

# **The New Science of Biopsychology**

## **by Avadutika Ananda Gaorii Acarya**

According to our modern scientific understanding of the world, everything is made up of energy, of vibrations. What is this chair? Is it solid matter? No, it is a collection of atoms and molecules vibrating at incredible speeds. And this human body? It is also just a vibration, a collection of atoms and molecules of different elements. If we look into those atoms and molecules, what do we find? Protons, neutrons, electrons. And inside those? There are smaller and smaller sub-atomic particles vibrating at supersonic speeds. The scientists have reached a stage now where they don't understand if something is a particle, or if it is just a vibration / energy. Sometimes it is there and sometimes it is not.

Scientists have also come to the conclusion that our mind, our thoughts, are also vibrational. We can attach an instrument to our brains and see the wavelength of our brainwaves. If we are relaxed and peaceful, we have alpha waves with long wavelengths but if we are agitated our brain sends out beta waves, with shorter restless wavelengths.

The new science of Biopsychology teaches us how the vibrations of our bodies (BIO) i.e. the physical world are connected with the vibrations of our minds (PSYCHE), and how they affect each other.

Scientists have now discovered that the vibrations of our thoughts actually get transformed into the vibration of chemical molecules. These chemicals are called 'neurotransmitters' when they occur in the brain nerve cells and 'hormones' when they occur in our glands.

### **The Lemon Exercise**

Let's try a little exercise so that I can illustrate to you what I mean. Close your eyes. Relax. Breathe deeply. Now I want you to imagine that you are at home in your kitchen. Try to see clearly the colours and shapes in your kitchen. Maybe it has a particular smell. Now go to the refrigerator or vegetable rack and imagine you are taking a lemon. Feel the lemon in your hands. Feel its texture. See its green / yellow colour. Now, place the lemon on a cutting board. Take a small knife. Imagine that you are cutting the lemon in half. As you cut it you can smell the acid fragrance of the lemon. Now, take the two halves in your two hands. Look at them. See the lighter green / yellow colour inside, notice the juice sacks, see the seeds. Now bring one of the halves up towards your mouth. As it comes closer to your face, the lemon smell becomes stronger. Then finally imagine that you are opening your mouth and placing the lemon half on your tongue.

OK. Now open your eyes. What did you experience?

The usual answer is that the mouth waters – it causes saliva.

You did not actually eat a lemon did you? You only imagined it with your mind, your thoughts, and yet your body, the glands in your mouth reacted exactly as if you had really eaten a lemon.

This is just one example of how our thoughts can be transformed into chemical molecules (neurotransmitters or hormones) which then influence our physical body to react according to the situation and also which arouse in us corresponding emotions.

Who likes lemons, that sour taste? Who does not? When you were imagining that sharp sour taste touching your tongue, maybe you also experienced some emotion of pleasure or reaction. How would you feel if I had told you to imagine eating your favourite food?

Actually when we feel pleasure, virtually every cell of our body gets affected by that feeling of pleasure. Similarly when we feel pain or sadness or anger or some other emotion, nearly every cell of our body feels that too. Do you know that the chemical analysis of your tears when you cry out of pleasure or when you cry out of pain or anger, will show a different chemical (i.e. hormonal) composition!

### **Seven Energy Centres**

Long ago ancient yogis also understood that our minds, our thoughts and our emotions have an inalienable relationship with our bodies and actions, and vice versa. They analysed that there are seven energy centres in the human being which are the controlling point of over 1000 human emotions. These centres they called 'cakras' which means 'wheel', because they can be compared to whirling vortexes of energy.

According to Biopsychology, which is a science based on the ancient science of Tantra Yoga, these seven cakras correspond to the seven main glands of our endocrine glandular system. Our endocrine glands are like substations of the brain, because all our body functions and emotions are regulated by these glands.

Each of the cakras controls specific human emotions or responses, such as fear, sexual desire, greed, sadness, attachment, compassion, desire for enlightenment, etc. The number of propensities associated with each cakra as follows:

1<sup>st</sup> cakra controls 4 propensities  
 2<sup>nd</sup> – 6  
 3<sup>rd</sup> – 10  
 4<sup>th</sup> – 12  
 5<sup>th</sup> – 16  
 6<sup>th</sup> – 2

The 7<sup>th</sup> cakra controls 1000, i.e. the 50 below in all their various nuances of expression. Expressions are internal and external, so  $50 \times 2 = 100$ , and there are 10 so-called directions, so as to give 1000.

Bio-psychology says that each of these emotions is triggered by a corresponding hormone which is released from the gland or sub-gland corresponding to that cakra.

### **Third Cakra and Adrenalin**

A good example is the 3<sup>rd</sup> cakra which controls the emotion of fear associated with danger. This cakra is related to the adrenal gland which secretes the hormone adrenalin. Adrenalin makes the whole body prepare for an emergency.

When we are faced with a dangerous or a stressful situation, the body and mind are compelled to react to it. A message is flashed from the hypothalamus, one of the main glands in the brain, to the adrenal glands, which in turn secrete a hormone called adrenalin which activates our sympathetic nervous system. Our sympathetic nervous system deals with emergencies ... it makes our heart beat faster; more blood is pumped to the brain and muscles; extra blood sugar is released from the liver to give us more energy; our respiratory rate increases; our pupils dilate; our mouth goes dry; our muscles tense up; and our digestion is inhibited. In other words, we go into a state of 'stress' or 'shock'; we feel the emotions of fear or anger or courage and we get ready to face, or flee from, the emergency or dangerous situation. We will talk more about the consequences of this later.

According to Biopsychology, by understanding our bodies and minds, our glandular systems and our emotions and by practising yoga exercises and meditation to help us control them, it is possible to reduce the negative, agitated states of body and mind, and increase the positive, peaceful states, and thereby become a healthy and ideal personality.

### **Thymus and the Immune System**

These days there are many diseases of the immune system, e.g. AIDS, cancer, etc. It is interesting to note that the immune system is related to the little thymus gland which is located in the heart area. This is connected to the 4<sup>th</sup> cakra. The thymus gland secretes a hormone called thymosin which triggers off the release of 'killer-T' white blood cells into the blood stream. The killer-T cells are like the soldiers of the immune system which seek out and destroy inimical viruses in our body. If the thymus gland is weak and does not secrete enough thymosin, then the killer-T cells do not get released and our immune system breaks down. This is what happens in diseases of the immune system.

The 4<sup>th</sup> cakra is related to the emotion of 'hope'. One of the miracles of modern medical science is that some people have been cured of these diseases of the immune system, by the stimulation of positive hope or light-heartedness in their lives. For example, there is a famous book by Norman Cousins who is a doctor who uses 'laughter therapy' to cure cancer patients. In his clinic, he makes the patients laugh and keep light-hearted by showing them comics and joke videos, or having light-hearted music, activities, or people around the patients.

What happens in such cases is that the emotion of hope is stimulated, i.e. light-heartedness over despair or hopelessness. This strengthens the vibration of the hope emotion at the 4<sup>th</sup> cakra. This in turn strengthens the thymus gland which can secrete more thymosin and the immune system starts to function again and can fight against the cancer cells or other inimical viruses.

One of the ways to keep disease-free is to keep the 4<sup>th</sup> cakra healthy and positive.

### **More on the Third Cakra**

Let me describe some effects on the 3<sup>rd</sup> cakra and its corresponding glands and emotions, and the yoga practices which help us to control them.

Cakra is a Sanskrit term while “plexus” is the Latin term. Besides the main nerve centres at the point of each cakra, there are also sub-centres where sub-glands are located. These sub-glands influence (and control) the propensities attached to each cakra. This science is largely unknown today.

By performing asanas (yoga postures) regularly, human beings can control the propensities attached to each cakra, and hence the thoughts which arise in their minds and their behaviour. This is because asanas have a profound effect on the glands and sub-glands. How?

All asanas have either a pressurising or depressurising effect on the glands and sub-glands. For example, mayu`ra`sana (peacock posture) has a pressurising effect on the man`ipura cakra (3<sup>rd</sup> cakra). The secretions of the glands and sub-glands of the man`ipura cakra and the propensities associated with them will become more balanced if this asana is practiced regularly. If someone has a great fear of public speaking, it means his or her man`ipura cakra is weak. Through the regular practice of mayu`ra`sana, this propensity will be controlled and fear will be eliminated. Other asanas may have a depressurising effect on the man`ipura cakra, and if these asanas are performed regularly the glands and sub-glands associated with the cakra will become less active. Increased glandular secretions generally make the propensities more active and vice versa. By practising asanas regularly, one can control the propensities and either increase or decrease their activity. So spiritual aspirants should select the asanas they perform very carefully. This effect of asanas on glands and sub-glands has never been revealed properly before.

Extreme fear causes extreme tension and pressure on the man`ipura cakra. Normally when people experience fear, the afferent and efferent nerves are not able to work properly. The tension in the nerves caused by the fear travels through the nervous system and reaches the brain, so imbalance occurs. When a person becomes extremely afraid the balance between the afferent and efferent nerves is lost. This will give a build-up of tension and pressure around the man`ipura cakra. If the information carried by the efferent nerves from the brain to the man`ipura cakra is prevented from reaching its destination, the imbalance can cause a blockage in the region of the ana`hata cakra (4<sup>th</sup> cakra) which is a very complicated and sensitive part of the human body. A disturbance

in this region can cause palpitations, excessive pressure on the heart, the inability to act decisively and even heart attack.

### **Fifty Basic Mental Propensities**

The degree of intensity of the fifty vrttis (Sanskrit for mental propensities) associated with all the various cakras depends upon the different glandular secretions of the body. Thus the proper functioning of the brain and in turn the mind depends upon the different glandular secretions of the body and upon the afferent power of the nerve-fibres. The capacity of the nerve cells to vibrate thought is also important. The afferent nerves are those which transmit impulses from the tissues to the brain and spinal cord (e.g. sensory nerve). The efferent nerves are those which transmit impulses from the brain and spinal cord to a muscle or organ.

With the acceptance or rejection of any of the sentiments (mental propensities), both the human body and mind are influenced. For example, if one thinks of ghosts one thinks of one's probable danger from them. That is to say, the thought of ghosts is intimately connected with the fear-instinct. Thus it was through the impulse of fear instinct that people in ancient times learned to conceive of ghosts. It is a type of hallucination brought on by fear. People should be guided to rise above all kinds of fears and ghosts. This not only brings their vrttis (propensities) easily under control but makes their minds strong as well.

The cakras contain within their folds a number of glands and sub-glands, the different emotions controlled by each one are:

#### **The terranean plexus or mu`la`dha`ra cakra:**

- |                                      |            |
|--------------------------------------|------------|
| 1. dharma (psycho-spiritual longing) | <i>va</i>  |
| 2. artha (psychic longing)           | <i>sha</i> |
| 3. ka`ma (physical longing)          | <i>s`a</i> |
| 4. moks`a (spiritual longing)        | <i>sa</i>  |

#### **The fluidal plexus or sva`dhis`t`ha`na cakra:**

- |  |            |
|--|------------|
| 1. avajina` (indifference)                         | <i>ba</i>  |
| 2. mu`rccha (psychic stupor, lack of common sense) | <i>bha</i> |
| 3. prashraya (indulgence)                          | <i>ma</i>  |
| 4. avishva`sa (lack of confidence)                 | <i>ya</i>  |
| 5. sarvana`sha (fear of annihilation, defeatism)   | <i>ra</i>  |
| 6. kru`rata` (cruelty)                             | <i>la</i>  |

#### **The igneous plexus or man`ipura cakra:**

- |                                   |             |
|-----------------------------------|-------------|
| 1. lajja` (shyness)               | <i>d`a</i>  |
| 2. pishunata` (sadistic tendency) | <i>d`ha</i> |
| 3. iirs`a` (envy)                 | <i>n`a</i>  |
| 4. sus`upti (staticity, lethargy) | <i>ta</i>   |
| 5. vis`ada (melancholia)          | <i>tha</i>  |

- |  |            |
|--|------------|
| 6. kas`a`ya (peevishness)              | <i>da</i>  |
| 7. trs`n`a` (yearning for acquisition) | <i>dha</i> |
| 8. moha (infatuation)                  | <i>na</i>  |
| 9. ghrn`a` (hatred, revulsion)         | <i>pa</i>  |
| 10. bhaya (fear)                       | <i>pha</i> |

**The sidereal plexus or ana`hata cakra:**

- |  |             |
|--|-------------|
| 1. a`sha` (hope)   | <i>ka</i>   |
| 2. cinta` (worry, anxiety)                                       | <i>kha</i>  |
| 3. ces`t`a` (endeavour)  | <i>ga</i>   |
| 4. mamata` (love, attachment)                                    | <i>gha</i>  |
| 5. dambha (vanity)   | <i>una</i>  |
| 6. viveka (conscience, discrimination)                           | <i>ca</i>   |
| 7. vikalata` (nervous breakdown)                                 | <i>cha</i>  |
| 8. aham`ka`ra (ego)  | <i>ja</i>   |
| 9. lolata` (greediness)  | <i>jha</i>  |
| 10. kapat`ata` (hypocrisy)                                       | <i>ina</i>  |
| 11. vitarka (argumentativeness to point of wild<br>exaggeration) | <i>t`a</i>  |
| 12. anuta`pa (repentance)  | <i>t`ha</i> |

**The solar plexus or vishuddha cakra:**

- |   |            |
|---|------------|
| 1. s`ad`aja (sound of peacock)                                  | <i>a</i>   |
| 2. rs`abha (sound of ox)  | <i>a`</i>  |
| 3. ga`ndha`ra (sound of goat)                                   | <i>i</i>   |
| 4. madhyama (sound of deer)                                     | <i>ii</i>  |
| 5. paincama (sound of cuckoo)                                   | <i>u</i>   |
| 6. dhaevata (sound of donkey)                                   | <i>u`</i>  |
| 7. nis`a`da (sound of elephant)                                 | <i>r</i>   |
| 8. onm (acoustic root of creation, preservation<br>dissolution) | <i>rr</i>  |
| 9. hummm (sound of arousing kulakun`d`alini)                    | <i>lr</i>  |
| 10. phat` (practical implementation eg. of a theory)            | <i>lrr</i> |
| 11. vaos`at` (expression of mundane knowledge)                  | <i>e</i>   |
| 12. vas`at` (welfare in the subtler sphere)                     | <i>ae</i>  |
| 13. sva`ha` (performing noble actions)                          | <i>o</i>   |
| 14. namah (surrender to the Supreme)                            | <i>ao</i>  |
| 15. vis`a (repulsive expression)                                | <i>am`</i> |
| 16. amrta (sweet expression)                                    | <i>ah</i>  |

**The lunar plexus or a`jina` cakra**

- |                                |             |
|--------------------------------|-------------|
| 1. apara` (mundane knowledge)  | <i>ks`a</i> |
| 2. para` (spiritual knowledge) | <i>ha</i>   |

(From *Yoga Psychology*, p.136 by P R Starker)

A good exercise is for everyone to make a map of their own cakras, marking their weaknesses in red, so that finally they can say which of their cakras are weak! Well at least it will give you some initial indication and hints for further development.

### **Asanas Prescribed to Rectify Weaknesses of First, Second and Third Cakras**

Some asanas prescribed to rectify weaknesses of the mu`la`dha`ra (1<sup>st</sup>), sva`dhis`t`ha`na (2<sup>nd</sup>) and / or man`ipura (3<sup>rd</sup>) cakras are:

1. **Gomuka`sana** (knee over knee & arms around back) – pressures the lower two cakras
2. **Utka`ta Pascimotta`na`sana** (head to 2 knees) - affects lower three cakras
3. **Ja`nushira`sana** (head to 1 knee) - balances all lower cakras
4. **Diirgha Pranam** (low bowing) - good for lower three cakras
5. **Yoga Mudra** (cross-legged bowing) - good for lower three cakras
6. **Uddhayana Mudra** (hands on knees bending forward) - mostly for 3<sup>rd</sup> cakra, but also good for 2<sup>nd</sup> cakra

### **Mudras and Bandhas**

Mudras and bandhas are powerful. Mudras or gestures are almost the same thing as asanas but incorporate more ideation. Bandhas lock the internal actions within the body mainly by maintaining a firm compression of the nerves for some time.

Who is using them? They can be found in the end part of *Caryacarya Part III* by Shrii Shrii Anandamurti. What they do is directly stimulate and directly activate the cakras with prana by doing pranayama (concentrated ideational breathing) on the cakra.

Mudras and bandhas are part of what is called Bandhatraya Yoga. One yoginii called Jalandaharii used to do bandhas and developed concentration of mind, elevating the kun`d`alinii (dormant spiritual force). They affect the Pranamaya Kosa which is the energy-body that surrounds the physical body (Anamaya Kosa); this is energized directly by the mudras.

### **Ambhasii Mudra for Second Cakra**

Ambhasii Mudra for 2<sup>nd</sup> cakra is quite simple.

**Ambhasii Mudra** (breathing and lying on the back) – concentrating on 2<sup>nd</sup> cakra.

Lie down on the back and spread the arms on the floor beside the body. Close the eyes and focus the mind completely and exactly on the sva`dhis`t`ha`na cakra. For 7 times inhale and exhale to full capacity, imagining that all the prana (vital energy) of the universe is focused there and entering your body, and energizing that cakra. Breathe as follows: breathe in and without pausing breathe out.

### **Asanas Prescribed to Rectify Weaknesses of Third Cakra**

Some asanas prescribed to rectify weaknesses of the man`ipura cakra are:

1. **Cakra`sana** (wheel) and **Naoka`sana** (boat) – best done when combined together
2. **Mayura`sana** (peacock) - many people afraid to give lectures because of their bhaya vrtti (fear propensity) can overcome this by this asana
3. **Bhu`jaunga`sana** (cobra) and **Shalabha`sana** (locust posture) - combined help all the body, the upper and lower cakras
4. **Karma`sana** (various actions bending the body left, right, forward, backward while standing and kneeling) – has a good effect on the navel area.

### **Agneyii Mudra for Third Cakra**

The Agneyii Mudra activates and balances the 3<sup>rd</sup> cakra.

**Agneyii Mudra** (breathing and lying on the back) – concentrating on 3<sup>rd</sup> cakra.

Lie down on the back and spread the arms on the floor beside the body. Close the eyes and focus the mind completely and exactly on the man`ipura cakra. For 7 times inhale and exhale to full capacity, imagining that all the prana (vital energy) of the universe is focused there and entering your body, and energizing that cakra. Breathe as follows: breathe in and without pausing breathe out.

### **Asanas Prescribed to Rectify Weaknesses of Fourth Cakra**

Some asanas prescribed to rectify weaknesses of the ana`hata cakra are:

1. **Hala`sana** (plough posture)
2. **Matsyendra`sana** (twist posture)
3. **Bha`va`sana** (ideation posture)
4. **Jina`na`sana** (knowledge posture)

Bhujaunga`sana (cobra posture) is also good for 4<sup>th</sup> cakra. There is a new science of Psycho-Neuro-Immunology which tries to explain why we get sick, and this will be a great thing in the future. If you do cobra you can go to a cholera infected area and not get sick.

### **Viyavii Mudra for Fourth Cakra**

The Viyavii Mudra activates and balances the 4<sup>th</sup> cakra.

### Viyavii Mudra (concentrating on the ana`hata cakra)

Viyavii Mudra activates and balances the 4<sup>th</sup> cakra. Lie down on the back and spread the arms on the floor beside the body. Close the eyes and focus the mind completely and exactly on the ana`hata cakra. For 7 times inhale and exhale to full capacity, imagining that all the prana (vital energy) of the universe is focused there and entering your body, and energizing that cakra. Breathe as follows: breathe in and without pausing breathe out.

### The glandular system

