

AWAKENING THE FLOW — MARMA NADI CHAKRA SELECTED ARTICLES

Asanas for the Chakra System

A prescription of asanas to help balance the subtle energies of the chakra system.

By Barbara Kaplan Herring

Seventh Heaven

There are seven chakras, or energy centers, in the body that become blocked by longheld tension and low self-esteem. But practicing poses that correspond to each chakra can release these blocks and clear the path to higher consciousness.

The chakra system provides a theoretical base for fine-tuning our yoga practice to suit our unique personality and circumstances. Traditionally, Indians saw the body as containing seven main chakras, arranged vertically from the base of the spine to the top of the head. Chakra is the Sanskrit word for wheel, and these "wheels" were thought of as spinning vortexes of energy. Each chakra is associated with particular functions within the body and with specific life issues and the way we handle them, both inside ourselves and in our interactions with the world. As centers of force, chakras can be thought of as sites where we receive, absorb, and distribute life energies. Through external situations and internal habits, such as long-held physical tension and limiting self-concepts, a chakra can become either deficient or excessive—and therefore imbalanced.

These imbalances may develop temporarily with situational challenges, or they may be chronic. A chronic imbalance can come from childhood experiences, past pain or stress, and internalized cultural values. For instance, a child whose family moves every year to a different state may not learn what it's like to feel rooted in a location, and she can grow up with a deficient first chakra.

A deficient chakra neither receives appropriate energy nor easily manifests that chakra's energy in the world. There's a sense of being physically and emotionally closed down in the area of a deficient chakra. Think of the slumped shoulders of someone who is depressed and lonely, their heart chakra receding into their chest. The deficient chakra needs to open.

When a chakra is excessive, it is too overloaded to operate in a healthy way and becomes a dominating force in a person's life. Someone with an excessive fifth (throat) chakra, for example, might talk too much and be unable to listen well. If the chakra were deficient, she might experience restraint and difficulty when communicating.

Muladhara Chakra (Root)

My student Anne recently called me to schedule a private yoga session. A few months ago, she'd moved from Georgia to the Bay Area for her husband's work, and she was having difficulty finding a new job as a graphic designer. While she felt good about their relocation, her house was unfamiliar, she missed her relatives in Atlanta, she worried about finding work, and she was feeling tired and worried about coming down with a cold.

If Anne had consulted a job counselor, a therapist, and a doctor, each of her problems might have been treated as separate—and certainly she could successfully tackle them in this way. But because for years I have looked at life using the lens of the chakra system, a way of understanding human life that is woven into both yoga and traditional Indian medicine, I was able to see the common ground in all of Anne's issues. Even more important, I was able to suggest yoga poses and other practices I was fairly sure would support her in facing each of her challenges.

Anne's symptoms sounded to me like a first chakra deficiency. That was hardly surprising, as the recent changes in her life presented her with classic first chakra challenges. Centered at the perineum and the base of the spine and called *Muladhara Chakra* (Root Chakra), this energy vortex is involved in tending to our survival needs, establishing a healthy sense of groundedness, taking good basic care of the body, and purging the body of wastes. The associated body parts include the base of the spine, the legs, feet, and the large intestine.

Circumstances that pull up our roots and cause a first chakra deficiency (like Anne's) include traveling, relocation, feeling fearful, and big changes in our body, family, finances, and business. Some people, often those with busy minds and active imaginations, don't need special challenges to become deficient in this chakra; they feel ungrounded most of the time, living more in the head than in the body.

We experience deficiencies in this chakra as "survival crises." However mild or severe—whether you've been evicted, gone bankrupt, or just have the flu—these crises usually demand a lot of immediate attention. On the other hand, signs of excessiveness in the first chakra include greed, hoarding of possessions or money, or attempting to ground yourself by gaining a lot of excess weight.

There are many yoga poses that correct first chakra imbalances, bringing us back to our body and the earth and helping us experience safety, security, and stillness. Muladhara Chakra is associated with the element earth, representing physical and emotional grounding, and with the color red, which has a slower vibration than the colors that symbolize the other chakras.

To help her ground, Anne and I began by focusing on her feet, for all poses that stretch and strengthen the legs and feet help the first chakra. She rolled a tennis ball underneath one foot and then the other, pressing into it to help awaken the soles (a mini acupressure treatment) and open the "doors" of the feet. To stimulate the toes and encourage them to spread for standing

poses, she sat cross-legged and laced her fingers in between her toes, reaching from the sole to the top of the foot. Then she knelt, curled her toes under, and sat on them for a minute. Following these warm-ups, we did an hour of calf openers, hamstring stretches, and standing poses to help her open and strengthen her lower body and root her attention downward.

When our hamstrings are tight, the contraction creates a sense that we're constantly prepared to run away. As Anne slowly stretched the backs of her legs in [Uttanasana \(Standing Forward Bend\)](#) and [Janu Sirsasana \(Head-to-Knee Pose\)](#), she received some of the gifts of the first chakra: calmness, patience, and a willingness to slow down and stay in one place. As she strengthened her quadriceps and opened her hamstrings, she renewed her confidence and commitment to the next steps on her life's journey. Her fears eased as she allowed herself to trust the earth and her body.

Anne and I ended our session with peaceful restorative poses, like [Supta Baddha Konasana \(Reclining Bound Angle Pose\)](#), Salamba Savasana (Supported Corpse Pose), and Salamba Balasana (Supported Child's Pose), all of which settle an overactive mind and encourage us to surrender to gravity. By the end of our session, she no longer felt so worried. At home in her body, she was more prepared for the challenges she faced.

Svadhithana Chakra (Hips, Sacrum, Genitals)

In Sanskrit, the second chakra is called *Svadhithana*, which translates as "one's own place or base," indicating just how crucial this chakra is in our lives. A student who is facing second chakra issues would experience very different concerns than Anne. Getting things in order was the work of the first chakra. The tasks of the second chakra include allowing for emotional and sensual movement in our life, opening to pleasure, and learning how to "go with the flow."

Associated with the hips, sacrum, lower back, genitals, womb, bladder, and kidneys, this chakra is involved with sensuality, sexuality, emotions, intimacy, and desire. All watery things about us have to do with this chakra: circulation, urination, menstruation, orgasm, tears. Water flows, moves, and changes, and a healthy second chakra allows us to do so too.

Trying to influence the outer world is not the province of the second chakra. Instead of demanding that our body or a relationship be different, the second chakra encourages us to feel the feelings that arise as we open to life just as it is. As we allow ourselves to accept what is, we taste the sweetness (and bittersweetness) of life. When we relax our resistance to life, our hips let go, our reproductive organs become less tense, and we're open to experiencing our sensuality and sexuality.

Along with the second chakra at the pelvis, the other even-numbered chakras (the fourth, at the heart, and the sixth, at the third eye) are concerned with the "feminine" qualities of relaxation and openness. These chakras exercise our rights to feel, to love, and to see. Odd-numbered chakras, found in the legs and feet, solar plexus, throat, and crown of the head, are concerned with the

"masculine" endeavor of applying our will in the world, asserting our rights to have, to ask, to speak, and to know. The odd-numbered, masculine chakras tend to move energy through our systems, pushing it out into the world and creating warmth and heat. The even-numbered, feminine chakras cool things down, attracting energy inward.

In the modern world, the masculine and feminine principles of life are out of balance: The masculine energy of action and expression too often overrules the feminine energy of wisdom and acceptance, causing increased stress in our lives. So many people have taken on an imbalanced work ethic that scoffs at pleasure and affords little time for enjoyment or relaxation. After focusing on her second chakra in a recent workshop, a student confided to me how hard it was to allow pleasure in her workaholic life. We created a plan for her to give herself 20 minutes each day devoted just to the healing power of pleasure: listening to music, doing gentle yoga, getting a massage. Our lives give us plenty of opportunities to express ourselves and be active; in our yoga practice and elsewhere, we need to make sure we complement this with relaxation and receptivity. Harmony requires balance. In yoga, that means creating a practice that combines strength and flexibility, effort and surrender. Any imbalance in your yoga practice will be mirrored in your chakras.

In a culture as confused as ours is about sexuality, pleasure, and emotional expression, there are an infinite number of pathways to an imbalanced second chakra. For example, people who were raised in an environment where emotions were repressed or pleasure denied will be more likely to lack energy in the second chakra. Symptoms of a second chakra deficiency include fear of pleasure, being out of touch with feelings, and resistance to change. Sexual problems and discomfort in the lower back, hips, and reproductive organs can also signify that this chakra needs some kind attention. Sexual abuse during childhood can lead to feeling closed down in this chakra or may result in making sexual energy the most dominant part of the personality. An excessively charged second chakra may reveal itself through overly emotional behavior, sexual addiction, or poor boundaries. Excessiveness may also result from a family environment where there's a constant need for pleasurable stimulation (entertainment, partying) or frequent emotional drama.

Second chakra asanas help us with adaptability and receptivity. The leg position in [Gomukhasana \(Cow Face Pose\)](#), forward bending with the legs in the first stage of Eka Pada Rajakapotasana (Pigeon Pose), [Baddha Konasana \(Bound Angle Pose\)](#), [Upavistha Konasana \(Open Angle Pose\)](#), and other hip and groin openers all provide freedom of movement in the pelvis. These hip and groin openers should never be forced, for they require the subtle feminine touch of sensitivity and surrender.

Manipura Chakra (Navel, Solar Plexus)

Located in the area of the solar plexus, navel, and the digestive system, the fiery third chakra is called *Manipura*, the “lustrous gem.” Associated with the color yellow, this chakra is involved in self-esteem, warrior energy, and the power of transformation; it also governs digestion and metabolism. A healthy, spirited third chakra supports us in overcoming inertia, jump-starting our “get-up-and-go” attitude so that we can take risks, assert our will, and assume responsibility for our life. This chakra is also the place of our deep belly laughter, warmth, ease, and the vitality we receive from performing selfless service.

Sensible risk-taking is one way of gaining confidence and flexing your third chakra power muscles. For some people, a risk is dropping back from [Tadasana \(Mountain Pose\)](#) into [Urdhva Dhanurasana \(Upward Bow Pose\)](#); for others, it might simply be getting to their first yoga class. Risks may involve confrontation, setting limits, or asking for what we need—all ways of reclaiming our power.

Digestive problems, eating disorders, feeling like a victim, or experiencing low self-esteem can all be indications of a deficient third chakra. When you feel disempowered or in need of re-energizing, third chakra poses fan the flames of your inner fire and restore vitality so that you can move from the strength of your core. Practice Suryanamaskar (Sun Salutation), abdominal strengtheners like [Navasana \(Boat Pose\)](#), Ardha Navasana (Half Boat Pose), and Urdhva Prasarita Padasana (Leg Lifts), Warrior poses, twists, and Bhastrika Pranayama (Bellows Breath or Breath of Fire).

Perfectionism, anger, hatred, and too much emphasis on power, status, and recognition reveal an excessive third chakra. In addition, taking in more of anything than you can assimilate and use also indicates excessiveness. Restorative, passive backbends that cool off the belly’s fire act as calming agents for third chakra excess.

We live in a time where there is little encouragement for paying attention to our body’s natural energy levels and giving it what it needs. So often when we are really tired, we ignore our longing for rest and manipulate our bodies with caffeine, sugar, and other stimulants to create a false sense of energy. When we’re overstimulated and want to relax or draw inward, many people turn to overeating, alcohol, or drugs to slow down. Yoga offers us a different choice: to listen to what our body requires and to truly nourish ourselves, using appropriate asanas and pranayama practices to create more energy or relaxation. Once we’ve done that, we can get a taste of our true personal power.

Anahata Chakra (Heart)

The fourth chakra, the heart chakra, rests in the center of the chakra system, at the core of our spirit. Its physical location is the heart, upper chest, and upper back. The fourth is the balance point, integrating the world of matter (the lower three chakras) with the world of spirit (the upper three chakras). Through the heart chakra, we open to and connect with harmony and peace. The

health of our heart center registers the quality and power of love in our life. In Sanskrit, the heart chakra is called *Anahata*, which means “unstruck” or “unhurt.” Its name implies that deep beneath our personal stories of brokenness and the pain in our heart, wholeness, boundless love, and a wellspring of compassion reside.

This chakra’s element is air. Air spreads and energizes. Like water, air assumes the shape of whatever it fills, yet it is less subject to gravity than water. When you feel swept up in love, you often need to replant your first chakra in order to stay grounded. Air permeates breath, so pranayama practice helps balance and tone this chakra. All forms of pranayama can help you use more air, more prana, thereby increasing your vitality and enthusiasm for life.

If you notice that you are sitting with your head forward, shoulders rounded and your chest collapsed, it’s a good time to start practicing fourth chakra poses to give your heart some breathing space. When we lead with our head and not with the heart, we may be overly focused on thought and tend to cut ourselves off from the emotions and the body. When the heart chakra is deficient, you may experience feelings of shyness and loneliness, an inability to forgive, or a lack of empathy. Physical symptoms can include shallow breathing, asthma, and other lung diseases.

Asanas that enliven the heart chakra include passive chest openers in which we arch gently over a blanket or bolster, shoulder stretches such as the arm positions of [Gomukhasana](#) and [Garudasana \(Eagle Pose\)](#), and backbends. Being an even-numbered, feminine chakra, the heart center naturally yearns to release and let go. Doing backbends develops the trust and surrender we need to open the heart fully. When we feel fearful, there is no room for love, and our bodies show contraction. When we choose love, the fear melts away, and our practice takes on a joyful quality. In many backbending poses, the heart is positioned higher than the head. It’s wonderfully refreshing to let the mind drop away from the top position and instead lead with the heart.

Some signs that the heart chakra is overpowering your life can include co-dependency, possessiveness, jealousy, heart disease, and high blood pressure. For these symptoms, forward bends are the best antidote, because they are grounding and foster introspection. While people with deficient heart chakras need to open to receive love more fully, those with excessive heart chakras find healing by slowing down to discover inside themselves the nourishment they have been seeking from others.

The most powerful way to open, energize, and balance not just the heart chakra but all of our chakras is to love ourselves and others. Love is the greatest healer. In our hatha yoga practice, remembering what we love and appreciate as we practice fourth chakra asanas enhances the power of the poses and our general well-being.

Visuddha Chakra (Throat)

Since the heart chakra is the bridge between the lower, more physical energy centers and the upper, more metaphysical ones, as we ascend through the chakras, the fifth is the first primarily focused on the spiritual plane. The throat chakra, *Visuddha*, is associated with the color turquoise blue and with the elements sound and ether, the field of subtle vibrations ancient Indians believed pervaded the universe. Located in the neck, throat, jaw, and mouth, the Visuddha chakra resonates with our inner truth and helps us find a personal way to convey our voice to the outside world. The rhythm of music, creativity of dance, the vibration of singing, and the communication we make through writing and speaking are all fifth chakra ways to express ourselves.

Visuddha means "pure" or "purification." Purification of the body through attention to diet, yoga, meditation, and exercise opens us to experience the subtler aspects of the upper chakras. Some yogis notice that drinking more water and letting go of products such as tobacco and dairy helps to loosen up the neck and shoulders and clear the voice. In addition, sound itself is purifying. If you think of the way you feel after chanting Indian kirtans, reading poetry aloud, or simply singing along with your favorite music, you'll recognize how the vibrations and rhythms positively affect your body, right down to the cellular level.

Deficient energy in this chakra leads to neck stiffness, shoulder tension, teeth grinding, jaw disorders, throat ailments, an underactive thyroid, and a fear of speaking. Excessive talking, an inability to listen, hearing difficulties, stuttering, and an overactive thyroid are all related to excessiveness in this chakra. Depending on the ailments, different neck stretches and shoulder openers, including [Ustrasana \(Camel Pose\)](#), [Setu Bandha Sarvangasana \(Bridge Pose\)](#), [Sarvangasana \(Shoulderstand\)](#), and [Halasana \(Plow Pose\)](#), can aid the fifth chakra.

Ajna Chakra (Third Eye)

Can you recall last night's dream? Can you imagine how you would like your body to feel tomorrow? These imaginative abilities—visualizing the past, creating positive pictures of the future, and fantasizing—are all aspects of *Ajna Chakra*, whose Sanskrit name means both "the perception center" and "the command center." Associated with the element light and the color indigo blue, the sixth chakra is located between and just above the physical eyes, creating the spiritual third eye. While our two eyes see the material world, our sixth chakra sees beyond the physical. This vision includes clairvoyance, telepathy, intuition, dreaming, imagination, and visualization.

The sixth chakra is involved in both the creation and perception of art and in the recognition that what we see has a powerful impact on us. Even when we're not aware of it, we're all sensitive to the images we find in our environment. I remember growing up in Los Angeles as a teen and seeing hoards of billboards advertising liquor and cigarettes. Looking at them didn't make me feel healthy or happy; instead, it gave me the message that I needed drugs to feel complete. Then I

went to Thailand as a high school foreign-exchange student. I saw Buddha statues on the streets instead of billboards, and those serene, majestic figures awakened my connection to inner peace. When the third eye is excessively abuzz with energy, we experience headaches, hallucinations, nightmares, and difficulty concentrating. When this chakra is deficient, we have a poor memory, experience eye problems, have difficulty recognizing patterns, and can't visualize well. As a yoga teacher, I occasionally like to work with this chakra by having my students wear blindfolds during an entire class. Temporarily deprived of sight, which provides such a huge percentage of our sensory input, students have a very fresh experience of yoga. They can't be distracted by the room, by other students, or by looking critically at their own bodies. Instead, they experience pratyahara, the drawing inward of the senses. After these classes, students have shared with me profound insights about their bodies and lives that came up because their vision was directed more deeply inside themselves. Another yogic approach to supporting the health of the Ajna Chakra is to do supported forward bends, adding an extra bolster or blanket to press upon and stimulate the third eye area. Also, creating positive images and visualizations is a practice that helps create a healthy sixth chakra. Such affirmative visions act as natural magnets, drawing the imagined situation into your life.

Sahasrara Chakra (Crown)

The Sanskrit name of the seventh chakra is *Sahasrara*, which means "thousandfold." Although this chakra is represented by a thousand-petaled lotus (the symbol of purity and spirituality), the number 1000 is not meant literally; instead, it implies the infinite nature of this chakra, which provides us with our most direct connection with the Divine. Although some teachers associate this chakra with the color violet, it is usually associated with white, a combination of all colors, just as this chakra synthesizes all the other chakras.

The seventh chakra is located at the crown of the head and serves as the crown of the chakra system, symbolizing the highest state of enlightenment and facilitating our spiritual development. The seventh chakra is like a halo atop the head. In art, Christ is often depicted with a golden light surrounding his head, and the Buddha shown with a lofty projection on the top of his head. In both cases, these images represent the awakened spirituality of the *Sahasrara Chakra*.

The element of the seventh chakra is thought, and this chakra is associated with the highest functions of the mind. Even though the mind cannot be seen or felt concretely, it creates the belief systems that control our thoughts and actions. To give one small example, my student George had a bad fall out of a bunk bed when he was a child. Now a fit, athletic man in his 40s, he is still frightened to do inversions. His early trauma helped create the belief that being upside down was always dangerous. Even though he now has the ability to safely and easily learn inversions, his

fear paralyzes him and his belief becomes a self-fulfilling prophecy. As the mind thinks, so we create our lives.

Excessiveness in this chakra appears as being overly intellectual or feeling yourself to be a member of a spiritual or intellectual elite. Deficient energy manifests as difficulty thinking for yourself, apathy, spiritual skepticism, and materialism.

Meditation is the yogic practice best suited for bringing this chakra into balance. Just as our body needs a shower frequently, the busy mind filled with so many thoughts and concerns also needs a cleansing. Why tackle today's problems with yesterday's muddled mind? Furthermore, the energy of this chakra helps us to experience the Divine, to open to a higher or deeper power. All the various forms of meditation, including both concentration and insight practices, allow the mind to become more present, clear, and insightful.

The ancient Hindus associated the chakras with the sleeping serpent goddess, Kundalini. She coils around the base of the first chakra and, when awakened, spirals up the energy channels (nadis) and pierces each chakra, bringing successively higher states of awareness that culminate in enlightenment at the crown chakra.

Focused on transcendence, many people seeking higher consciousness have disregarded the importance of the lower chakras. Yet we all need strong and solid support of our base chakras in order to open to the spiritual in a healthy and integrated way. The lower chakras focus on details such as our home, family, and feelings, while the upper chakras develop synthesizing views and wisdom that help us understand the grander order of things. All of our chakras affect one another and ultimately work together. As we learn to use this ancient Indian system to understand our lives, we can gain insight into personal issues that require our attention—and we can use the techniques of hatha yoga to bring our chakras and lives back into harmony.

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The Psychophysiology of The Yogic Chakra System

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(Part 1)

Over the past few years there has been increasing interest in 'translating' the knowledge of one system into the language of another. For example, 20th century Western scientists, especially physicists, have been comparing quantum mechanics with mystical knowledge as exemplified by Fritjof Capra in *The Tao of Physics* (1). This same process has been occurring in psychology with Charles Tart's *Transpersonal Psychologies* (3) and Paranjpe's *Theoretical Psychology* (3), both examining Eastern philosophies and religions from a Western psychological standpoint. Much of this translation has, of necessity, been in very general terms, since we have to clarify the overall picture first. By chance, I seem to be involved in this process from a rather different perspective. I have been researching a specific topic, the pineal gland, which seems to be generalising to a whole system, the chakras, I must stress that what follows is in an early speculative and exploratory stage as I have been gathering together the information for only ten years and neurochemistry is such a complex science.

The yogic chakra system

The yogic chakra system as explained by Swami Satyananda (4), consists of seven chakras which are normally depicted as a sort of 'spinal column' with three channels which interweave, the crossing points at the sites of the chakras. The root chakra (Mooladhara) is situated at the tip end of the tail bone in the perineum and is linked with certain aspects of the urino-genital system. The second chakra (Swadhisthana) is sited at the root of the spinal cord which is just below the small of the back, and is linked with other aspects of the genital system. The third chakra (Manipura) is sited behind the navel and is linked with the solar plexus. The fourth chakra (Anahata) is sited behind the heart and is linked with the cardiac plexus. The fifth chakra (Vishuddhi) is sited in the neck and is linked with the throat. The sixth chakra (Ajna) is sited in the pineal gland and is considered to be the 'command' chakra; and the seventh chakra (Sahasrara) is the crown chakra at the crown of the head. These chakras are considered to be important points for the channelling of consciousness, energy nodes linking the physical with the spiritual. They have been adopted quite widely into popular usage in the West, partly through the Theosophists, partly because of their obvious correspondence with the Tree of Life, and partly because of the intense interest in Eastern spirituality which has arisen since the sixties.

Pineal gland: Ajna chakra

As a para-psychologist I am naturally very interested in the lore surrounding Ajna chakra which is held to be the centre of psychic activity. This corresponds very closely with our Western lore which considers the pineal gland to be the, 'third eye' or the 'seat of second sight'. Satyananda (5) states that: "The name ajna comes from the root 'to know and to obey and to follow'. " Literally the

word ajna means 'command'-Yogis, who are scientists of the subtle mind, have spoken of telepathy as a 'siddhi', a psychic power for thought-communication and clairaudience.

The medium of such siddhis is Ajna chakra, and its physical terminus is the pineal gland." I have found that his concept of the pineal gland as the psychic chakra and as the 'command' chakra has a sound neurochemical basis.

The pineal gland is a strange little gland in that it is situated in the centre of the brain and yet it is outside the blood-brain barrier, so it is not part of the brain! Its main function is to make hormones which affect the brain and the endocrine glands. Melatonin is the best studied of these and is implicated in a wide range of functions. Most people have heard of the pituitary gland, which is often known as the 'master gland' in that the hormones it makes exert a controlling effect on many other systems. We can think of the pituitary as being an 'on switch' and the pineal as being an 'off switch' in that it works with the pituitary in keeping the body running.(1)

The most important function of the pineal gland is maintaining the biological clock, on a daily basis according to the sun, on an annual basis according to length of day, and in women on a lunar basis as well, (a) This is achieved principally through the actions of two chemicals called serotonin and melatonin (3). Serotonin is made during the day and melatonin at night. Serotonin is a very important neurotransmitter in the brain and its action has been linked with mental states such as psychosis, and also with psychedelics. Melatonin is linked with sleep and possibly also with dreams. Its main site of action appears to be the hypothalamus, which is that part of the brain involved in mediating the effects of various hormones to keep the body and our emotions running harmoniously (8). I have discovered, however, that the pineal gland also makes another chemical known as a beta-carboline, and beta-carbolines are hallucinogenic if taken in sufficient quantities (8,9).

These beta-carbolines are found mainly in the pineal gland and it is speculated that they are the chemical trigger for our dreams. However, they are also found in the retina of the eyes, in the adrenal glands and in the gut. An important fact about these beta-carbolines is that they are structurally very similar to a chemical called harmaline extracted from a vine used by shamans and elders in Amazonian Indian tribes specifically for psychic purposes. The Amazon has a huge variety of psychotropic plants, yet all the tribes throughout the vast area use this same vine for healing, clairvoyance and divination. (10,11,12)

In the 1960's a Chilean psychotherapist, Claudio Naranjo, used a variety of hallucinogens including harmaline in the psychotherapeutic setting and came to the conclusion that: "Harmaline may be said to be more hallucinogenic than mescaline... both in terms of images reported and their realistic quality. In fact, some subjects felt that certain scenes which they saw had really happened and that they had been as disembodied witnesses of them in a different time and place. This matches the experience of South American shamans." There is extensive evidence from many anthropologists which suggests that this vine is a psi-conductive drug. Thus, the

anthropological evidence suggests that harmaline stimulates psychic ability; the neurochemical evidence suggests that harmaline is an analogue of a beta-carboline which is produced in the pineal gland. The Yogic and occult teachings and common folk lore all say that the pineal gland is the psychic centre.

The thyroid gland: Vishuddhi chakra

According to Satyananda, the Vishuddhi chakra is located in the throat and is the centre of the nectar of immortality. It is connected with the sense of hearing and thus with the ears, and of course with the vocal cords and with self-expression.

Neurochemically, the thyroid is under the inhibitory control of the pineal gland, so that removal of the pineal results in thyroid enlargement and increased hormonal secretion rate (13). The thyroid takes up more iodine than any other part of the body and the pineal takes up the second largest quantity of iodine (14). Synthetic melatonin has the effect of inhibiting iodine uptake and the secretion of thyroid hormones, and given at the correct times, can produce the daily and annual light-dark cycles, or circadian rhythms, since iodine uptake naturally decreases during the night. Thus, evening injections of melatonin are more effective than morning ones, showing that the time of day when hormone supplementation is given is a significant factor. The effect of synthetic melatonin on the secretion of thyroid hormones decreases after puberty.

Experimental evidence indicates that the pineal is under feedback control by the glands which it influences. Pineal cells respond to thyroxine, which is one of the hormones made by the thyroid, the response being particularly strong at night, showing the influence of the circadian rhythm once again.

The thyroid regulates the metabolic rate via thyroxine, which means that it controls how fast the body runs. Thus an overactive thyroid means that the heart beats fast, one becomes thin, sexual desire increases, the mind works overtime; whilst an underactive thyroid has the opposite effect. Thyrotrophin, a thyroid regulator made by the pituitary, together with melatonin is involved in coping with long-term stress.

Stress is intimately connected with metabolic rate, heart rate, an overactive mind and also with age, as an older person cannot cope with stress as well as a younger person. Long-term stress is very different from short-term stress (which is dealt with by the adrenals), and it is interesting that Ajna, Vishuddhi and Manipura are all concerned with stress, which also affects the heart.

Relaxation is the first step in meditation: slowing down, letting go, releasing the stress, stilling the endless internal chatter (the beta-rhythm mental chatter) which is one of the worst aspects of long-term stress. These are all the negative aspects of Vishuddhi and we learn through meditation to overcome these aspects and so to become peaceful, still, calm, and to live to a ripe old age. To me this is merely another way of saying that the thyroid is connected with immortality because, as exemplified so well by the Chinese symbol of immortality, the tortoise, the slower you

go, the longer you live. The yogis say that it is perfectly possible to regulate the functioning of the endocrine system, thus learning how to control ones metabolic rate.

The heart centre: Anahata chakra

According to Satyananda, the Anahata chakra is concerned with will, feeling, touch and the skin, especially of the hands, all manifesting in arts such as painting, poetry and music, which, he says, are all aspects of heart energy. He also states: "In the present age, at this moment, we, the people of this world, are passing through a phase of Anahata chakra. This means that this chakra is beginning to awaken in us, whether we are working on it or not. Anahata chakra is the lowest of the three non-earthly or spiritual chakras - Anahata, Vishuddhi and Ajna. (For a discussion of the Heart chakra see Lilla Bek: The Heart of the Matter, by Robert Holden in Caduceus issue 4, page 22).

For me, the feeding of a new-born baby is the essence of the meaning of the heart chakra, the nurturing, giving, loving element. Such blessed joy to love, to give, to care, to share with others - that wonderful soaring emotion of the heart. Prana, the breath of life, is love. When the heart centre is open then you can do no harm to others anymore, because love is the basis of all your actions. It is very important at this time to learn to love yourself, because then you no longer feel depressed and negative, and, because you love yourself you love the earth and all upon her. So, the negativity of the three lowest chakras can be fully transmuted.

Some have suggested that the endocrine gland connected with this heart energy is the thymus, but what I have noticed in my research is that the pineal is linked with a hormone called prolactin which is connected with pregnancy, the mammary gland and the mother's production of milk. Most of the research with prolactin has been with animals. All ruminants show a marked seasonal fluctuation in plasma prolactin concentration, high in summer and low in winter, this fluctuation being controlled by the pineal gland even though prolactin is made by the pituitary. Prolactin secretion is also controlled by the ovarian steroids, its level being modified by the fluctuating oestradiol levels, which in women is a lunar cycle. So if you have tender breasts once a month this is possibly the reason why.

The inhibition of prolactin secretion in ruminants inhibits implantation of the blastocyst during the winter, so that the foetus does not implant into the womb until spring time, even though mating and fertilisation occurred in autumn.

Thus, from my own observation, heart energy-love, fluctuates with the seasons and is intimately linked with our sexuality, not just in terms of actual lovemaking, but more particularly in relation to the lunar menstrual cycle and to pregnancy. I know that during my pregnancy, after the sixth month I became more soft, open and flowing with pure heart energy.

Most of the above-mentioned connections are more related to melatonin than to the beta-carbolines, since melatonin inhibits prolactin secretion. However, the finding that pineal beta-

carboline increases plasma production levels may support the hypothesis that this chemical acts as a psychic agent in our system (8).

Prolactin appears to be made in men as well, but I have not yet discovered its function, although it is linked both with puberty and the circadian system. Hormones act not only at the physical level, but also at emotional and psychological levels, and if their physical actions appear irrelevant, perhaps we should explore the psycho and neurological aspects further.

On a Possible Psychophysiology of the Yogic Chakra System (Part 1)¹

Dr S.M. Roney-Dougal

Abstract Recent theoretical research by myself into the pineal gland as the physical locus of ajna chakra, conceived in the yogic tradition as being the psychic centre of our being, is extended here to explore the yogic idea of ajna chakra as the command chakra, in command over all the other chakra centres. I have come across multiple references to the importance of melatonin as the off-switch for the endocrine glands' output of hormones, working together with the pituitary gland, which is considered to be the on-switch. I am suggesting that the pineal gland is the physical aspect of ajna chakra; the thyroid of vishuddhi; the breasts of anahata; the adrenals of manipura; and the gonads of swadhisthana and mooladhara. These endocrine glands are all positioned at the traditional points of the chakras and their functions are remarkably equivalent to the traditional descriptions of the chakra functions. I am therefore proposing that the endocrine system is the physiological aspect of the yogic spiritual tradition of the chakras, and that the autonomic nervous system can be equated with the yogic nadis.

Over the last quarter of a century, there has been increasing interest in 'translating' the knowledge of one system into the language of another. For example, 20th century physicists have been comparing quantum mechanics with mystical knowledge as exemplified by Fritjof Capra in *The Tao of Physics* (1975). This same process has been occurring in psychology, for example Tart's *Transpersonal Psychologies* (1975), Paranjpe's *Theoretical Psychology* (1984), both examining Eastern philosophies and religions from a Western psychological standpoint, and research exploring a neurological basis for near-death experiences and their similarity with the kundalini experience (Wile, 1994; Jourdan, 1994).

Much of this translation has, of necessity, been in general terms, since we have to clarify the overall picture first. I seem to be involved in this process from a rather different perspective. I have been researching a specific topic, the pineal as a psi-conducive gland, which has generalized to the endocrine system as the physical aspect of the yogic chakra system. I must stress that what follows is still in a speculative and exploratory stage.

The yogic chakra system

The yogic chakra system as explained by Swami Satyananda Saraswati (1972b) consists of seven chakras which are normally depicted as a sort of 'spinal column' with three channels called nadis (ida, pingala and sushumna) which interweave, the crossing-points being the sites of the chakras (See Figure 1).

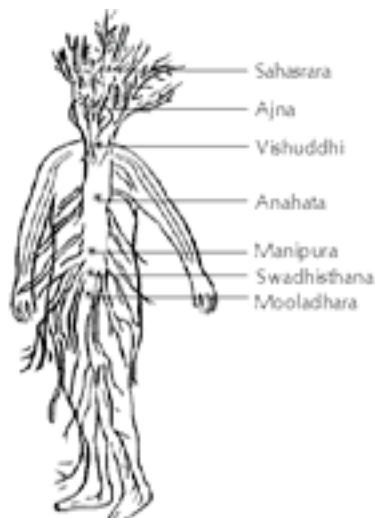


Figure 1.
Traditional Representation of the Chakra System (Satyananda, 1972b)

In Western terms this can be readily understood as the central nervous system (sushumna) in the spinal cord around which, on either side, runs the autonomic nervous system which has two aspects, the parasympathetic which can be readily correlated with ida, and the sympathetic with pingala, the sympathetic and pingala being the activating aspect of the system and the parasympathetic and ida the relaxing. Where these two cross they form plexuses, or nodes, from which nerves go out to, for example, the heart, lungs, diaphragm, digestive system and the endocrine organs. Satyananda connects this nervous system with the chakras as follows in Table 1.

Table 1
Different Correspondences Popularly Linked with the Chakras

(1) Swami Satyananda's Correspondence (Satyananda, 1972 b)

Chakra	Physiology	Body	Function	Petals	Colour	Sense	Motor	Element	Psychic experience
Sahasrara	crown	pituitary, brain	mind	1000	red	mind	mind	mind	red
Ajna	third eye	pineal	psychic awareness, command expression	2	clear or grey	mind	mind	mind	golden egg, drowsy
Vishuddhi	throat	laryngeal plexus		16	violet	Ears/hearing	vocal cord	ether	cold, nectar
Anahata	heart	cardiac plexus	love	12	blue	skin/touch	hands	air	blue
Manipura	navel	solar plexus	digestion, assimilation, temperature	10	yellow	eyes/sight	feet	fire	yellow
Swadhisthana	sacral	prostatic plexus	the unconscious	6	orange-red	tongue/taste	sex organs	water	unconscious
Mooladhara	perineum	sacro-coccygeal plexus	excretory, secretory, sexual.	4	deep red	nose/smell	anus	earth	red

(2) For comparison an alternative set of correspondences as outlined by John Davidson (1989) is given below:

Tattva	Chakra	Gland	State	Sense	Organ	Function	Motor organ	Emotion
akasha	throat	thyroid	space	hearing	ears	speech	throat	ego, pride
air	heart	thymus	gas	touch	skin	manipulation	hands	greed
fire	navel	pancreas	fire	sight	eyes	walking	legs	anger
water	genital	gonad	liquid	taste	tongue	procreation	sex	self-indulgence
earth	rectal	adrenal	solid	smell	nose	elimination	rectum	attachment

These chakras are considered to be important points for the channelling of consciousness, energy nodes linking the physical with the spiritual. They have been adopted quite widely into popular usage in the West, partly through the Theosophists at the turn of the century, and partly because of the intense interest in Eastern spirituality birthed during the sixties. There are at present so many different correspondences and attributes linked to them and therefore this research is presented with the aim of achieving greater clarity.

The pineal gland: ajna chakra

As a parapsychologist I am interested in the Indian lore surrounding ajna chakra, which is held to be the psychic centre. This corresponds very closely with Western lore which considers the pineal gland to be the 'third eye' or 'the seat of the soul'. Swami Satyananda (1972a) states that: "The name ajna comes from the root 'to know' and 'to obey and to follow'. Literally the word ajna means 'command'... Yogis, who are scientists of the subtle mind, have spoken of telepathy as a 'siddhi', a psychic power for thought communication and clairaudience, etc. The medium of such siddhis is ajna chakra, and its physical terminus is the pineal gland." I consider that his concept of the pineal gland as the psychic chakra and as the command chakra has a sound psychoneuro-endocrinological basis.

The pineal gland is situated in the centre of the brain and its main function is to make neurohormones which affect both the brain and the body. The pineal works with the pituitary through the hypothalamus, controlling the endocrine system. Basically it is one of the regulators of our circadian rhythm, is implicated in our emotional state, reproductive function, possibly dream sleep and in certain psychoses. Melatonin is the best studied of the pineal neurohormones and was first isolated from cattle in 1963. Before this the pineal was generally considered in the West to be vestigial. Amphibians and reptiles have light sensitive cells in the pineal gland which, for them, is literally a light sensitive third eye at the top of their brain just below their skull. In humans, fibres from the inferior accessory optic tract go to the pineal; these are separate from the main optic tract bundle, which suggests that the light sensitivity of the pineal is not necessarily related to sight (Eichler, 1985).

Most people have heard of the pituitary gland, often known as the 'master gland' in that the hormones it makes exert a controlling effect on the endocrine organs. We can think of the pituitary as being an 'on switch' and the pineal as being an 'off switch' (the mistress gland) in that it works with the pituitary by switching off the endocrine organs. The form of ajna chakra is traditionally depicted as bilobed and we can understand this to be the joining of the two glands, pituitary and pineal, which makes very good sense from a neuroendocrinological point of view. To me this makes much better sense than assigning the pituitary to sahasrara, the crown chakra, as some systems do, since sahasrara is better understood as the culmination of everything, the

whole rather than any of the parts. Just as mooladhara is considered by Satyananda to be the top chakra of animals and the bottom of humans, so sahasrara can be understood as the top chakra of humanity and the bottom chakra of the next order of being, whatever that may be.

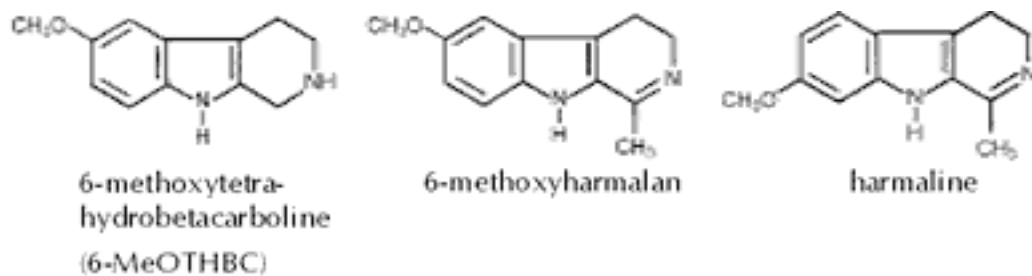
The psychic chakra: pinoline

There is a large body of neurochemical and anthropological evidence which suggests that the pineal gland may produce a neuro-modulator that enhances a psi-conducive state of consciousness. An abstract of this research was presented at the Parapsychological Association Convention in 1985 (Roney-Dougal, 1986). For full details of this research please see Roney-Dougal (1988, 1989, 1990, 1991, 1993). In brief, the pineal gland has been found to synthesize various beta-carbolines and peptides, and to contain enzymes that produce psycho-active compounds such as 5-methoxy dimethyltryptamine (5MeODMT). "The two precursors that are most likely to be involved in the synthesis of such compounds are serotonin (5-hydroxytryptamine, 5HT) and tryptamine" (Strassman, 1990). These have wide-ranging effects throughout our brain and body, affecting the gonads, adrenals, pancreas, thyroid, and other emotional and endocrine activities.

Of most interest here are the neuromodulators called beta-carbolines which are MAO inhibitors that prevent the breakdown of serotonin. This results in an accumulation of physiologically active amines within the neuronal synapses which may lead to hallucinations, depression or mania depending on the amines being affected (Strassman, 1990). Beta-carbolines are also found in the retina of the eyes, in the adrenal glands and in the gut. The pineal contains the greatest concentration of serotonin in the brain, this being accentuated in those who suffer from psychoses. The pineal also contains enzymes that inhibit synthesis of these compounds, thus suggesting a regulating mechanism within this gland. There is a suggestion that it is the action of the pineal beta-carbolines, in particular 6-Methoxytetrahydrobetacaroline (6MeOTHBC, now being called pinoline), on serotonin that triggers dreaming (Callaway, 1988). Spontaneous case collection studies (e.g. Rhine, 1969) have found that many spontaneous psi experiences occur during the sleeping and dreaming state of consciousness, which suggests that dreaming is a state of consciousness whereby we are likely to have psi experiences. This has been confirmed experimentally (Ullman, Krippner & Vaughan, 1973). Pinoline is suggested to be the neurochemical that triggers this particular state of consciousness.

Anthropological data also suggest that these beta-carbolines are psi-conducive because their chemical structure is very similar to a naturally occurring group of chemicals called harmala alkaloids which occur in an Amazonian vine, *Banisteriopsis caapi*, used by Amazonian tribes for psychic purposes (Roney-Dougal, 1986 & 1989) (See Figure 2). The Amazon has a huge variety of psychotropic plants, yet all the tribes throughout that vast area use this same vine mixed with

Psychotria viridis (Nai kawa) which contains dimethyltryptamine (DMT) (Ott, 1993 & 1994), for healing, out-of-body experiences, clairvoyance and precognition. It is traditionally used only when psi experiences are desired, though nowadays it is also used for general initiatory purposes. Thus the tribal people make a mixture of harmala alkaloids and DMT which mimics the tryptamine-pinoline mixture ascribed to the night time output of the pineal gland. My speculation is that when the pineal gland is stimulated to produce pinoline we are more likely to enter an altered state of consciousness which is psi-conductive.



The chemical structure of Harmaline, 6-Methoxyharmalan and 6-Methoxytetrahydrobetacarboline.²⁵

Figure 2. Chemical Formulae of Pinoline (6MeTHBC) and two Harmala Alkaloids (from Roney-Dougal, 1991)

In the 1960s a Chilean psychotherapist, Claudio Naranjo (1973, 1978) used a variety of hallucinogens including harmaline (one of the harmala alkaloids) in the psychotherapeutic setting, and came to the conclusion that: "Harmaline may be said to be more hallucinogenic than mescaline. . .both in terms of the number of images reported and their realistic quality. In fact some subjects felt that certain scenes which they saw had really happened and that they had been as disembodied witnesses of them in a different time and space. This matches the experience of South American shamans." (Naranjo, 1967). Ott (1993) considers that the harmala alkaloids are not actually hallucinogenic in their own right, but that they permit the DMT in the ayahuasca mixture to be absorbed into the blood stream so that these create the entheogenic effects. This is still a matter of debate. There is extensive evidence from many anthropologists which suggests that the Banisteriopsis vine together with *Psychotria Viridis* is a psi-conductive drug, particularly with regard to remote viewing, clairvoyance and precognition but so far there has been no experimental test of these claims (Kensinger, 1973). Ayahuasca has recently been investigated by Don et al (1996) who suggested that its action is consistent with their other research into brain function and psi experience.

Thus, the anthropological evidence suggests that harmala alkaloids mixed with DMT stimulate a

psi-conductive state of consciousness; the neurochemical evidence suggests that the harmala alkaloids are an analogue of pinoline which is produced in the pineal gland, noting that in the comparison between the action of the harmala alkaloids and pinoline it must be remembered that a one-position change in methoxy grouping can be profound in its action. The yogic and occult teachings and common folk lore all say that the pineal gland is the psychic centre and I suggest that the pinoline made by the pineal gland at night time, through its action on serotonin, stimulates a dream type state of consciousness which is psi-conductive.

The command chakra: melatonin

However, the yogic lore not only equates ajna chakra with the psychic centre of our being, but also as the command chakra. For an understanding of the pineal gland as command chakra we have to look to its main action which is the production of the neurohormone melatonin. Melatonin is found in protozoans, suggesting that it dates back a thousand million years, and is found in all animals. It is important in bird migration cycles, dogs' moult cycles, and frog colour change. In this article I refer both to research with humans and with animals in order to obtain as full a picture as possible of the relationship between the pineal gland and the endocrine organs since there has been relatively little research with humans, whilst being very aware that one should not extrapolate too much from animal data as is the tendency so often these days in biological and psychological research. Therefore, as far as possible, whenever the data comes from animal studies I state this explicitly.

The most important function of the pineal gland is maintaining the biological clock, both on a daily basis according to the sun, on an annual basis according to length of day, and on a lunar basis as well. The study of the biological rhythm is called chronobiology and it has been found that there is a genetic connection, a basic inner clock, and an environmental connection through the retina: light stimulates the monosynaptic retinohypothalamic pathway which leads directly to the anterior hypothalamic suprachiasmatic nucleus (SCN), pineal and hypothalamus.

Within the pineal, the circadian rhythm regulation is achieved through the actions of serotonin and melatonin. Serotonin is made during the day and melatonin at night. Acute exposure to light at night suppresses melatonin production. The intensity of light required to suppress production varies between species and in humans is 2000 lux. It has been suggested that perhaps rhodopsin is the photopigment that mediates the suppressive effect of light on pineal. Blue light seems to be maximally inhibitory (500–520 nm). Acute exposure to nonvisible, non-ionizing radiation, e.g. extra low frequency (ELF) 60 Hz electric and magnetic fields also suppresses melatonin production as does pulsed static magnetic field exposure. There is speculation that these effects are also mediated via the eyes (Wetterberg, 1995, Reiter & Richardson, 1992).

Serotonin is a very important neurotransmitter in the brain and its action has been linked with mental states such as psychosis, with entheogenic plants, with our mood circuits and therefore with illnesses such as appetite disorders (anorexia and bulimia). It is a very complex neurotransmitter with 5 or 6 different receptor sites, which means it has many different modes of action.

Melatonin is made from serotonin through the action of two enzymes, serotonin n-acetyl transferase (NAT) and hydroxy-indole-O-methyltransferase (HIOMT). Melatonin production is determined primarily by neural activity from the hypothalamic suprachiasmatic nucleus (SCN) and there is a feedback relationship with the endocrine glands. Gonadal steroids, pituitary gonadotrophins, thyroxine, prolactin and the adrenal hormones intervene in the mechanisms governing melatonin synthesis.

All humans have a circadian rhythm though the magnitude of NAT production varies greatly. In general there is good correlation between pineal NAT activity and pineal and plasma melatonin rhythms. The rhythm at birth is linked to that of the mother; maturation of the cycle accompanies growth of sympathetic nerve fibres into the gland; melatonin production peaks just prior to puberty when there is a sudden and dramatic drop, and from then on it gradually decreases into old age.

The most important neuronal function of melatonin is as a sleep inducer. It has been found to ease insomnia because it causes drowsiness, and also to combat jet lag because it helps to reset the biological clock: 5mgs per day helps induce sleep and helps airline workers adjust to new time zones. (Cowley, 1995). Is there a genetic component in early or late risers?

Hypophysectomy (loss of the pituitary gland), which causes depressed metabolic activity, and bilateral adrenalectomy blunt the nocturnal melatonin rise though the rhythm stays the same.

Being forced to exercise (swim) at night causes a rapid drop in pineal melatonin levels in rats, but not in NAT or HIOMT activity. Melatonin production stays as normal, and blood levels rise dramatically suggesting it is being rapidly released from the gland into the blood system. Removal of adrenals doesn't change this so normal stress hormones are not implicated. This finding has profound implications for the health of night workers (Reiter & Richardson, 1992) because melatonin also modulates release of stress hormones, thereby controlling heart attacks and stomach ulcers.

Jogging or other exercise is a mood enhancer since it stimulates endorphins. Exogenous opiates increase melatonin levels, and beta-endorphin levels decrease when melatonin is administered. Opiates stimulate basal prolactin secretion. Opioid receptor antagonists also decrease prolactin concentrations although continuous administration does not affect circadian rhythm of prolactin, which is related to melatonin levels.

Recent research suggests that melatonin is involved in the ageing process and that giving 19 month old mice melatonin each evening in their water improved their weight, their vigour, their activity levels and their posture when compared with the untreated mice and they lived almost 200 days longer on average (20%) (Maestroni et al, 1989). Touitou et al (1989) measured melatonin levels in people in February, March and June and found that old people have half the amount of melatonin that young men do (we make half as much by age 45 as we do when children), that senile people show far less circadian rhythm, with elderly women showing least variation. For all groups, all through the year melatonin production peaks between 2–3 a.m. with the largest amplitude in January. Inter-individual variations are large in all groups. Since pinealocytes and enzyme activity are not altered in the pineal of the elderly, the decline of plasma melatonin levels may well be related to a modification in the release of the hormone and/or to an increase in its metabolism or excretion. An increased sensitivity to light could also explain the relatively low levels of plasma melatonin in the elderly.

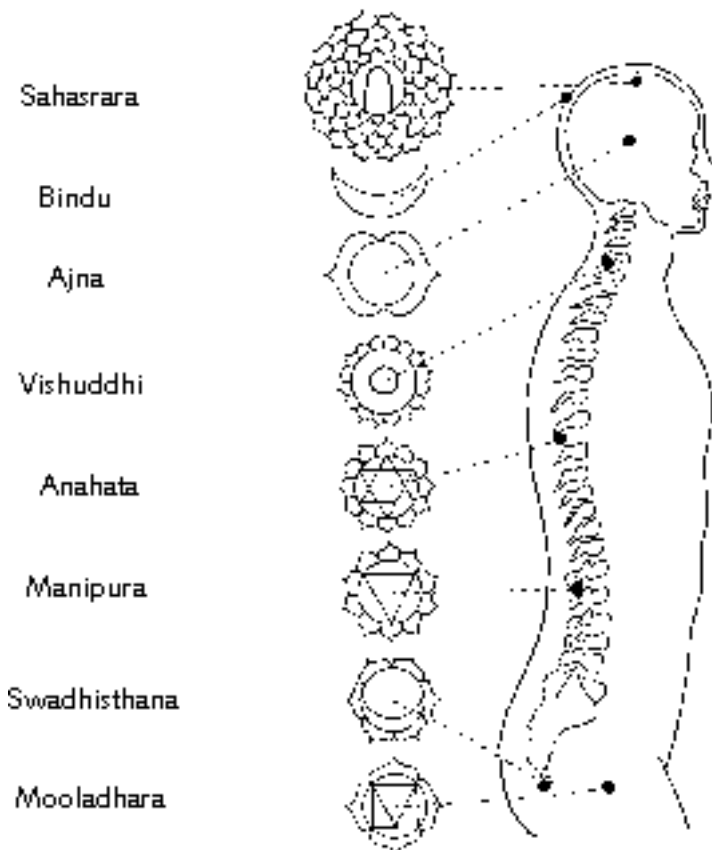
Melatonin production decreases as we age, the thymus gland shrinks and we produce fewer antibodies and T-cells. There are special melatonin receptors on cells and glands of the immune system. A recent controversial speculation is that nightly melatonin supplement boosts the immune system thereby preventing cancer and extending life. Research has suggested that melatonin protects cells from oxidation by free radicals, which contribute to at least 60 degenerative diseases, including cancer, heart disease, cataract and Alzheimers. In this respect melatonin differs from other natural antioxidants, B-carotene, vitamin E and vitamin D in that melatonin is absorbed into target cells and exerts its action from that intracellular position with much greater effect (Reiter, 1995). Melatonin reduction is linked to the calcification process that starts at puberty. People taking chlorpromazine, an anti-psychotic medication that raises melatonin and prolactin levels have low rates of breast cancer. Prolonged exposure to high oestrogen levels raises breast cancer levels and melatonin inhibits oestrogen release.

It thereby also helps to prevent pregnancy because of its interaction with the reproductive system as a hormone inhibitor. This inhibitory action means that melatonin controls puberty; without it we would be sexually active at 4–5 years old. Parapineal tumours, those that lie next to the pineal, stop the pineal from functioning and lead to precocious puberty and progeria (accelerate ageing); while pinealomas, tumors of the pineal gland itself, produce excess melatonin secretion and delayed puberty.

Thus melatonin functions to affect the body in ways which are traditionally connected with yogis: yogis are said to live for many years longer than normal; are considered to be relaxed and stress-free people; to be able to control many of their physical functions, such as heart rate, circadian rhythm and metabolic rate; celibacy is linked to the religious life, and within yoga there is also the tantric path; and they are considered to enjoy excellent health.

Through the light sensitivity of the pineal gland and its primary role within the biological clock system, regulating the rise and fall of the metabolic system and switching off the endocrine glands, which I am going to expand on next, we can see that there are considerable grounds for the concept of the pineal as the command chakra.

Chakra-Endocrine Complex



1 First published in the Journal of Indian Psychology, July 1999, Vol. 17, No. 2. Reprinted with the permission of the author, S.M. Roney-Dougal, Psi Research Centre, Glastonbury, Somerset, Britain.

On a Possible Psychophysiology of the Yogic Chakra System (Part 2)

Dr S.M. Roney-Dougal

The thyroid gland: vishuddhi chakra

According to Satyananda (1972b), vishuddhi chakra is located in the throat and is the centre of 'the nectar of immortality'. It is connected with the sense of hearing and thus with the ears, and of course with the vocal cords and with self-expression.

The thyroid makes thyroxine, which regulates the metabolic rate of the body, i.e. it controls how fast the body runs: an overactive thyroid means that the heart beats fast, one becomes thin, sexual desire increases, and the mind works overtime; whilst an underactive thyroid has the opposite effect. Neurochemically, the thyroid is under the inhibitory control of the pineal gland, removal of the pineal resulting in thyroid enlargement and increased hormonal secretion rate. The pineal is also under feedback control by the glands which it influences. Pineal cells respond to thyroxine, the response being particularly strong at night.

Synthetic melatonin has the effect of inhibiting iodine uptake and the secretion of thyroxine, and, given at the correct times, can reproduce the daily and annual biological rhythms since iodine uptake naturally decreases during the night. Thus, evening injections of melatonin are more effective than morning ones, showing that the time of day when hormone supplementation is given is a significant factor, the influence of the circadian rhythm once again. (Johnson, 1982). The effect of synthetic melatonin on the secretion of thyroxine decreases after puberty.

The hypothalamus makes thyroid releasing hormone (TRH), which stimulates the pituitary to make thyrotropin (TSH), which stimulates the thyroid to make thyroxine.¹ There is a circadian variation in human TSH levels, TSH beginning to rise several hours before the onset of sleep, reaching maximum levels between 11.00 p.m. and 4.00 a.m., declining gradually with a minimum at 11.00 a.m. People with hypothyroidism also show a seasonal variation and circadian changes in plasma TSH, which suggests that the circadian rhythm of TSH is not related to the negative feedback control exerted by thyroid hormones under normal conditions: serum thyroxine levels show maximum concentration in late morning and minimum concentration in early morning. Sleep deprivation results in larger and broader TSH peaks. Pinealectomy does not result in changes in serum TSH or hypothalamic TRH content, nor does it produce alterations on the diurnal rhythms of hypothalamic TRH – so there is little firm evidence for significant interactions between melatonin and rhythmicity of TSH secretion, yet chronic melatonin treatment decreases pituitary TSH content and increases plasma TSH concentration.

TSH is, together with melatonin and the adrenals, involved in coping with long term stress. Alpha-adrenergic pathways play a role in the stimulatory control of TSH release. Circadian changes in cortisol levels follow an opposite pattern to those of TSH. Glucocorticoid administration has an inhibitory effect on TSH secretion and rhythmicity, but there does not seem to be a close

relationship between the daily profiles of each hormone and abolition of the circulation rhythm of cortisol does not disrupt the TSH rhythm. Glucocorticoids inhibit TSH release, and so the circadian rhythm of TSH is abolished in patients with hypercortisolism (Johnson, 1982).

Stress is intimately connected with metabolic rate, heart rate, an overactive mind, and also with age as an older person cannot cope with stress as well as a younger person. Long term stress is very different from short term stress (which is dealt with by the adrenals) and it is interesting that ajna, vishuddhi and manipura are all concerned with stress – which also affects the heart – when the mind just won't stop going in circles around the problem (the beta-rhythm mental chatter), which is one of the worst aspects of long term stress. These are all the negative aspects of vishuddhi and we learn through meditation to overcome these aspects and so to become peaceful, still, calm and to live to a ripe old age, which is another way of saying that the thyroid is connected with immortality. Relaxation is the first step in meditation; slowing down, letting go, releasing the stress, stilling the endless internal chatter as is exemplified so well by the Chinese symbol of immortality, the tortoise; the slower you go, the longer you live. Yogic lore states that it is perfectly possible to regulate the functioning of the endocrine system, thus learning how to control one's metabolic rate. It is feasible that yogic exercises designed for the ajna chakra do physically regulate the pineal gland and so influence the functioning of the other endocrine organs.

The heart centre: anahata chakra

According to Satyananda (1972b), anahata chakra is concerned with will and with feeling, touch, the skin especially the hands, manifesting in such arts as painting, poetry and music, which are aspects of heart.

The thymus

As a result of the writings by Theosophists, many people consider that anahata chakra is connected with the thymus gland, which physiologically is most active in children and is concerned with the immune system. Recent research suggests that there is a connection between the pineal gland and the thymus because of its interaction with the immune system, as mentioned in the section on the pineal gland as command chakra. Functional connections between the immune and the neuroendocrine systems are being increasingly recognized. Thus stressful effects, distress, from psychological or neuro-endocrinological causes may adversely affect the immune system and vice versa.

Circadian synthesis and release of melatonin exerts an important immunomodulatory role, in that it appears to be a physiological up-regulator of the immune system and to operate via the endogenous opioid system on antigen activated cells. When given in the evening to mice it increases the primary antibody response to T-dependent antigens, buffers the depression of antibody production and thymus weight induced by the acute restraint of mice inoculated with sheep red blood cells, and confers resistance against injections of a virus, not by protecting the

thymus cortex but because it enlarges the thymus medulla. The anti-stress action of melatonin appears to be antagonized by administration of the opioid antagonist naltrexone, suggesting that melatonin operates via the endogenous opioid system (EOS) even though the opioid system is not itself involved in the immunological effect of acute stress. When administered in the morning no effect on the immune system was found (Maestroni et al, 1989). Thus, it is possible to see melatonin as an anti-stress hormone since melatonin reverses the depression of antibody production induced by corticosterone in drinking water. Failure to cope with distress may be dependent on an exhausted EOS and melatonin may restore the EOS.

So there is some connection between the pineal and the thymus in animals, and yet whilst there is a certain link between keeping healthy and the normal concept of the emotional aspect of heart in our culture, there is another hormone connected with this region in humans which expresses heart emotion much more strongly: the hormone prolactin which is connected with lactation in the breasts.

Prolactin

I have noticed in my research into the pineal that melatonin is the off-switch for a hormone called prolactin which is made by the pituitary, is involved with pregnancy and stimulates lactation, and is implicated in manic-depression. Most of the research with prolactin has been with animals, but there has been some research with humans showing once again the link with the pineal gland. In seasonally breeding species in which both hormones show a seasonal variation, melatonin mediates the influence of light on prolactin release. All ruminants (e.g. cows, sheep) show a marked seasonal fluctuation in plasma prolactin concentration, i.e. high in summer and low in winter, and certain animals become impregnated in autumn at the end of the long day light hours (Wurtman, 1979), this fluctuation being controlled by melatonin. This inhibition of prolactin secretion in ruminants inhibits implantation of the blastocyst during the winter, so that the foetus does not implant into the womb until spring time, even though mating and fertilization occurred in autumn.

Prolactin secretion in women is also controlled by the ovarian steroids, its level being modified by the fluctuating oestradiol levels of the menstrual cycle. Whilst few clinicians would accept a seasonal basis for reproduction in humans, older epidemiological data, and data more recently derived from conditions of borderline fertility, both support a seasonal change. The exact link to melatonin is as yet unestablished but seasonal changes in plasma melatonin have been described (Matthews, 1981) for women, but not for men. Martikuinen et al (1985) found peaks in both summer and winter, and Touitou et al (1984) found differences between young and old people (see vishuddhi chakra).

Webley (1988) worked with 11 young men intermittently over a 9 month period. He found that, like melatonin, prolactin shows a night time peak around 3–4.00 a.m. and that, whilst inter-individual variations are large, there are no changes in the amplitude of the peaks across the

February, March and June samplings. This significant positive correlation between melatonin and prolactin concentrations is greatest at night and strongest in June. Melatonin concentrations decrease earlier than prolactin in the morning and increase before prolactin in the evening (see Figure 3 and Table 2).

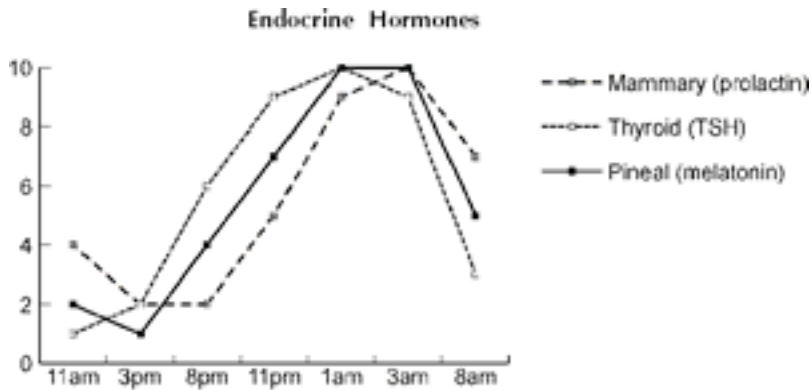


Figure 3: Circadian Rhythms of Melatonin, TSH and Prolactin

Endocrine hormones	11am	3pm	8pm	11pm	1am	3am	8am
Pineal (melatonin)	2	1	4	7	10	10	5
Thyroid (TSH)	1	2	6	9	10	9	3
Mammmary (prolactin)	4	2	2	5	9	10	7

Table 2. Circadian Rhythms of Melatonin, TSH and Prolactin

Prolactin concentration increases with sleep. The dependence on sleep is independent of time of day, so night workers will make some of their prolactin during the day, but prolactin also shows a circadian pattern of high levels at night. There were inconsistent changes in the circadian pattern of melatonin for the individuals, which suggests that environmental factors other than the light/dark cycle can influence the circadian pattern in men, and as I am suggesting here, stress/relaxation is one of these factors – other factors may be sleep/activity pattern, different social cues and physical exertion.

Webley found that melatonin doses given both morning and evening stimulated a significant increase in prolactin concentrations. There is a diurnal rhythm in sensitivity to melatonin: melatonin given in the morning stimulates a constant increase in prolactin concentration across

the sampling period, whereas in the evening a peak in prolactin was evident after 90–120 minutes.

This leads to the conclusion that it is possible that melatonin may control directly the nocturnal increase in prolactin, but in some cases if melatonin concentration is increased, prolactin concentration is decreased; for example, a decrease in melatonin by pinealectomy results in an increase in prolactin release and the nocturnal increase in prolactin is absent in a pinealectomised human who had no nocturnal increase in melatonin. The observed stimulation of prolactin after melatonin injection in the human is also at odds with the inhibition of prolactin release in seasonally breeding animals – this may be indicative of a difference between the response to acute and chronic melatonin administration as is also seen with thyroxine, or may be indicative of the different responses to the hormones between humans and animals. In rats acute administration of melatonin stimulates prolactin, whereas prolactin is inhibited with chronic melatonin. Melatonin can inhibit dopamine release from the rat hypothalamus, the degree of response showing circadian variation. Since dopamine is known to inhibit prolactin release, the influence of melatonin on prolactin may therefore be via a dopaminergic mechanism. Such a mechanism would provide a central site of action for melatonin on human reproduction (Webley, 1988).

Research by Allman (1998), and Ziegler (in press) suggests that in some male species prolactin changes in the fathers are elevated just prior to and following the birth of the offspring, in some cases just as high as their nursing mates. The most experienced fathers had the highest levels of prolactin, the paternal high prolactin level remaining for up to six weeks after birth (Motluk, 1998). Like TRH, prolactin secretion during the day follows the opposite pattern to that of cortisol. Glucocorticoid administration reduces pituitary prolactin content and release as well as prolactin responses to TRH, but does not affect circadian rhythm.

Oestrogens stimulate prolactin secretion, so women have higher basal levels, particularly during reproductive years and pregnancy. There is a close parallel between plasma oestradiol and prolactin. Women have higher sleep-related prolactin elevations.

Further hypersecretion of prolactin and the related pituitary hormones, luteinising hormone (LH) and human growth hormone (HGH)² may be associated with affective (mood) disorders such as manic depression and recurrent depression – here we see clearly the link between emotional, physical and psychological state of being through its disturbance. Further, dopamine antagonism is a feature of major tranquillizers which may cause high prolactin levels; dopamine neurotransmitter dysfunction is associated with schizophrenic disorder and Salvador (1988) considers that dopamine is the most important inhibitory regulator of prolactin and TSH synthesis. I am suggesting that the hormones are the physical aspect of the chakras. Every hormone appears to have a physical component which affects the working of the body. They also appear to have an emotional component, and I am suggesting that prolactin is the hormone of the emotion

we associate with love, which most cultures associate with the heart. Prolactin is made in men as well as women and children, for all of our lives, and has functions other than the primary one of lactation. It is intimately connected with melatonin and hence ajna chakra, with TRH and hence with vishuddhi chakra, with glucocorticoids and our stress levels and with oestrogen and hence female sexuality. As the hormone of love this makes perfect sense.

The solar plexus: manipura chakra

Satyananda says that manipura chakra is located behind the navel and causes old age, decay and emaciation by burning up the nectar of immortality. It is also connected with the sense of sight and the eyes and it is the organ of action and hence is also connected with walking, the legs and the feet. The solar plexus is the locus for our 'gut feelings' about people and situations, and is connected with digestion and assimilation. It has also been linked with ambition, will, self-assertion, vital energy, power struggles, anger and jealousy. Manipura is the uppermost of the 'earthly' or base chakras.

There are two possible endocrine organs in the gut which could be linked with manipura: the pancreas and the adrenals.

The adrenals

The adrenals are the endocrine glands I consider are most strongly related to manipura. Most people know these as the 'fight or flight' glands in that adrenaline is produced when we are in a stressful situation and we burn up our body energy in order to cope with a crisis; adrenaline is the hormone of action. We feel the fire in our belly.

The pineal is connected with the adrenals, and in particular with adrenaline and the corticosteroids in many ways. The adrenals comprise two parts: the cortex and the medulla. The cortex secretes glucocorticoids such as corticosterone, on a rhythmic light-dark cycle linked with hormones from the pituitary and the hypothalamus. The glucocorticoids are involved with sugar metabolism and as stress protectors. The cortex also secretes mineralocorticoids which are involved in mineral balance, and also anxiety. The third sort of hormones produced by the cortex are the androgenic steroids which include testosterone, are involved in body building and anger; there is a steroid surge in the morning to help wake up. These are the stress-related hormones. The adrenal medulla secretes adrenaline. The pineal inhibits release of all of these hormones, thus controlling our physical level of immediate short-term stress – as it does with the thyroids on a long-term basis. Melatonin is actually found in the gut as are the beta-carbolines. Beta-carbolines interact with adrenaline and noradrenaline uptake and outputs as well as with corticosterone secretion, thus interacting closely with the adrenal functions. Constant administration of small doses of beta-carbolines causes the weight of the adrenals to increase, whilst removal of the pineal gland causes enlarged adrenals. The significance of this enlargement of adrenals, as with the thyroids, when for some reason or other there is no pineal, is that the

inhibitory effect on these glands has been removed so that they work overtime. And, as a result, one burns up. This can be understood in the spiritual as well as in the physical sense.

The pancreas

Some systems consider that the pancreas, which is involved in digestion and the input of energy and energy maintenance (the Islets of Langerhans within the pancreas make insulin, a glucose using hormone, and glucagon, a glucose saving hormone), is the endocrine organ of manipura chakra. This would make very good sense in terms of our Western concept of the solar plexus, and is certainly to be considered. Davidson (1989) mentions insulin and glucagon in this connection as the food factory of the body, that which gives us our physical energy.

However, there is a connection with the adrenals because the pancreas is turned off by adrenaline and noradrenaline, and adrenaline regulates the uptake of glucose. Therefore the pineal is connected with the pancreas via the adrenals.

Music and the Mind: Infinite Possibilities for Transformation

Swami Jnanarupananda Saraswati

Nada yoga, such as mantra, kirtan and raga, are sensorial phenomena that can be tools for transformation, enabling us to transcend mental, physical and spiritual suffering. The modern mind often forgets to turn within, to listen inside, to find our own wisdom. We habitually seek external stimuli to satisfy us, and music is one simple, charismatic method to turn our attention within and unfold the experience of fulfilment and inner peace.

To determine the mystical nature of music and how it transforms and leads us to the source and origin of sound, the concepts of vibration, prana, mantra, kirtan and raga. Most of us are familiar with the phrase 'music calms the savage beast' which we know is true for cobras, monkeys, elephants, lions etc., but the savage beast can also be analogous for the mind. Paramahansa Satyananda's commentary on Patanjali's Yoga Sutras explains this cause of suffering. Our lives follow the mind and its senses. The chittavrittis are our habitual, and also inherited or karmic, patterns of mind, which are superimposed upon our real selves, the tranquility of expanded consciousness, Purusha, the union of Shiva and Shakti, the Divine. Amongst these are the panchakleshas: avidya (ignorance), asmita (ego), raga (attraction), dwesha (repulsion) and abhinivesha (fear of death). These motivate us to search for pleasure and only bring us pain (klishta and aklishta).

My own experience of incurring a back injury after several years of sadhana, limited the use of the physical body through hatha yoga to harmonize the endocrine systems, the mind, and to clear nadis. And what of paraplegics and quadriplegics, amputees and those with degenerative diseases such as Alzheimers, multiple sclerosis, cancer and even old age, when mobility is restricted? How do people suffering from these conditions attain the highest, transform, transcend, quieten the mind, the body and bring peace to their soul? Music is a great method. It can induce and deepen relaxation, and promote self-healing and self-acceptance, regardless of mental or physical health.

At this time I was diligently following ashram lifestyle, but when sitting for meditation the mind would continue to whirl and plan. How can I do this better? What needs to be done next? But, if I sat with others chanting the Lord's name for half an hour, the pain in my body would diminish, the senses would withdraw themselves, the boundaries between the inner and outer worlds would dissolve, tranquility, peace, joy and a sense of lightness would be experienced and my mental concerns would dissolve.

This is in fact the experience of the rishis, the earliest practitioners of yoga. They would chant and then be able to sit for meditation for hours. They were able to channel their divine wisdom which we still honour today. Swami Sivananda was a keen kirtanist. He wrote of his experience, "When the Lord's Name is chanted the mind merges in bliss. It loses its individual identity in bliss and becomes one with the bliss itself." (Sivananda

1993)

The nature of music is sound

So what is music? What is its nature that can uplift us? It is said that music is the oldest path to enlightenment. It possesses an incomparable power to unite people of different faiths, castes, classes and creeds; to uplift an individual, or the masses, from pathos to ecstasy (Singh 1975). Music can speak the language of the soul.

Some of the masters help us to define music further: Strauss – music is the translation of the heart's impressions and emotions; Debussy – music is the totality of dissolved powers; Freud – listening to music is an undifferentiated projection of an anal significance (Sanyal 1987). Swami Sivananda says kirtan is the easiest, surest and quickest way to God-realization (Sivananda 1993). Aghori Vimalananda says music is the manifestation of sound, and sound exists wherever there is energy (Svoboda 1996). Swami Niranjanananda says sound is the flow of consciousness (1993). So here are the clues, but the questions remain. What is it that transforms us, propels us towards unity with the Divine? How does it calm the savage beast? Does it dissolve the chittavrittis for good or simply distract us?

Of course, not all music is uplifting. Stress can be caused by the body rhythms being constantly bombarded by sound, natural or man-made, harmonious or disharmonious, energizing or debilitating, audible or not. Some sounds can be detrimental to our health, cause recklessness, diminished efficiency, dizziness, loss of balance, nausea and convulsions (Saraswati 1992).

During the 1970s Dorothy Retalleck, from the USA, performed many experiments with plants in scientifically controlled chambers. She found that plants grew more rapidly and abundantly with Bach's music, and grew towards the sound of Ravi Shankar's sitar, in comparison to Debussy, jazz, and country and western music. It was noted that plants withered and even died with rock and roll (Ostrander et al 1981). These experiments with plants suggest that it is not mind that uplifts, that is, our personal likes and dislikes, moods etc., but the vibration, the essence of sound.

Kay Gardner, a contemporary musician and music therapist, has found from her extensive research, that all global aboriginal cultures have the heart beat as the basic pulse of their music. Rock and roll uses an anapestic beat (tata tahta, tata tahta) which actually clashes with the heart's natural rhythm (Golden 1992). The Tantras and the Upanishads explain that the source of music is sound and that sound is a vibrational energy, prana. This concept can be difficult for the modern mind. One usually requires a leap of faith between the unseeable and the materially identified world that we live in, which can be difficult for the pragmatist.

The essence of sound is vibration

The science of physics can assist our acceptance of these subtle realities. Atomic theory, for example, asserts that all living and non-living manifest matter, comprising solids, liquids and gases, consist of energy,

of atoms made of protons and electrons revolving around a nucleus. Their positive and negative charge creates vibrating waves of energy which can manifest form. They strive to continually stabilize their outer shells, just like us, by constantly interacting with other atoms. For example, two hydrogen atoms and one oxygen atom combine to form water. Thus the whole universe is constantly moving, dynamically creating vibrational motion, which creates and transmits different sound waves with varying frequencies.

Pythagorus, in the sixth century, recognized the mathematical interrelationships between the harmony of the spheres, music and the soul. Astro-physicists at Yale University, USA, are able to describe the sounds of the planets. For example, Saturn hums a slow, dreamy melody and Mercury has a chirping, quick-silvery sound as it rotates through space.

Hans Jenny used a cymatic tonoscope to test the vibration of different tones, music and mantras, using inorganic compounds, such as plastic, and found that the sounds formed organic shapes. Particular mantras produced precise, balanced geometrical patterns or yantras, archetypal symbols that therefore hold inherently, conceptual energy. The Delwarr Laboratories, in England, analyzed waves generated by different music and found the final chord of Handel's Messiah formed a perfect five-pointed star.

D.H. Andrews, a chemist, also researched the relationship between form and frequency and found, for example, that the note A, below middle C, in the western scale, vibrates at 23 cps (cycles per second), manifests the colour red-orange and shares the same frequency as the metal copper. He was able to conclude that all elements, the tattwas, even those making up our own body, are able to be attuned and harmonized with different vibrational sounds.

The philosophies of Samkhya and Vedanta determine that the human body consists of five sheaths, koshas, or vibrational bodies, which consequently manifest different vibrational attributes. For example, the annamaya kosha manifests the physical body and its systems, manomaya kosha manifests the mind and its multiple functions, vijnanamaya kosha manifests the psychic body, and anandamaya is the bliss body. The pranamaya kosha links all these levels depending upon the purity of the nadis.

Dr Hiroshi Motoyama, of Japan, has spent the greater part of his life scientifically verifying psychic, or PSI energy, and the existence of the subtle and casual dimensions of the body. He cites the example that during an experiment with a psychic medium, a paper weight manifested on the testing room floor. It had been in a desk drawer in the room above. The ceiling between them had been specifically reinforced with layers of lead, copper and cement. This incident confirms not only the mind's power to transform and re-form material objects, but also so-called the ability of inert objects to vibrationally change and re-form (Motoyama 1991).

Many psychics, students of yoga, saints and sages, have recorded their experiences, the extraordinary activity of the kundalini, the chakras, and the 72,000 nadis that exist within the subtle body. With practices such as swara sadhana or toning, we can visualize, activate and feel these chakras, spinning vortices of

energy, radiating wheels of harmony, that manifest along the spine.

We can, therefore, realign, release and revitalize the pathways of energy as well as tone the nerve plexuses and balance the endocrinal and other systems of the physical body. So, with sound we are able to vibrationally attune ourselves with the subtle, intelligent, all pervading consciousness. We can activate these subtle and causal realms and thereby expand our own awareness, understanding and knowledge, and experience inner states of profound fulfilment and joy.

Prana creates nada

Swami Niranjanananda (1993) writes that nada forms a link between one's present state of consciousness and one's inner potential, and describes practices that utilize music and honour nadabrahma, the harmony of the spheres, the Absolute, pranic vibration expressed as sound. But how does sound manifest within us? There are four levels of sound, manifestations of vibrational frequencies of prana, paranada, pashyanti, madhyama, and baikhari. Paranada is the purest, most intensely concentrated power, or shakti that manifests as kundalini. Its three qualities are: omniscience, omnipotence and omnipresence. Its frequency is the sound Om or pranava, and the Yoga Sutras proclaim that pranava is Ishwara, God, the Absolute.

From paranada, as the energy disperses to manifest form, all other sounds emerge: matrika, or sound-units form the beeja mantras which manifest the chakras. For example, sahasrara has 1,000 petals each with a different combination of the fifty beeja mantras. It is here that the psychic body of the DNA stores the secrets of existence. Internal nada can be heard, like the sounds of a conch, a bell, a drum, Krishna's flute and so on. From here also the three vibratory qualities, or gunas, manifest, as well as the five pranas and the five devatas. (Niranjanananda 1994)

When we combine sound with the breath and concentration, which we naturally do while singing, we can use music for specific spiritual development, as each chakra, and each level of sound, represent different levels of consciousness. Through awakening and harmonizing these sounds, we can actually dissolve mental patterns and create new ones, and thereby heal both physical and mental imbalances and disharmonies, as our karma allows.

Mantra

Different mantras, as a consequence of their origin, can therefore liberate, and reorganize and re-align the mind's tendencies, which eventually quietens the mind, intensifies its focus, concentration, and energy levels. Mantra can expand our self-understanding, and develop memory and creativity. They can alter and improve our attitude, our self-expression and our sensitivity to subtle vibrations.

In yoga psychology, mantras are used to correct psychological and psychic disorders, which are viewed as an imbalance of energy in the mind. David Frawley (1992), a US medical practitioner, states that while psychoanalysis can often keep a client self-centred, mantric energy can dissolve thought constructs like a

magnet rearranges iron filings. The magnet of the mantra can realign and release energy, creating positive energy and thoughts, enabling the individual consciousness to develop a more harmonious level of experience which can eventually lead us to 'the imperishable omniscient awareness of Shiva's plane of oneness, of unity (Dyczkowski 1989).

Kirtan

Combined with the mystical qualities of music, the power of mantras are heightened. All languages can evoke powerful images and associations, but Sanskrit has the added purity of its original rhythmic patterns reflecting natural sounds, which have been faithfully maintained throughout the centuries. Sanskrit, or Devanagari, is regarded as the language of the Divine. One doesn't need to understand the meaning of the words, or even have faith in them, as Paramahansa Satyananda testifies: "What I could not achieve with so many years of sadhana, I attained by singing a name which I did not have faith in." (Satyananda 1992)

Other factors contributing to kirtan's potential are that the mind is tranquilized and calmed; the monkey mind becomes enraptured and consciousness becomes one-pointed. Kirtan differs from other forms of songs and bhajans because only the Name is repeated. Chanting in a group also intensifies the vibration. The effect of united consciousness is concentrated and, therefore, uplifting and transforming. Sound, when it becomes music, is the only thing which can so possess people they are able to drop all their inhibitions, even for just a moment, and dance.

Raga

Raga are particularly interesting because the masters of this art have refined their harmonies to eloquently reflect the natural sounds, the earth's elements and rhythms, (even those of the heart, peristalsis and the breath) and of course of specific emotions. They are designed to have a profound impact upon our thought and behaviour. Raga are mathematically perfected patterns of tonal series which match and attune our vibrations, penetrating the depths of our consciousness. Playing them successfully takes a lifetime of dedication between master and disciple. The musician is trained to smoothly flow from one tone, or swara, to another to disengage us from the material to the spiritual. Their gradation of pitch, intonation and octave divisions are able to reflect the different experiences and manifestations on all levels of consciousness.

Different ragas have different qualities. It is said that some can produce rain, like the Raga Megha, or fire like the Raga Deepaka. They can also have different healing qualities and are used in the Ayurvedic medical system. Some examples are: R. Bhairava has the power to regulate the three major doshas of the body, vata, pitta and especially kapha. R. Ramkali quietens the nerves and regenerates vital energy. R. Gujari sharpens the intellect and can harmonize relationships. R. Bhairavi remedies respiratory illnesses. R. Shiri remedies illnesses caused by extreme hatred and malice. R. Daiberi remedies heart pain and rheumatism (Singh, W 1975). Of course, these do not replace, and can be used in conjunction with, any medical service. The list and potentialities of music are a continuing phenomena that can develop and deepen our experience on all

levels of consciousness.

Music is thus a means of transformation physiologically, mentally, emotionally and psychically. It is a tool that facilitates healing and insight. Simply by listening to music we are able to realign our vibrational frequencies. Music can be used individually or communally to alter moods, behaviour, attitudes, and even to attain samadhi, with guru's grace. Music can speak an international language of peace and harmony whether we are healthy, disabled or diseased. This is the transformational power of music.

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The Koshas

Swami Niranjanananda Saraswati

Yoga says that there are five dimensions known as koshas or sheaths. Experience and understanding of the koshas helps us know the depth of the human mind and, ultimately, dhyana, meditation.

Annamaya kosha

The first dimension is the material body, annamaya kosha. Anna means 'food', 'manifest matter', maya means 'full of'. There is no greater miracle than the human body. Although, scientifically, we look at the physical body as different systems which control the bodily functions, yoga says that these functions are nothing but manifestations of the interaction between energy and consciousness. As we begin to experience the inner bodies, energy and consciousness manifest in a subtler form. So annamaya kosha is a dimension of existence in which we experience matter which is a combination of energy and consciousness.

Pranamaya kosha

The next layer of experience is pranamaya kosha, movement of the pranic force directing our physical and mental activities. This movement happens through nadis or channels, conductors of energy which are controlled by the six chakras. Mooladhara chakra controls the elimination of accumulated toxins from the body and mind. In the physical process, what we eat is eventually excreted, but while it is inside the body we derive nourishment and energy from it. In the same way there is also a process of elimination in the mind. However, we do not understand this process. We tend to accumulate experiences in the form of the five kleshas, whether it is ignorance to begin with or the fear of death to end with. We do not eliminate them from the mind, but retain them in the form of experiences. Human consciousness revolves around those memories and experiences because of another factor which is the ego.

We have to learn how to eliminate things from the mind and retain tranquillity and calmness. This can happen when we begin to work with our pranamaya kosha. To help in the understanding of inner release, we have to work with swadhisthana chakra, which represents the inner mind, the unconscious, the storehouse of experiences and memories. When memories plus experiences are stored in the inner mind, they are known as samskaras or impressions. Samskaras can be eliminated or transformed when we learn how to work with our pranamaya kosha at the level of swadhisthana chakra.

Dynamism of mind, aggression in our personality, whether physical, mental or emotional, is controlled by manipura chakra. When we work with manipura chakra, we transform the energies which are manifesting there at present to eventually experience the sattwic state of being.

Anahata chakra controls the manifestation and projection of feelings and emotions. It deals with the qualities of attraction and repulsion in our nature. Vishuddhi chakra, behind the throat, is a centre through which we learn how to interact in the world efficiently, effectively and creatively.

When we work with vishuddhi chakra, we change our outlook, our vision of life, and there is enhanced creativity, positivity and optimism coming out as improved communication.

The sixth chakra is ajna, the doorway between the manifest energy and consciousness and the unmanifest transcendental energy and consciousness. It allows us to move from the manifest dimension to the unmanifest aspects of our personality. All six chakras are dealt with when we are trying to manage pranamaya kosha.

Manomaya kosha

After pranamaya kosha, we come to manomaya kosha, the dimension of mental awareness. This mental dimension is composed of two qualities, manas and buddhi. Manas is the rational, linear, sequential, thoughtful mind. Buddhi is the quality of discrimination which comes after knowledge, after the removal or the absence of ignorance. The practices of pratyahara aim at realizing and discovering the nature of our manomaya kosha.

Harmony of manomaya kosha has to be attained by also balancing pranamaya kosha. We cannot say that manomaya is different to pranamaya, and pranamaya is different to annamaya; they are experiences and conditions of life which cannot be separated from each other. However, for our understanding and to define the sequence of our practice, yogis have defined the functions of annamaya, pranamaya and manomaya koshas separately.

Vijnanamaya kosha

From here we come to vijnanamaya kosha. Jnana means 'wisdom', 'knowledge'; the prefix vi is a confirmation of the intensity of knowledge which is derived not only from the experiences and memories which we have gained in this lifetime, but also in past lives. There is a storehouse of knowledge in every one of us, but we are not educated to experience that inner wisdom.

Vijnanamaya kosha has the aspects of chitta and ahamkara associated with it. Chitta means the ability to know, to become the observer of what is actually happening, to be able to live a reality and not speculate or fantasize about it. Ahamkara is the ego aspect, in the real not the gross sense, knowledge of 'I', becoming aware of the identity of the self. This understanding comes when we work with vijnanamaya kosha.

Once we have worked with and understood the identity of 'I', the identity of the self which is manifest in the world in the third dimension and which experiences the pleasures and comforts, pains and sufferings of life, we move into the experience of anandamaya kosha, the dimension of bliss, happiness, wholeness, contentment.

Yogic management of the koshas

According to yoga these are the five dimensions of existence into which all the other experiences fall, which may be physical or emotional, which may be in the realm of energy or the mind. In order to deal with each kosha, yoga has presented different techniques. To harmonize and experience optimum health in the different energies and functions of the physical body, yoga says practise asana, pranayama and the shatkarmas which can help to purify and detoxify the body.

To deal with pranamaya kosha, yoga says practise the techniques of pranavidya, chakra shuddhi, kriya and kundalini, which will help to channel the flow of energy throughout the system, to stimulate and awaken the prana.

To manage the activities and balance the agitations of manomaya kosha, yoga says practise pratyahara, dharana, mantra, yantra and mandala meditations. To experience the power and force of vijñanamaya kosha, practise dhyana, laya yoga and nada yoga. To experience the state of anandamaya kosha strive to attain the experience of samadhi, to awaken kundalini. It is around these concepts of managing different dimensions of human experience and existence that the entire system of yoga evolved.

Disconnecting the outer and inner mind

There comes a time when we need to disassociate our mind, attention and awareness from the things that continually bombard us. Most of us are tamasic and rajasic by nature; we have not yet experienced the sattwic state. Sattwa is not simple living or simple thinking; it is the awareness of the true nature of the self. The distorted nature of the self is seen and experienced under the influence of rajas and tamas. We are sitting here attempting to understand the sattwic nature and to go beyond the conditionings of rajas and tamas. The entire life experience is classified into tamas and rajas, and only samadhi, only the awakening of kundalini, only the understanding of absolute human potential, is the state of sattwa.

In order to come to the sattwic state, there has to be some form of disconnection, disassociation from the world in which we live. When we go to sleep at night, we disconnect from the outer world and connect with the inner mind. That is not enough. To experience the pure mind there also has to be a disconnection from the inner mind. 'Inner mind' in our vocabulary simply represents an activity which is not conscious at present. If I say, "Connect with your mind", you will become aware of your thoughts, your emotions, of the different qualities which manifest within the mind. If we go deeper, we may also become aware of samskaras and karmas and say, "This is our inner mind."

Experiencing the pure mind

What we are looking at here is the gross inner mind which functions in the third dimension, which is subject to the laws of time and space, which creates its own identity by looking at different forms, ideas and names. These are the areas of the inner mind on which our mind projects itself. Yoga says that there is another mind – the pure mind. This pure mind is experienced with the attainment of the anandamaya state, through samadhi and the awakening of kundalini. Samadhi and kundalini represent a state of being in which the normal life events do not alter or affect our behaviour, emotions or thoughts, and yet there is harmony in everything that we do. There is no effect from tamas and rajas, but only the experience of sattwa. This is the aim of human life. One has to move from the gross to the transcendental, from the impure, distorted, coloured impressions to the experience of continuity of consciousness. The process is very simple,

provided we do not deviate from it. In pratyahara we observe the various experiences of the mind; and this is the first step in understanding the pure mind.

The Real Nature of our Body

We look at our body as a static unit instead of it being a continuously changing phenomenon. Like the water of the river which is continuously flowing, the cells in our body are continuously getting replaced by new cells. About 98 per cent of the cells in the body gets replaced every year. Our body is nothing but a fluctuating field of energy and once we understand this, it is easy to see how this body of energy is part of the universal field of energy. And how harmony inside and harmony with the environment outside is essential for a 'harmonious flow of healthy life'.

Ayurveda, the system of medicine which comes from the very vedas, defines stress as "that which interferes with nature's intelligence in our body" - Dr. Deepak Chopra, in *Simply Living*. According to Dr. Chopra, the flow of universal intelligence through our body is a very effective stress management technique, because stress is that which interferes with that flow of intelligence.

Science has discovered that the atmosphere is charged with electromagnetic energy which is vital to the preservation of life, which is exactly how yoga talks about the universal prana: prana shakti, the cosmic energy, is the basis of existence and whatever we see in the whole cosmos and in this little world, is nothing but the gross manifestation of prana. The counterpart in the body is called microcosmic energy.

Recent scientific investigations have brought modern science and man closer to yoga. For example, swara yoga talks about the positive and negative energy currents flowing in the body, and science has proven the existence of these flows. The electromagnetic energy, which surrounds the earth, makes it appear to be a gigantic magnet- the north pole being positive and the south pole being negative. Each pole attracts opposite and repels like electromagnetic particles, thus creating energy circuits around the terrestrial plane. The particular movements of these electromagnetic currents affect the energy balance in every form of life. Furthermore, the cycle of these currents greatly affects our entire being, and the particular nature of the charged particles influences the different mental and physical processes.

Writing under 'Ions and You' in *Yoga Today*, R. Carly George refers to the ions as 'the vitamins of the air' for their effect on our well-being, and goes on to mention that as far back as the mid 18th century, 'natural philosophers' were studying the effects of atmospheric electricity on plants. By the 1920's scientists were beginning to take seriously the theory that air electricity was vital to the growth and the well-being of natural life, and by implication to man himself. But as Fred Soyka says in his book *The Ion Effect* (Bantam), "Only in the past decade however, have scientists been able to actually prove that when nature or man starts meddling with air electricity, life can become insufferable for some of us, and uncomfortable for all of us."

According to George, nature's own meddling is seen most often with what are known as 'Witches Winds', which sweep across parts of the world in set patterns, and at set times, and although not titanic, nonetheless leave a trail of human wreckage in their wake. People go berserk, commit

suicide, commit murder, act completely out of character. On a small scale, tempers flare, families quarrel, people suffer from headaches and depression, as if under a black witch's spell. He names these winds as the Santa Ana in California, the Sharov in the Middle East and the Foehn, Europe's own witch wind.

It is said that the Foehn causes road and air accidents, and even surgeons postpone operations as they believe that their own skill and the recuperative powers of the patient are diminished when the witch wind blows.

In the Rocky Mountains, the Chinook is the ill wind that causes anything from murderous intentions to cold and respiratory problems; and the Sharov is even taken as a plea of mitigation in the Middle Eastern courts. All these are caused by an upset in the balance of ions in the atmosphere.

Kirlian photography and prana

Modern science has come across an important discovery which shows that energy in the body emits an aura of light. The discoverers, a husband and wife team called Kirlian, came across the phenomena in 1939, and since then researchers have found that all life forms emit a particular aura, and that the insentient objects also have an aura for some time.

According to one's mental and emotional response the aura expands or contracts. For example, when a person is calm and relaxed, his pranic emanations are steady and elongated. But when he becomes anxious, the aura becomes flared and jagged. Just before death, the aura completely vanishes.

Kirlian photography conclusively proves the yogic theory of prana, and of how our thoughts and state of mind influence the pranic rhythms. Yoga also says that when there is no longer any indication of prana, death will ensue. This is because, just before death, the pranas and electromagnetic fields withdraw, and therefore the aura diminishes.

According to yoga, the body is a storehouse of vital energy, a dynamo with infinite electrical current flowing throughout. The ordinary man sees this body as a combination of flesh, blood and bone. But the yogis and scientists have perceived a greater force behind the physical elements and that is the force of energy and prana.

In Japanese acupuncture and moxibustion, prana is called ki and in Chinese, it is ch'i. If one can adjust and harmonise the flow of ki, one will be immune to sickness. The principle of acupuncture and moxibustion is the release of stagnating ki or the elimination of the imbalance in its circulation.

The Tibetan teachings also expound a similar theory. Diseases can be cured by the absorption of prana through the chakras, and simultaneously harmonising the body by the adjustment of the flow of life energy. Yoga, acupuncture and Tibetan medical teachings all talk of flow of body energy and the harmonising of body energy for health.

The pranic body

According to ancient texts, there are seventy-two thousand nadis or energy pathways in the psychic body of man. It is along these subtle channels that prana or life force flows throughout the body. The three most important nadis are ida, pingala and sushumna, which originate from the lowest psychic centre, the mooladhara chakra. Sushumna runs upwards through the spinal column, while ida and pingala criss-cross each other at the various chakra points, and finally meet at the ajna chakra on the top of the spinal column.

The health of the body-systems as well as the healthy functioning of the various organs depend on a proper balance of the ida and pingala nadis. However, under chronic stress and tension this delicate balance is upset, affecting the entire energy network. This results in pranic or nervous exhaustion. When this happens, the body-system becomes susceptible to a host of chronic disorders, and being 'chronic', there seems to be no cure. However, with the regular release of stress and tension through a series of yogic practices such as asana, pranayama, yoga nidra, meditation and shatkarma, the 'incurable' disorders dissolve slowly by themselves as the toxic build-up in the body gets systematically removed; and an equilibrium between the nadis gets reset, and the prana begins to flow normally.