hold" of the object of meditation creates a

psycho-spiritual vacuum that propels the kundalini (latent spiritual force) at the base of the spine through the cakras finally reaching the sahasara cakra. It is the “longing” for union with the Supreme that does all the work. Regarding this deep longing Kabir says, “Look at me and you will see a slave of that intensity.”

### Dharma Sadhana for Education

This biopsychology of sadhana reveals that the individual requires tri-lateral development as a physical, psychic and spiritual being. Recognizing this dharma or true nature of people Neohumanist education offers an education of the whole person. Emphasis is placed on the training of teachers in Neohumanist schools that incorporates all round personal development that includes the above mentioned sadhana practices. The children in the schools are slowly introduced to these practices based on their developmental requirements as individuals and age groups.

Neohumanist education adopts the principles of holistic, child centered, relational, spirituality, service –oriented, ecological and creative/critical thinking approach. Recognizing that many progressive schools have adopted these holistic characteristics leading teachers and administrators from the Neohumanist tradition at a recent global conference in Holland posed the question, “What is unique about Neohumanist education?”(2016) We knew that acquisition of knowledge had long been the mantra among educators and that we were reaching towards a better understanding of what we offered that made the biggest difference in student’s lives and the impact they were to have on society. Our mentor, P.R. Sarkar had clarified the difference between “knowledge” and “understanding”:

*There is some difference between knowing and understanding. Whatever information regarding some object we gather through the medium of the sense organs is what we “know” about that object. But when the basic or ultimate nature of the object is fully subjectivized, then we “understand” the object.*

Among our group of educators from Egypt, America, Australia, Holland, Romania, London, Malaysia and India we shared our stories of our Neohumanist education journey and enjoyed our good company laced with multiethnic meals. Most importantly we playfully created a Neohumanist Game that took our shared and well-understood elements of Neohumanism but arranged them in new patterns based on our different backgrounds and priorities as educators. What emerged was a deeper understanding of the Core Elements of what Neohumanist Education meant to us and perhaps others if we put it to test.

These “core elements” were three in number: first a theory of the **Mind** that draws on the astaanga yoga described above that defines the layers of the mind (kosas); secondly the **Heart-centered** approach that promotes love of all of creation and thirdly the application in the world of this Heart-centered approach which leads to the desire to express **Service** to all of creation seen as an expression of the Divine in plants, animals, people and the environment. We observed that these three core elements support one another through

the heart-centered love of Neohumanist education that serves the child, teacher and society at all levels.

The layers of the mind or kosas are directly related to the chakras and help direct the development of the curriculum in Neohumanistic education. The first two cakras, muladhara and svadhistana, are related to the conscious and subconscious mind respectively. There are three more levels identified as the superconscious mind or unconscious mind related to the navel cakra (manipura), heart cakra (anahata) and throat cakra (vishuddha). For curriculum purposes beginning with the human body (annamaya) these levels of the mind are related respectively to the development of the senses (conscious mind/muladhara), intellect (subconscious mind/svadhistana), creativity (first layer of superconscious mind/manipura), intuition (second layer of superconscious mind/anahata), and spirituality (third layer of superconscious mind/vishuddha). The elaboration of the development of the Neohumanist education curriculum based on the levels of the mind is detailed in *Neohumanist Education; Education for a New World* (1986).

Dr. Shambhushivananda (2016) states, “NHE is a dynamic educational model that nurtures all levels of the human personality—from its crudest existence to the subtlest consciousness as illustrated in this table of NHE Learning Outcomes as associated with each layer of the mind.”

<p><b>Hiranamaya (Supra-mental Causal Mind)</b></p>	<p>Inner Peace; Compassion; Benevolence; Magnanimity of Mind; Forgiveness; Self Restraint &amp; Inner Discipline; Firm Determination; Strong Will Power; Surrender to the Supreme &amp; Ego Transcendence; Recognition of Sacredness of all things: living and non-living; Universal Love; Service Spirit; Missionary Zeal; Supra-Aesthetics; Sweet and Smiling Behavior; All-round balance; Concentration.</p>
<p><b>Vijinanamaya (Subliminal Mind)</b></p>	<p>Neohumanist Ethics &amp; Inner Moral Compass; Awakened Conscience; Sense of responsibility; Moral Courage; Readiness to sacrifice for others; Above hatred, anger, vanity, prejudices, pseudo-culture, and group-ism; Commitment; Fore-sight, Far-sight and In-sight; Access to Intuition; Discriminant Faculty; Fight for Justice; Preservation &amp; Celebration of diversities; Concern for future generations, Minimum Disparities; Sustainability; Accountability.</p>
<p><b>Atimanas (Supra-mental Mind)</b></p>	<p>Aesthetics, Creativity, Joyful Learning; Trust, Harmony, Loyalty; Spontaneity, Innocence, Light-Heartedness; Straight-forwardness, Simplicity, Inner Charm; Unity in Diversity; Art for Service &amp; Blessedness; Playfulness; Humor.</p>
<p><b>Manomaya (Sub-conscious Mind)</b></p>	<p>Deep Thinking; Thirst for Knowledge; Understanding inter-connectedness of all things; Freedom from dogma, superstitions &amp; fissiparous tendencies; Enlargement of Mind; Photographic Memory; Cognitive development; Discerning Cause-Effect Relationships;</p>

	Problem-Solving and Decision Making Skills; Rational and Positive Outlook; Scientific Aptitude; Knowledge of Flora and Fauna & the Elements of Nature.
<b>Kamamaya (Conscious-Mind)</b>	Practical Life Skills-Technical, Entrepreneurial, Communication, Interpersonal, Organizational; Skills-development, Time-management.
<b>Annamaya (Human Body)</b>	Healthy Lifestyle Habits; Proper Nutritious Diet; Safety, Martial Arts, Exercises; Cooperative Games; Sports.

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