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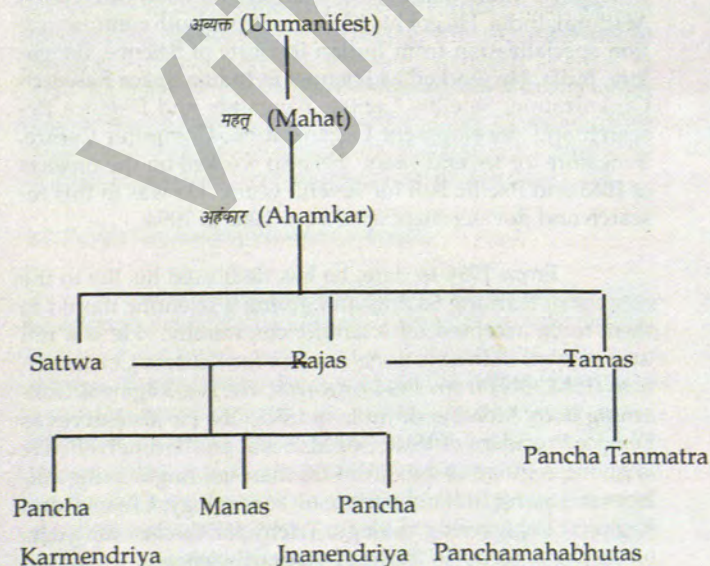
Physiological Changes & Healing Through Altered State of Consciousness

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Introduction

There are emerging scientific evidence from three converging areas of research, viz; Epidemiological research, Physiological research & Clinical research that yoga is emerging as one of the important techniques to heal many of the common ailments, such as general weakness, constipation, anxiety, headache, gas problem, Lack of appetite, indigestion, depression, diabetes, Asthma, hypertension, Arthritis and back pain. Analysis of the available results substantiates the efficacy of clinical yoga techniques. Taken together, these different kinds of researches are beginning to show a coherent picture, that altered states of consciousness, achieved through yogic techniques, can bring about physiological changes and enhance healing process. (Kabat-Zin 1960, Dimonton 1972, Mears 1979, 1980 Udupa 1977, Monroe 1988 Melehzender, 2000, Mangaltheertham 2002, Nagendra 1981). An altered state of consciousness for a given individual is one in which he clearly feels a qualitative shift in his pattern of mental feeling.

In Yoga, Pratyahara is a technique where we decrease the alertness by relaxing critical faculties, thereby we come to a state where thinking is minimal and finally alter the state of consciousness and we are able to decondition mind-brain completely and transform gunas, which help us to act consciously to accelerate or direct the cause of physiological activity in our cells, directly influencing the functions of genes. To understand this mechanism we have to know the body mind complex of human being and its mechanism of and influences of the regulation of gene functioning in relation to knowledge of ancient Vedic science and modern cyto-genetics.



The human body is union of four components:

Atman	Manas	Indriya	Body
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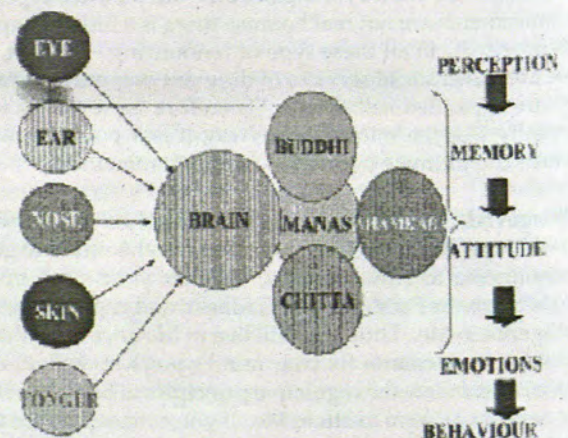
This is a continuum where body proper is the non-sentient and soul is sentient end. The body is gross, mind is subtle and soul is the causal body of human organization. So we are in fact effect of the cause. The atman is present in all of us as divine force. It is Sat, Chitt, and Ananda. (Sankaracharya)

Thus mind is an interlink between the inert body and the sentient soul, through the intermediary facilities. Mind is a dynamic component, which moves from faculty to faculty but there is only one mind in an individual.

Mind is a dual faculty:

It has sensory and motor functions. As a sensory faculty its object is anything that is thinkable. Here thinking includes all sorts of higher mental activities such as contemplation, evaluation, deduction, meditation and imagination. As motor faculty mind works as a tool for connecting the soul with other faculties, as a tool for controlling itself and engages itself in the process of thinking and deducting. This mind is super faculty, because it controls the other faculties and all other faculties can get connected to the soul only through the mind. The sensory faculties are called exterior faculties.

Bahyaindriya: On the contrary, mind is an internal faculty
Antaraindriya: Manas Chaturastaiya





Man in waking state processes perception, memory, express emotion, depending on his individual attitudes at the level of manas, Budhi, Chitta, and ahamkara and finally manifest behaviour at the gross level, through body and action, with Karmaindriya.

Operational Quality of mind: There are three-operational qualities of mind according to Samkhya. They are three universal or major attributes (Mahagunas) namely Satva, Rajas and Tamas. These attributes are present in a non manifested state in the primordial substance nature (Prakriti) from which the whole universe has evolved. Since the living being is a microcosm of the macrocosm or the universe, the living organism also is endowed with these three major attributes. Mind being an entity of the organism, it also has the three major attributes. Satva represent purity, light, knowledge and pleasure. Rajas symbolizes, action, speed and pain-Tamas represent indecision, ignorance and confusion.

Satva is pure and virtuous, so it never causes disease. But the other two attributes namely Rajas and Tamas are capable of vitiating mind and are cause of disease. Hence Rajas and Tamas are designated as vitiators of mind and are causes of diseases.

Rajas and Tamas are liable to be coloured, tarnished and so are termed "Dosa", which vitiates mind. Therefore the cause of disease is embedded in mind. There are many forms of Raga. Raga means that which colours (Ranjana). Raga (attachment of the desire to possess), Dvesa (hatred), Lobha (avarice), mada (pride), Moha (False belief), Matsarya (hostility), Dambha (ego) is all diseases of the mind. They all originate from Rajas and Tamas.

A satvik mind is not coloured by such abnormal fascination, which create pains. Therefore, Roga is that which create pain
रुजन्ति इति रोगः (Rujanti iti Rogha)

These references take us to the original approach, mainly provided by the philosophies of sankhya, nyaya and vaiseika (Kapila, Gautama, Kanada) respectively.

States of mind In Yoga Darshan : Yoga Darshan further depicts the mechanism of Vritti formation and it is stated clearly that when, we are influenced by stimulus that we receive at work place and life stresses, then depending on the gunas of mind, the mind goes through stages of Kshipta, Vikshipta, moodha, Ekagra and Nirudha. Such states can be recognized and



Kshipta



Vshipta



Ekagra

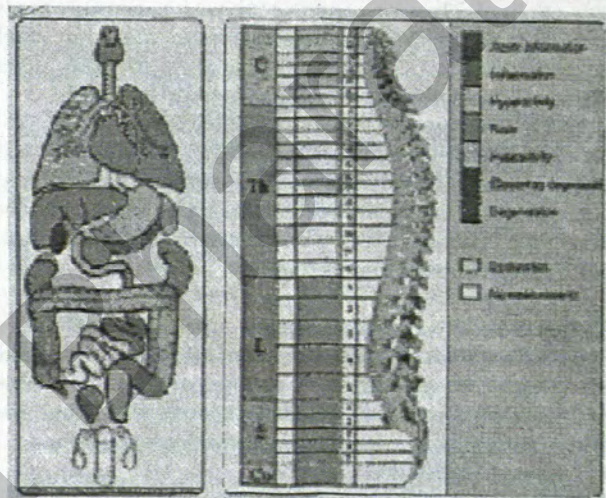


Nirudha

When we are in deep sleep, mind is withdrawn and the world temporarily vanishes for all of us. Thus Nidra is regarded as a process close to samadhi, but here we are in moodha state of mind. But there are many in this world that never enjoy

deep sleep. So, the patterns of wakeful stages are never modified or stopped by any suitable technique.

Conditioned mind is the cause of disease: Violence, anger, hate, fear, Jealousy, causes Kshipta and Vikshipta patterns or Vritti in mind. Such Khisptha and vikshipta patterns or vritti in mind cause imbalance of mind-brain equipment and also cause conditioning of mind. Diseases and misery germinates in the conditioned mind and later it percolates and manifest in the body through neuroendocrine axis. Thus disease, which appeared in mind at psychic phase, passes through psychosomatic, somatic and finally manifest in organs in organic phase. Thus negative emotion alone is the primary cause of human sufferings and agony.



(The diagram shows the manifestation of the disease in organs)

Patanjali's yoga sutra lays down certain sound principles for good health and longevity. Any deviation from these sound principles is the result of our negative thinking. This is called "Pranajaparadhas", which according to shastras are real causes of disease. The first evil in man is embedded in his mind. This becomes the seed that produces a vicious circle, ever growing wider and wider, engulfing into its vortex. The habit of acquiring more and more than what we actually need affects man adversely. This generates desire to get more and more. This leads to a craving and a craving when not satisfied, leads to frustration, producing anger, hostility and conflicts. Ultimately the conflicts develop into mad rush, degeneration of life and increase in the incidence of disease or Klehsa. Therefore to eradicate disease, yoga is one and the only means. This can be achieved through chitta vritti nirodah. "Yoga Chitta Vritti Nirodhah".

Deconditioning mind: Through altering the state of consciousness

Be a Seer to mutate human psyche: If one observes the mind with non-reactional attentiveness the attentivity takes over the subject and the subject sees the object without any mutilation. This frame of reference is called non-dualistic frame and has capacity to understand life directly, instead of in the abstract, linear terms or representational thinking. The non-dual frame of reference has the capacity to perceive the whole.



The attentivity is at higher quantum energy potential than relativistic thought, so it bombards thought and annihilates it. In this frame of reference thoughts end, or a cultural dissipative structure goes in abeyance, or the morphopsychic fields are transcended. This results in the mutation of human psyche. This is how, all imbalances and all conditioning ends (Kanwaljit & Sampoon, 1989).

Therefore, the key to health is the mind+brain equipment, lies in looking at the objective world and the subjective world with non-reactional alertness. It is the higher level of awareness that can heal all diseases. Yoga advocates the practice of Yoga Nidra and Antarmouna to achieve this state of mind. During the practice, we increase alertness by relaxing critical faculties; thereby we come to a state where thinking is minimal. Therefore, in the process, it is possible to alter the state of our consciousness, whenever and individual acts consciously to accelerate change or direct the cases of his physiological activity, through gene activity as well.

(B) Transformation of Gunas: A real medicine.

Yoga teaches us to transform Rajas and Tamas by withdrawal of mind from attachment to sensual pleasure and fix it steadily in Satva or purify it. In this state man enjoys a harmony between mind and body and gains aisvarya. This is deliverance from pain and is real medicine.

(C) Do's & Don't's : In Raja Yoga.

The health depends upon our conscious efforts to protect and preserve it. It is necessary for us to be conscious of everything. So like other sastras, yoga sastras commands and instructs us on the "do's and don't's. As sastra is defined: f'k";rs vusu bfr 'kkL=ke~

(That which commands and instructs us is Sastra.)

Patanjali's Yoga can be divided into two groups.

- (a) Bahiranga Yoga : Yama, Niyama, asana, Pranayama
- (b) Antaranga Yoga: Pratyahara, dharana, dhyana and Samadhi

The yama, Niyama practices change and alter the external personality, behaviour and action. They are also capable of controlling vrittis, which are affected by the external stimulation and environment.

The five yamas or external disciplines are: Satya=truthfulness; Ashimsa, Bramcharya (Celibacy), astaya and aparigraha.

The niyamas are (i) Shaucha, cleanliness, (ii) Santosa, Contentment, (iii) Tapas, austerity, (v) Swadhyaya, self-study and (v) Ishwara Pranidhana, generation of faith in God. These niyamas create sense of discipline in one's inner life.

Yoga regulates hormonal secretion: Yogic asanas and other practices have a close relationship to the anatomical situation of the exocrine and endocrine glands of the body. It is now well asserted that the endocrine and nervous systems are toned and stimulated positively by yoga practices. They are influenced in two ways:

1. Primarily by local increase in the blood circulation in the endocrine glands and nerve plexuses.
2. By influencing the secretory function of these glands. Carsello 1978, Cooper 1985, Jeving 1977, and 1978, shah 1974, stone 1976, Udapa 1977, Wiensibom 1976 in their different studies have shown that there were marked changes in thy-

roxin, catacholamines, epinephrine, histamine, plasma cortisol, and urinary 17 hypoxysteroids and others, while practicing yoga

Mechanism of action initiated by Yoga Practices:

Action mechanism of hormones

At molecular level, the hormones in the target cell initiate two types of reactions; (Tortora & Grabowski, 2003):

1. Synthesis of new protein
 2. Activation of enzyme & involvement of C-AMP.
1. Synthesis of new protein – The hormone release form blood first binds with a receptor protein, which is present in the cytosol of the receptor cell. After binding with the hormone, the protein changes into a form which sediments at 5s. The 5s hormone receptor complex then moves from cytoplasm to the nucleus. There it binds with the DNA & increases the activity of DNA dependent RNA polymerase. This causes an overall increase in m-RNA & several new proteins are synthesized.
 2. Activation of enzyme & involvement of C-AMP: E.W. Sutherland & T.W. Rall (1960), found that hormone after reaching the receptor cell, activates a membrane bound enzyme, the adenyl cyclase. This enzyme catalyses the conversion of ATP in to C-AMP. This further activates the rate limiting enzymes by phosphorylating them. These activated enzymes may change the metabolic rate of tissues and the desired physiological effect is achieved, depending on the need of the body.

Conclusion:

There is ample evidence to indicate that yoga practices influence hormonal secretions by affecting the endocrine gland system. The above findings further show a clear interaction of hormones in regulating gene activity at the level of transcription, either through cyclic AMP or by directly binding to non-histone chromosomal proteins.

Therefore, Yoga opens up the possibility of consciously accelerating the individual evolution. In the process, we can have more resistance power. We can bring about a change in many physiological activity of the cells, thereby influencing a revolutionary change in behavior and other aspects of life.

Any attempt, therefore, to modify the gene activity of the human being is an unnecessary and; unwanted trial by genetic engineering techniques. As such a trial will not only be dangerous to the human race, but also may even do more harm and make the human race completely extinct. It will not be less disastrous than an atom bomb explosion. So, all of us should think about the ways and means of individual evolution by the Yogic processes, rather than by some induced mutation process or by some genetic Engineering process, which do not posses the potentialities to alter gene expression consciously.

The Switching on and off of human genes can be influenced by unconscious or conscious external action. The hypothalamus of the brain sends out the signal that tells the pituitary gland to release a hormone that tells other endocrine glands to secrete hormones. Hypothalamus takes orders from the conscious part of the brain which gets its information from



the outside world, Yoga prepares our mind to receive every happening in a positive way e.g. "Sambhawa". Sambhawa is nothing but state of mind in which we look at the objective world and subjective world with non-reactional alertness.

So, we can have a scheme, how Yoga can regulate gene activity in a natural way by altering the state of consciousness through different Antarang Yoga techniques. This scheme shows, how mutation of psyche or altered state of consciousness can change a vibration of mind-brain equipment and then crystallization (the hormone) and finally a change in the physiology of cell by altering the formation of new enzyme. This can initiate new enzymatic reaction or help in the materialization and transformation of physical, mental and emotional behaviour of human personality.

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