

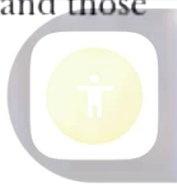
Yoga Nidra and the Brain

Modern neurophysiologists have been able to demonstrate an obvious relationship between the body and the brain which was first recognized by the ancient yogis thousands of years ago. Using stimulating electrodes to probe the brain's surface, neurosurgeons have shown that each part of the body is precisely mapped out along the surface of the central gyrus or fold of the sensory motor cortex of the brain.

Relaxing the mind by relaxing the body

This is where we make the connection between the latest neurosurgery and the meditation technique of yoga nidra. If you have ever practised this technique, you will recognize the signposts on the sensory-motor cortex as precisely those parts of the body through which your awareness passes during rotation of consciousness.

The brain is the physical mediator of consciousness, linking mind, body and emotions into one harmonious unit. The neurosurgeon affects the body by stimulating the brain. The practitioner of yoga nidra begins at the other end of the nerve pathway by heightening the awareness of the body in order to stimulate the brain. The progressive movement of awareness through the parts of the body not only induces physical relaxation, but clears all the nerve pathways to the brain, both those governing the physical activity and those



concerned with incoming information. At the same time we make a total run through the brain surface, from inside out. In this way, yoga nidra relaxes the mind by relaxing the body.

The motor homunculus or 'little man'

Researchers have named this neuronal map or hologram of the physical body existing within the cerebral white matter, the motor homunculus or 'little man'. All the body parts through which the awareness passes during rotation of consciousness can be located there, for example: "Right hand thumb, second finger, third finger, fourth finger, fifth finger, palm of the hand, back of the hand, wrist, elbow, shoulder, armpit, right side, right waist, right thigh, kneecap, calf muscle, ankle, heel, sole, big toe, second toe, third toe, fourth toe, fifth toe . . ."

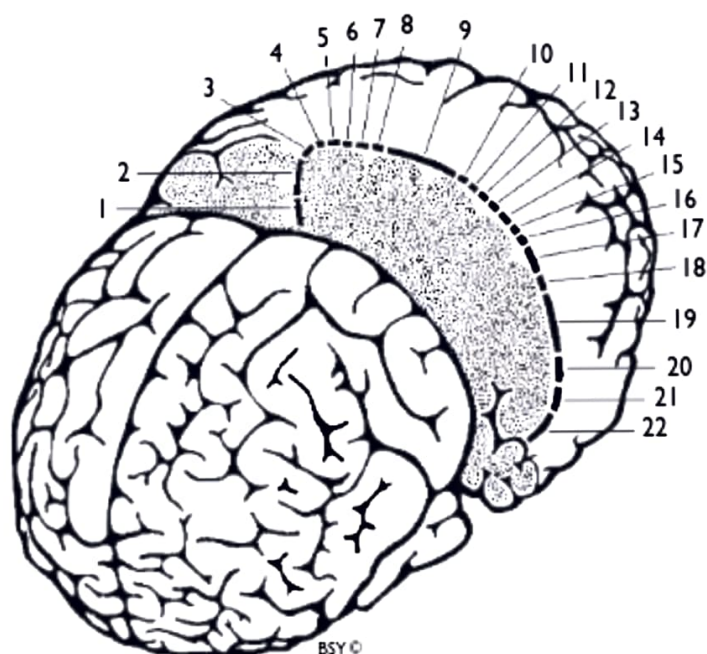
However, in terms of brain tissue, importance has been placed upon the hands, fingers, lips and nose which occupy areas far in excess of the relative size and dimensions of those parts in the physical body, and it is these same areas which receive added emphasis during rotation of consciousness in yoga nidra. These areas are almost as large as the space allotted to the entire remainder of the body from the wrists to the toes.

By physical standards, the motor homunculus is a little man of grotesque proportions, with enormously enlarged hands, fingers and facial features. He exists as a neuronal abstraction of the physical body, operating in the realm of neurotransmissions and conscious electrical energy flowing throughout the central nervous system and the network of nadis which form the pranic body.

Now we can begin to understand why the precise order of rotation of consciousness throughout the body parts is so important in the practice of yoga nidra. Once this sequence is established it should not be altered, as it induces a flow of pranic energy within the neuronal circuit of the motor homunculus. This flow is accompanied by a subjective



Cross Section of the Brain



Cross-section of the brain revealing the motor cortex and indicating the areas of the body as mapped along the precentral gyrus. This is the motor homunculus – the symbolic man lying within the brain matter.

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|-------------|-------------------|----------------------|
| 1. Toes | 9. Hand | 17. Eyelid & eyeball |
| 2. Ankle | 10. Little finger | 18. Face |
| 3. Knee | 11. Ring finger | 19. Lips |
| 4. Hip | 12. Middle finger | 20. Jaw |
| 5. Trunk | 13. Index finger | 21. Tongue |
| 6. Shoulder | 14. Thumb | 22. Larynx |
| 7. Elbow | 15. Neck | |
| 8. Wrist | 16. Brow | |

experience of relaxation, release or 'letting go', as spontaneous dissociation of consciousness from the sensory and motor channels of experience occurs. Familiarity and daily repetition of this sequence exerts a rapid inturning effect upon the normally fragmented and dissipated awareness.

This state of withdrawal of sense consciousness, pratyahara, is enumerated by Patanjali as the fifth stage of raja yoga and the prelude to dharana, dhyana and samadhi.

How yoga nidra restores health

It is impossible to ignore the connection between the discoveries of modern brain researchers and those of the enlightened yogis who long ago evolved the practice of yoga nidra. Of course the yogic scientists of former ages did not devise this powerful technique merely as a means of alleviating diseases, but primarily as a way of attaining higher consciousness by expanding and liberating individual awareness from its fixation within the physical body and its sensory modalities, towards the more subtle pranic, psychic and spiritual dimensions underlying gross material existence.

However, in the context of modern man suffering from stress-related diseases, it is sufficient to recognize that these originate out of excessive identification of the psyche with the soma or material body, through the medium of the sensory channels, leading to nervous depletion and even breakdown. In yoga nidra, this destructive psychosomatic tendency is effectively alleviated by the opposite somatopsychic route. The psychosomatic imbalance is restored spontaneously due to liberation of prana or nervous energy, which is withdrawn from the sensory channels and modalities as pratyahara is attained. This energy is redirected for healing and rejuvenation of overtaxed tissues, glands and organs.

Sensations and feelings

Besides rotation of consciousness, there are many other practices in yoga nidra which are directly derived from the Tantras: awareness of the whole body, the brain and



internal organs; contact between earth and body; feelings of heaviness and lightness, heat and cold, pain and pleasure. After relaxation of the sensory-motor surface of the brain, the practice shifts to arousal of feelings or experiences. These seem to emanate from the core of our being, while simultaneously being experienced in a part of the body or throughout the body as a whole.

Throughout the body tissues and structures there are numerous specially adapted sensory nerve terminals which respond to specific types of stimuli, including touch, pressure, change of position, temperature, pain, pleasure and so on. These tiny sense organs including the proprioceptors of the joints, the pacinian corpuscles beneath the skin and the pain and temperature receptors, are continually gathering information from all parts of the body and relaying it to specific sites deep within the brain. Brain researchers have been able to locate and isolate the majority of these important centres in the base of the brain. The most relevant are those concerned with food and water intake, temperature regulation and the experiences of pain and pleasure.

As we awaken the sensations of heaviness and lightness, heat and cold, pain and pleasure, etc., we stimulate those centres of the brain responsible for maintaining harmony between our inner and outer environments. Each of these centres has its reciprocal centre for balancing our basic drives. For example, the pain centre and the pleasure centre, the hunger centre and satiety centre, etc. The pairing and alternation of these sensations in yoga nidra helps to maintain this homeostatic balance and even evolves it by bringing normally involuntary unconscious functions under control. In this way yoga nidra progressively transforms our total experience of sensual life within the physical body.

The real experience

By developing various feelings and sensations in yoga nidra, you are reminding yourself of the actual experience. When you are tasting a particular fruit, at that moment you actually

experience it, but after a few days, weeks or months, you can only imagine the experience. You cannot manifest the actual taste experience because of the inability of the untrained mind to bring the experiences of the past into the present.

The various experiences which individuals have in their lives lie buried in the past. What remains in the mind and in the brain is only a memory, not an actual experience. However, in yoga nidra, not just the memory, but the actual experience itself can ultimately be recreated via this somatopsychic route. Then one not only vividly remembers pain/pleasure, heat/cold, etc., but relives it, even to the extent of awakening physiological responses such as sweating and shivering, etc. In yogic terms, this capacity to completely relive a past experience is one criterion of an evolved and truly creative mind.

After hearing some beautiful music which you like, you will certainly remember it. You may even imagine or feel it. But if you close your eyes and really begin to hear that music inside, exactly as you heard it originally, it is an exploding experience of reality which changes the whole structure of the mind completely.

This is why in yoga nidra the experiences of pleasure and pain, heat and cold, lightness and heaviness, should be brought to the forefront of the mind as real experiences. If you are trying to feel heaviness, you should feel your body so heavy that even if you want to lift your hands or feet, you will not be able to do so. Or if you are feeling heat, you must feel the heat in such a way that you may even perspire. Just to remember or feel heat is not enough. It has to become a real, living experience.

Experiencing the opposites

In yoga nidra the first experience to be awakened is the feeling of heaviness. Physical heaviness is a whole body sensation which accompanies deep muscular-skeletal relaxation. If deep-seated tensions and contractions remain within the network of postural muscles, then the instruction: "Your

body feels so heavy that it is sinking into the floor,” acts as a command from the brain encouraging them to ‘let go’ and release their residual burden. Only then is the total weight of the body surrendered completely into the earth, producing the distinct experience that the body is actually merging with the surface on which it is lying.

After intensifying the feeling of heaviness, it is then superseded by the sensation of lightness: “Awaken a sensation of lightness and weightlessness in all parts of the body . . . Your body feels so light . . . it seems to be floating away from the floor.”

Invoking the opposite sensation is not an arbitrary choice, but is in accordance with electrophysiological operating principles of the brain. Whenever a neuron fires, it transmits an impulse which is relayed and registered in the brain. However, if the same cell continues to fire repeatedly for some time, its message is no longer acknowledged by the brain, becoming a constant electrical background feature of the central nervous system.

This phenomenon can be readily demonstrated with the sense of smell. Upon entering a room where incense is burning, you are initially very much aware of its fragrance. However, after remaining in the room for a while you develop sensory inattention and no longer notice the previously overpowering smell. Researchers have called this phenomenon habituation, where the brain becomes accustomed to the stimulus, and soon ceases to register it as important.

During yoga nidra, when developing the sensation of heaviness throughout the body, a volley of specific impulses initially inundates the brain. After some time, the brain starts to ignore these impulses and the connection of awareness with the body is temporarily displaced. The feeling of lightness then arises spontaneously as our awareness drifts free of its physical vehicle. The result is that, rather than physical sensations infiltrating and shaping our consciousness, our consciousness can now determine and direct what experiences will be felt by the body.

Developing emotional control

Electrical stimulation of specific parts of the hypothalamus, limbic system and amygdalar regions of the brain is found to elicit specific emotional responses including rage, aggression and fear. For most people, these negative feelings are harder to control than positive emotions such as love, joy, security and pleasure. Nevertheless, in advanced yoga nidra, practitioners are asked to submit voluntarily to these threatening emotions, while preserving a state of deep relaxation and 'witness awareness' to the whole process.

This practice brings into simultaneous operation nerve circuits in the opposite hemispheres of the brain which, under normal circumstances, never operate at the same time. Thus a new neuronal circuit is established which incorporates two previously irreconcilable states of awareness simultaneously, e.g. love and hatred, pleasure and pain, joy and sorrow. This occurs in such a way that relaxation and witness awareness of the conflicting and contrasting emotional reactions are maintained.

With repeated practice, this new circuitry becomes an established response, enabling the practitioner to gradually go beyond the realm of conventional human sufferings which arise out of attachment and aversion for the duality of life experiences. In the life of a spiritual aspirant, transcendence of this barrier of duality is a prime goal. It is accompanied by the single experience of an increasing sense of bliss or indwelling ecstasy (anandam) which lies beyond the confines of pleasure and pain and all other dual notions. At the psychological level, the fruit of this practice is a detached outlook in life and maturity of the personality. Yoga nidra thus develops control of the emotional reactions and autonomic responses. This evolutionary advance is reflected in daily life as increased perceptual awareness, emotional control and an increasingly conscious destiny.