

## **Jain Concepts of *Prana* and *Paryapti*: Two Essential Conditions of Life**

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*“Acceptance of soul by science may come by knowing the role of subtle matter in connecting the soul and body.”*

### **Abstract**

Soul and body are distinct and different, soul is non-physical and body is physical, connection between the two is made through subtle bodies, *karman* body and *taijas* body, made up of subtle matter called *vargana*. Jain philosophy describes the properties of *vargana* and role of these two bodies in detail. The concept of *prana* (vital powers) and *paryapti* (bio potential), which are essential conditions of life, are especially highlighted in Jain texts. In this article I review these concepts in proper perspective and attempt to interpret them in the context of modern science. It is shown that Jain concepts correlate with modern knowledge of biology and point to deep understanding of the structure and processes taking place in the body.

Keywords: Soul, *vargana*, *prana* (vital powers), *parayapti* (bio potential), bioelectricity.

### **Introduction**

All Indian philosophies believing in soul regard soul as non-physical. The soul inhabits the physical body and the two, the soul and the body, are distinctly different. It is also agreed that the body is just like a vehicle for the soul, the soul in the driver seat is the doer. The place of soul in the body is, however, not agreed to be the same in all philosophies; in Jain philosophy it occupies the space of the body.

There is an obvious question how the non-physical soul and the material body are connected and how the soul- body system works. It is our common experience that matter is accommodated in non-physical space, *akasa*, but the two do not interact with each other. But in the case of a living being the soul and body interact for the system to behave as a unit. This aspect of interaction is well defined only in Jain philosophy. Jain philosophy states that besides the gross material body there are other subtle bodies like *karman* body and *taijas* body which act as links between the soul and material body [1]. Vedic tradition also mentions about five *kosas*, subtle sheaths, *annamayakosa*, *pranamayakosa*, *manomayakosavigyanmayakosa* and *dannandmayakosa*[2], but says nothing about their role in providing connection between the soul and the body.

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Jain philosophy gives details of types of matter, particularly subtle matter, and of functions of the subtle bodies in living beings. In this article I describe the subtle type of matter called *vargana* and the role of subtle bodies in providing connection between the soul and the material body and their functions in life.

### Subtle Matter

The smallest indivisible constituent of matter, called *pudgala*, is *paramanu*<sup>2</sup>. *Paramanu* has one colour, one smell, one taste and two touch properties one either cold or hot and two either *snigdha* or *ruksha*[3]. In modern context *snigdha* is identified as positive charge and *ruksha* as identified as negative charge. So, essentially *paramanu* is an energy particle having a charge. All bigger forms of matter are combinations of *paramanus* known as *skandha*[4]. The smaller forms of *skandhas*, that are useful to soul, are called *varganas*.

There are infinite numbers and types of *varganas* according to Bhagwati Sutra but the following eight types are important from the point of view of their association with soul [5].

1. *AudarikVargana* - These *varganas* are suitable for making gross bodies of immobile and mobile organisms.
2. *VaikriyaVargana* - These *varganas* constitute the protean (*Vaikriya*) body possessed by heavenly and infernal beings.
3. *AharkaVargana* - These *varganas* constitute a special kind of migratory body, used by highly developed spiritual souls for contacting enlightened souls in other parts of loka.
4. *TaijasVargana* - The *taijasor* energy body of an organism is made from *taijasvarganas* which are supposed to have electrical quality.
5. *KarmanVargana* - These *varganas* constitute karma in the karman body of organisms.
6. *SwasochhavasVargana* - These *varganas* are inhaled with breathing and are source of bioenergy in organisms.
7. *BhashaVargana* - These *varganas* are supposed to produce and transmit the sound and speech in organisms and inanimate objects.
8. *ManoVargana* - These *varganas* constitute the mind.

The *audarik*, *vaikriya*, *aharaka* and *taijasvarganas* have been supposed to exist as gross aggregates having attributes of eight- touch, the *karman*, *bhasha* and *manovarganas* to exist in subtle form having four touch attributes, and *swasochhavasvargana* to exist both as four-touch (subtle) and eight touch (gross) *varganas*. This supposition is not in agreement with the classification of *varganas* given in Gommatsara

Gommatsara Jivakanda provides another type of classification of *varganas*[6]. According to it there are 23 types of main *varganas* found all over loka. These *varganas* are classified on the basis of number of *paramanus* present in the cluster. In the order of increasing number of *paramanu* in the cluster the *varganas* are as follows.

1. *Anu* (smallest) *Vargana* - consisting of a single *paramanu*.

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<sup>2</sup>Paramanu is much smaller than photon particle.

2. *Sankhyatanu* (Countable *Anu*) *Vargana* - comprising of countable number of *paramanus* in the cluster.
3. *Asankhyatanu* (Innumerable) *Vargana* - contains innumerable *paramanus* in the cluster.
4. *Anantanu* (Infinite *Anu*) *Vargana* - has infinite number of *paramanus* in the cluster.  
All these four types of *vargana* having very small energy do not associate with soul
5. *AharaVargana* - *AharaVargana* is supposed to constitute the gross, protean (*vaikriya*) and migratory (*aharaka*) bodies of organisms.
6. Non-Associable (*Agrahya*) *Vargana*.
7. *Taijas*(Energy) *Vargana* – this *vargana* constitutes the *taijas* body of organisms.
8. Non-Associable *Vargana* (Second).
9. *Bhasha*(Sound) *Vargana*. The *bhashavargana* is suitable for producing all kinds of sound including the sound produced by inanimate objects like musical instruments, sound by natural phenomena like thundering of clouds, and sound produced by living organisms including speech by humans.
10. Non-Associable *Vargana* (Third).
11. *Mano* (Mind) *Vargana*. This constitutes the physical mind (*dravyamunah*) of organisms.
12. Non-Associable *Vargana* (Fourth).
13. *KarmanaVargana*. This *vargana* constitutes the *karman* bodies of organisms.
14. Permanent/Regular (*Dhruva*) *Vargana*.
15. Intermittent regular (*Santar -Nirantar*) *Vargana*.
16. Permanent Nil (*Sunya*) *Vargana*
17. Individual Body (*PratyekSarira*) *Vargana* (IBV).
18. Permanent Nil (*Sunya*) *Vargana*
19. Large (*Badar*) *NigodVargana* (LNV). This *vargana* forms the *karman* and gross body of large *nigod*/nano organisms.
20. Permanent - Nil *Vargana*
21. Small (*Suksma*) *NigodVargana*(SNV). This *vargana* constitutes the gross as well as the *taijas* and *karman* bodies of small nano organisms.
22. Permanent Nil *Vargana*
23. Gross Matter (*MahaSkandha*) *Vargana* (GMV). All gross matter, visible or invisible, in the *loka*, universe, is made of GMV.

As the number of *paramanus* in the *vargana* increases the *vargana* occupies proportionately less space. This kind of formation is due to the property that one *pradesa* can contain any number of *paramanus*, i.e. the *paramanu* is like boson. Thus with increase in number of *paramanus* the number of *paramanus* per *pradesa* i.e. energy density, increases. The energy density in a higher order *vargana* is more than that in a lower order *vargana*. . *Varganas* of varying energy density have different application for soul. *Varganas* up to the 14th order are four- touch type and are supposed to be massless.

A *vargana* has both positive and negative *paramanus*. In a *vargana* having infinite number of *paramanus* the number of positive and negative *paramanus* is not likely to be equal and, therefore, a *vargana* has a net charge either positive or negative. This charge produces an electric field. A moving *vargana* with an electric charge also produces a magnetic field. So a moving *vargana* has an electromagnetic field of subtle type.

The interpretation of *varganas*, which is commonly made, has many anomalies from the scientific perspective. For example, it is said that *aharavargana* constitutes the gross, fluid and migratory bodies of organisms. According to science the physical body of any organism is made up of organic molecules which contain elements like carbon, hydrogen, oxygen, nitrogen, sodium, potassium, calcium, phosphorus, iron, etc. These elements are also found in inorganic matter, which is not made from *aharavargana*. The bodies of higher mobile beings, and plants are said to be made from different order *varganas* (*aharavargana*, and IBV respectively) but according to science they are made from similar organic molecules containing common elements. Thus the common impetration believed by scholars of Jain philosophy is not in agreement with scientific view and needs a re-look and proper understanding. I re-interpret the *varganas* in a logical way which also avoids contradictions with the scientific views.

### ***AharaVargana***

*Aharavargana* has been said to constitute the gross, protean and migratory bodies of organisms. For understanding this *vargana* we must appreciate the difference between ordinary matter and live matter. Live matter of the body of an organism is far superior and different from the dead organic matter. The superiority of the live matter is due to *aharavargana*. In a living organism the energy of organic matter is augmented by *aharavargana* increasing its energy manifold. That is

$$\text{Live matter} = \text{ordinary matter} + \text{aharavargana}$$

These *varganas* are continuously attracted by body cells, which are known to be sensitive to a broad range of frequencies. Assimilation of these *varganas* is *ojaahara*, appropriation of energy, intake of energy by cells. Note that *aharavarganas* being massless do not add to mass of the body, they only increase the energy level of the atoms and molecules. These high energy atoms and molecules participate in cell processes and keep the body alive.

The subtle *aharavargana* also form the subtle protean bodies of heavenly beings and infernal beings, and the migratory body for yogis.

### ***TaijasVargana***

The *taijas* body of an organism is made of *taijasvargana*. Normally, an organism has three bodies' gross or physical, *karman* and *taijas* body. On death of the organism the subtle *karman* and *taijas* bodies travel with the soul, which now takes birth in a new mode? Thus *karman* and *taijas* bodies have always been attached to the soul and they shall remain so till soul attains liberation, when they two bodies get detached and disintegrated. The *taijas* body performs two important functions viz., management of the body system and providing

support and controls for the same [7]. The *taijas* body has been said to be an electric body and a source of vital energy.

Scientifically, the functioning of gross body, which is made up of cells, depends on electricity. The electricity found in living bodies, zoological or botanical is known as bioelectricity. Biological cells use bioelectricity to store metabolic energy, to do work or trigger internal changes, and to signal one another. Bio electromagnetism is the electric current produced by action potentials along with the magnetic fields they generate through the phenomenon of electromagnetic induction. Bio electromagnetism is an aspect of all living things, including all plants and animals. Bio electromagnetism is sometimes difficult to understand because of the differing types of bioelectricity, such as brainwaves, myoelectricity (e.g., heart muscle phenomenon), and other related subdivisions of the same general bio electromagnetic phenomena. Bioelectricity is made up of ions, and is different from bioelectrical energy made of photons (bio-photon).

The origin of electricity as found in living organisms is still a detail of uncertainty for which there are several theories.<sup>3</sup> The normal electricity cannot be converted into bioelectricity nor bioelectricity can be produced outside the body but the two kinds of electricity can mix with each other. Bioelectricity is much superior to normal electricity in the same way as a living organism is superior to non-living matter. Bioelectricity is many times more powerful and effective than normal electricity. Bio-electricity is responsible for synthesis of enzymes and proteins in cells, functioning and control of various organs and development and growth of the body of organism, from constituents taken through nutrition, respiration and environment. Science has not succeeded so far, in finding the right source of bioelectricity. Jain philosophy says that *taijas* body is electric body. So we expect a relation between *taijas* body and bioelectricity. For understanding the full role of *taijas* body we must know the functions of *prana*.

### ***Prana* (Vital Powers)**

*Pranas* are sign of life. *Pranas* are (means of) expression of consciousness, and intelligence, of soul in the gross body [8, 9]. *Pranas* have two forms *pranadravya* and *bhavaprana*. *Dravyaprana* is the physical form, comprising of *taijasvargana*, and *bhavaprana* is the consciousness and intelligence of the soul expressed in the organism. *Bhavaprana*s are the real *pranas* without which life is not possible. *Pranas* exist for one life span, and are expressed again in the next life. Termination of *prana* is death and installation of *prana* is starting of life. *Pranas* are source of vitality in organism. *Pranas* are divided in ten groups.

1 *Ayusya* (age) *prana*- power to keep the body alive for predetermined time-units; when it terminates, death occurs.

2 *Svasocchvasa* (respiration) *prana*- this power enables the body in performing breathing and blood purification functions

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<sup>3</sup> Four such theories include, but are not limited to, the Diffusion theory, the Membrane theory, the Oxidation theory, and the Phase - Boundary theory.

3 *Sarira* (body) *balaprana*- this power helps in body structure.

4 *Vachan* (speech) *bala* or *bhasabalaprana*- it helps in vocal expression, both articulate and inarticulate.

5 *Manah* (Mind) *balaprana*-helps mind in its functioning.

6 to 10 *Indriya* (senses) *prana*- is the power behind functioning of the five sense organs.

These are physical vital powers (*dravyaprana*) possessed by all worldly souls. The eternal existence, consciousness, bliss and perception are the metaphysical vital powers (*bhavaprana*). Worldly souls possess both physical vital powers and metaphysical vital powers. The *prana* of the five sense organs and the mind are produced in the soul on removal cum subsidence of vitality (*antaraya*) obstructing karma and perception cognition (*matijnana*) covering karma. The sensing power of the sense organs is due to *prana*. The *prana* of body, speech and respiration are produced by rise of body forming (*naam*) karma and the age *prana* is produced by rise of age determining (*ayus*) karma.

It has been said above that *taijas* body also manages and controls the functions of the gross body. Actually *taijasvarganas* are serving two important functions, one as carrier of *prana*, and two vitalizing the gross body. *Pranas* work in two ways. One communicating the consciousness of the soul to the gross body so that this body also has consciousness like property and behaves as a living system, and two these help manage the body functions intelligently. It may be mentioned that Jain texts generally refer to functional units of the body and not to the specific organs. *Pranas* have not been understood in the modern context. As bioelectricity in various forms is the means of control of the body functions according to biology a relationship between *prana* and bioelectricity is logically expected. We try to understand *prana* in this context.

### ***Ayusprana***

This *prana* is the essential condition of life, and it is produced by rise of *ayus* karma. As bioelectricity in the body as an aspect of life it compares with *ayusprana*. Each cell produces bio electricity as mentioned above. This electricity consists of ions but these ions are different from ordinary ions in the sense that these are many times more powerful. This is supposed to be because energy from *taijas* body energises the ions increasing their power manifold. Cells perform intelligent functions with bio electricity since it is produced by *ayusprana*. The process starts at the very first stage of life and ends with the end of life. *Ayusprana* is the basic *prana*, all other *pranas* develop when this *prana* is expressed. *Ayus* karma, source of *ayusprana*, is like a reservoir having some fixed storage of karma. When this reservoir becomes empty *ayusprana* ceases to exist resulting in death.

### ***Swasocchhavasaprana***

*Swasocchhavasaprana* refers to the act of breathing consisting of inhaling and exhaling processes. The process consists of inhaling air, supplying it to different parts of the body and

exhaling the products of its use. We know the process of inhaling and exhaling is performed by lungs. Lungs work in association with heart. Blood with carbon dioxide is sent by heart to lungs where exchange of carbon dioxide with oxygen in blood takes place. The oxygenated blood flows to heart from where it is circulated to body parts. So, heart and lungs together are responsible for receiving oxygen from atmosphere, supplying it to body parts, and discharging the carbon dioxide produced in cells to atmosphere. Therefore the role of *Swasocchhavasaprana* must be seen keeping in view both the lungs and the heart. Heart has a dedicated source of electricity, called myoelectricity, which makes heart muscles to contract and expand for pumping action. *Swasocchhavasaprana* has the primary role in producing this electricity. Heart cannot function without this electricity and lungs cannot perform the desired function without heart.

The mention in Bhagwati Sutra that *swasochhavasvargana* is a mix of four touches, and eight-touch matter requires some clarification. Actually in the breathing process an organism inhales air and also draws *intaijasvargana* from cosmos. The inhaled air is eight-touch matter and *tajasvargana* is four-touch matter.

### ***Sariraprana***

The structure of the body is produced by cells which divide and arrange in the designed manner. This is a continuous process in the body. This *prana* is developed by rise of body making karma that has the information the way the cells are to be arranged. *Sarirapranais* supposed to be related to bioelectricity that is responsible for synthesis of enzymes and proteins in the cell and its division. Thus *sariraprana* has an important role in structure and making of the body.

### ***Indriyaprana***

*Indriya* in Jainism is just not the sense organs but it is sensing system comprising *nivriti* and *upakaran*[10]. *Nivriti* is the sense organ proper and *upakaran* is the sensing apparatus in the form of brain. An important component of body like brain is not mentioned exclusively in Jain literature, it is considered a part of the sensing system. We have five sense organs all connected to the brain. The nerve system connecting sense organs and the brain is also part of this system. We know that brain also has a dedicated source of electricity different from the body bio electricity. *Indriyaprana* refers to this source of electricity in the brain; it exists as action potential on axons which is means of information transfer between neurons. Brain cannot function without this electricity or *prana*.

### ***Vachanprana***

Speech is not mere sound but it is carrier of information, each word has a meaning.

Speech = Sound + Meaning

So *vachan* refers to the system of sound production and the associated device that imparts meaning to this sound. This device is part of the brain, mainly the temporal lobe, which is associated with speech production and recognition. The role of *bhashavargana* as

mentioned below helps in understanding this *prana*. It is said that *bhashavarganas* are drawn in from atmosphere when speaking and are discharged back after speech. These *varganas* are subtle matter and exist in charged form. During the act of speaking the *bhashavarganas* are attracted by the temporal lobe and are discharged back after end of speech. For this to happen the brain must have the power to attract and discharge the *varganas*. This power is provided by *vachanprana*. *Vachanprana* from the *taijas* body enables the brain to act as receiver and transmitter of *bhashavargana*.

Inarticulate speech is speaking without sound, it is a mental process. As it has meaning the *bhashavargana* are involved in this case also just like the speech with sound.

### ***Manahbalaprana***

Mind in Jainism is different from brain. It is a subtle unit made up of *manovargana*. Mind thinks, imagines, plans, stores memory, makes choices and takes decision. It works in conjunction with brain, mind and brain form a system and the two together perform these functions. Mind and brain have the relationship of software and hardware, mind is software and brain is hardware. Brain also controls the activities of the body through an elaborate information communication system. In order that the system works successfully there has to be right connection between subtle mind and brain. This connection is made through subtle matter called *manahbalaprana*. Without this *prana* the mind is not connected to brain. A person with disturbed mind or poor connection between mind and brain, due to insufficient *manahbalaprana*, loses the thinking power and the mental capability. *Manahbalaprana* has an essential role in our mental activity.

This *prana* may also be connected to the electricity found in the brain, it has the vitalizing power. Both *indriyaprana* and *manahbalaprana* are produced by elimination-cum-subsidence of vitality obstructing karma and perceptual cognition covering karma. So these two *pranas* are related to cognition process and are connected to brain.

The vital powers are the fundamental basis of life; no life is possible without *prana*. We see that *prana* exist as electrical activity of different kinds and are the powers that are essential for the life system. *Taijas* body manages and controls the gross body and the life functions through *prana*. This highlights the essential role of *taijas* body which is generally not well understood. We can now appreciate why the karma body and the *taijas* body are always attached to soul. When soul enters a new body it has these two essential bodies with him, the *karman* body, information body, and the *taijas* body, the executive body, that has the energy to execute the plan contained in the *karman* body. The gross body is constructed as per plan from the material received through nutrition and respiration. Further information on *prana* is given below.

### ***BhashaVargana***



An organism attracts *bhashavarganas* before speaking. These *varganas* may remain with the organism for a period of one *samaya*<sup>4</sup> to innumerable *samayas*, being the period of sound production. An organism attracts *varganas* from all six possible directions. These *varganas* may flow in for a certain period and intermittently for more periods. The flow period can be of minimum two *samaya* and maximum innumerable *samaya*. The organism discharges these *varganas* intermittently and not continuously, that is the discharge pattern is similar to the inflow pattern. There are two kinds of speakers, powerful and weak. The *varganas* discharged by a powerful speaker travel to the end of *loka*. The *varganas* discharged by a weak speaker travel only a finite distance.

Jain philosophy distinguishes between word and speech. A word is a sound produced by the movement of tongue and is a physical phenomenon accomplished with the help of brain, mind and *prana*. Imparting the intended meaning to the word is a mental and psychic process. The mental resolve to speak makes the speech biopotential karma to rise emitting a karma wave impulse. This wave impulse makes the brain to attract appropriate *bhashavargana* from the cosmos. The incoming *bhashavargana* interacts with the brain, the temporal lobe, and is superimposed with the intended meaning. This *vargana* carrying the meaning is transmitted back to cosmos in the manner as mentioned above. *Vargana* being electromagnetic travel to far distances, and that from a powerful speaker, like Arihant, may travel to the end of *loka*. Incidentally, this speech can be captured in space if a suitable receiver is available.

*Bhashavargana* is used just not for producing speech but is also used in sound produced by inanimate objects like musical instruments, etc. To understand this we have to differentiate between the sound produced by instruments and interpretation of this sound by human beings. Production of sound by any instrument is just a physical phenomenon. The person receiving this sound imparts meaning to it and enjoys it as music. So here we have a case in which the sound is produced by external means instead of the vocal system in the body. The mental part is the same in the two processes i.e. the brain attracts *bhashavargana* from cosmos and imparts meaning to the sound received. If this is not done the sound produced from instrument does not become music and has no meaning to you, it is just an unconcerned sound. It is in this sense that *bhashavargana* is said to produce all kinds of sounds; we interpret the sound coming from a source and make meaning out of it.

### ***ManoVargana***

According to Jain philosophy there are two kinds of mind, *dravyamanah* the physical mind and *bhavamanah*, the psychical mind or power of the soul. The physical mind is made of *manovargana*. The functions of mind are thinking, making choices, memory, pondering, meditating and imagining. All these activities of the soul require a medium in the form of physical mind (*dravyamanah*). The mind is connected to brain as mentioned above. Is supposed to exist all over the body space just like *karman* body and *taihas* body.

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<sup>4</sup>*Samaya* is time taken by a *paramanu* travelling at slow speed to travel a distance of one *pradesa*. One *pradesa* is the space occupied by a *paramanu*.

## ***KarmanVargana***

The *karmanvargana* constitutes the karman body, containing various types of karma. The soul under the influence of passions and yoga experiences vibrations. These vibrations induce vibrations in the karma body, which are typical of the karma active at that instant. The frequency of vibration depends on the actions and passion; different types of actions and passions induce different frequencies. When the karma body vibrates at a particular frequency, the *karmanvargana* of the same frequency are attracted and attach themselves with the existing karma of the same type. The passion is the binding force between the old and new karma. The number of *vargana* bonding at any instant depends on the action; stronger the action larger is the number of *vargana* bonding on each soul *pradesa*. The duration and intensity of bond are determined by strength and type of passion. Bonding of different types of karma takes place uniformly on all soul *pradesas* at any instant.

Karma is record of action performed by the soul and the soul experiences its effect sometimes in later life or some next life. Karma is the key player in the life of a soul; it obstructs full expression of natural powers of the soul. The life of an organism is very much dependent on karma.

## **Organization of *Prana***

*Pranas* are essential for every form of life. One sense beings have four *prana* *prana*, *sariraprana*, *swasocchhavasaprana* and one *indriyaprana*. Two sense beings have six *prana*, *ayusprana*, *sariraprana*, *swasocchhavasaprana*, *vachanprana* and two *indriyaprana*. Three sense beings have seven *prana* and four sense beings have eight *prana*. Five sense beings without mind have nine *prana* and five sense beings with mind have ten *prana* including *manahabalaprana*.

*Pranas* can be divided in two major classes one related to body (*dehastha*) and the other related to mind (*manasik*), and brain. We call them basic *prana* and super *prana* respectively. Basic *prana* are present in all living beings and the super *prana* is found only in higher organisms having five senses and mind, Basic *pranas* in all beings, including five sense beings, flow from the *taijas* body to the gross body and perform the functions as described above. *Taijas* body attracts *taijasvargana* from cosmos for maintaining its equilibrium. According to Acharya Hemchandra mind and super *prana* in five sense beings mix with each other such that wherever the mind goes (in the body) so does the super *prana* i.e. there is close connection between mind and super *prana*[11].

Whereas the basic *prana* exists all over the body super *pranas* are concentrated in the head; place of brain and senses, the nervous system including the spinal cord and the nerve system in the body, and palm and finger tips. Super *prana* is drawn from cosmos through the consciousness centres (*chakras*), particularly centre of the head, and flows into the body through *prana* channels, called *nadi*.

As super *prana* is closely coupled to mind it influences our psychic activities. Basic *prana* is the essential *prana* for life and it is not accessed by mind. *Pranayama* is potent way

of increasing *prana*. *Pranayama* helps mind to be free of distraction. When mind is calm the senses are controlled, passions are subsided, wisdom awakes and intuition power is increased. According to Shubhchandra *pranayama* with breathe retention may be painful and is not recommended for spiritual aspirants [12]. Acharya Shiv Muni, however, is of the view that *pranayama* is beneficial and recommends to those who are comfortable with it [13].

Super *prana* interacts with the basic *prana*. So *pranayama* also benefits the body in many ways. It vitalises the body, enhances immunity power and reduces the risk of external attack of bacteria and virus, and thus improves the overall physical, mental and emotional health.

### **Biopotential (*Paryapti*)**

*Parayapti* is necessary preparation for new life. Major decisions about this life such as the place of birth, form of the body, gender, body with or without deficiency, etc., have been taken in the last life. The first step in this life is to execute these decisions which are contained in *karman* body.

Two special powers of the worldly soul are bio potential (*paryapti*) and vital powers (*prana*). Biopotential is the power of biological development possessed by a soul [14, 15]. When soul takes rebirth a new body is to be formed. The power to develop this new body is called biopotential. These bio potentials exist due to fruition of bio potential body making karma. Biopotentials are of six kinds.

1. *Aharaparyapti* (Food biopotential). Food biopotential is the power of the soul so that the body appropriates nourishment.
2. *Sariraparyapti* (Body biopotential.) Body biopotential is the power of the soul for making the body.
3. *Indriyaparyapti* (Sensing system biopotential). This biopotential ensures proper functioning of the sensing system.
4. *Swasocchhavasaparyapti* (Respiration biopotential). This biopotential ensures proper functioning of the respiratory system.
5. *Bhashaparyapti* (Speech biopotential.) This biopotential ensures speech production and transmission.
6. *Manahparyapti* (Mind biopotential). This biopotential enables receipt of subtle matter for making the mind.

All bio potential powers develop simultaneously right in the beginning of life i.e. just after the zygote is formed,. The process is fast and the development of powers is completed in less than one Indian hour i.e. 48 minutes. However, the time of completion of each power is different. The food bio potential is completed first followed by other powers. A soul who develops all the six powers completely is called fully developed (*paryapta*). Otherwise the soul remains undeveloped (*aparyapta*) and further progress of life is abandoned. The two to four sense creatures and five sense organisms without mind have first five biopotential powers and the five sense beings endowed with mind have all the six powers.

The vital powers and biopotentials have the cause and effect relationship. Without vital powers the biopotential powers cannot develop. Vital powers in sufficient measure are needed for full development of biopotential powers. Soul lacking in vital powers cannot develop all biopotential powers and remains undeveloped. All the body processes like nourishment of various kinds, and others, mind processes etc. are accomplished with the help of both the vital powers and biopotential powers. Vital powers remain ineffective in the absence of bio potential powers. Thus both kinds of powers are essential to soul.

Like *prana* the *parayapti* is also to be understood in modern context. As mentioned above the *parayapties* are completed within few minutes of starting of life. This is the time when life starts from zygote formed in the mother's womb. The zygote formed is part of mother's body and the *karman* body and *taijas* body of the mother are controlling its activities. So the first thing for starting new life is transfer of zygote from mother to the incoming soul. This is called *aharaparyapti* i.e. the soul receives the zygote as essential *ahara*, nourishment. This is followed by exchange, of *karman* body and this ensures that the essential biological structure in the new body is made.

To understand other *parayapties* knowledge of biology is helpful [16]. The body is made up of cells which are arranged in an intricate but organized pattern to suit the functions of the body. Cells are grouped into organs and systems that work in an integrated way. The nucleus of cell contains a chemical DNA which has instructions needed to direct the activities of the cell. This information exists in the genetic code. Cells divide for growth of the body and in this process RNA plays an important role. If DNA is architect making the blue print, RNA is the contractor that builds according to this blueprint. Genes comprise only about 2 per cent of the human genome, the remainder consists of non-coding regions, One of the functions of this region is regulating, where, when and what quantity proteins are made. Genes are grouped in chromosomes. In a zygote the chromosomes of parents combine in a particular way so the foetus is male or female.

The genetic code specifies not only the design of the organism but also provides the mechanism needed to 'read' the code and manufacture the components of organism as well as specifying the procedures needed for the life processes of the finished organism.

Although all the somatic cells in an organism contain the complete code, in any given cell only a relatively few genes are active. This difference determines the difference between, say, liver and brain cells. Complex gene logic determines when and where a particular gene will be 'turned on'. Gene logic can accommodate varying amounts of positional details. Most genes contain a switch called promoter, which regulates the activities of the gene and decides when and how the gene should become or not become active. An enhancer also works in the gene.

The DNA has the key role in deciding the architecture, construction and operation of the body. According to Jain philosophy the architecture and plan of construction is contained in the body making karma. This means that information from the body making karma is transferred to the DNA of the zygote. *Parayapti* is concerned with this transfer process. How this happens is not immediately clear. One strong possibility is that this happens through biophotons. Biophotons have been found to have crucial role in regulating the biochemistry and biology of life [17]. Evidence suggests that biophotons originate from a coherent

electromagnetic field in DNA. Author had shown that the shedding *karmanvarganas* form biophoton in DNA, and the biophoton so formed carries the information of the shedding karma [18]. The intelligent action supposed to be performed by DNA is because of the intelligence of the shedding karma transmitted through biophoton.

The key to intelligent action by DNA is to be found in its non-coding region regulating the use of genetic code in making proteins. It is envisaged that biophoton emitted by the *karman* body make necessary changes in the structure of the non-coding region of DNA, which now regulates the activities of gene to perform as per plan contained in the body making karma. The first step in this intelligent action is division of the cell. Cells divide and arrange in a desired way to produce proteins. This basic process is repeated in time to produce different parts of the body. Successful completion of this basic step is *sariraparyapti*. This step ensures that the body shall be constructed as per plan. The energy needed for this process is supplied by *sariraprana*.

Although complete body of the organism is formed as per plan some important specific systems are considered essential for working of the body. These are senses and the brain, heart and lungs, and the speech production system.. These three systems are mentioned separately in Jain texts to show their particular importance. Successful transfer of information from karma body to DNA for making the sense organs and brain, and ensuring that the system shall function successfully is *indriyaparyapti*. Similarly successful transfer of information for making the heart-lungs system and its successful operation is *swasocchhavasaparyapti*. *Vachanparyapti* consists of successful transfer of information for operation of the brain and sound producing system. Installation of information about these three systems in DNA is assisted by respective *pranas*. Please note that by implication these three systems, and other such parts in the body trunk, are considered sufficient for survival of the organism; the other parts like limbs are not considered essential for survival.

*Manahparyapti* may not work through DNA. Supposedly, a mind field is produced in the zygote by fruition of respective body making karma and this process is assisted by *manahabalaprana*. This field works as mind when brain is formed in the foetus. As mentioned above mind and brain work as a coupled system.

There are evidences of mind existing in pre-natal period.. There are scientific evidences that foetus in the womb has ability to learn<sup>5</sup>. A well-known example is of Abhimanyu who learned war strategy when he was in the womb of his mother.

If the above explanation of *paryapti* is accepted as true there are two important inferences. First, the Acharyas were aware of existence of cell structure of the body and a DNA like unit in the cell. Second, they knew that information from *karman* body is transferred to the cell for making the physical structure of the body. And lastly, it was known that this information transfer is completed in a few minutes time and that its successful transfer is a pre-requisite to formation of the body.

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<sup>5</sup>Research led by Charlene Krueger, an associate professor at the University of Florida's College of Nursing, and published in the journal *Infant Behavior and Development*, provides evidence that what fetuses hear by their 34th week in utero can inspire learning.

We see that the concept of *paryapti* describes how new life begins. It also highlights the role of *karman* body, *taijas* body and *prana* in starting the life. *Prana* continues to play essential role throughout life and are the mandatory requirements for living.

We can now appreciate the role and functions of the subtle bodies which provide links between the soul and the gross body. According to Jainism the life system cannot be explained without knowing and understanding the subtle part of our existence. And it is the speciality of Jainism that it provides details of this subtle part.

Further research in biological and medical sciences and psychology would confirm Jain theories. A correlation between *pranayama* and bioelectricity of all types including heart and brain electricity is anticipated. Similarly effects of practices of contemplation and meditation on bioelectricity of various types are expected. It would also be interesting to study changes in the structure of DNA of the zygote and early foetus in comparison to DNA of the mother expected because karma of the foetus. Study of relation between biophoton emission and practices of *pranayama*, contemplation and meditation can also support Jain theories.

### **Conclusion**

The subtle matter in the form of *vargana* is briefly described and use of some of the *varganas* in the life processes of organisms is presented in proper perspective so as to understand their role in terms of modern science.

*Pranas*, (vital powers), the essential sign of life, are interpreted as form of subtle energy that has close relation with the types of bio electricity found in the body of organisms by modern science. The existence and the roles of two types of *prana*, related to body and mind respectively, is discussed.

*Paryapti* (biopotential) is necessary preparation for new life and describes the essential condition to be fulfilled. This requires transfer of zygote from mother to the soul taking birth, and exchange of the subtle bodies, and communication and installation of the information from *karman* body of this soul to DNA of the zygote so that structure and construction of the body proceeds in the planned way. The entire process is pointer to deep knowledge of body structure by Jain Acharyas.

The concepts described in this article help in understanding the connection between soul and body and the role of *pranas* and *paryapti* in the biological processes taking place in the body of organisms.

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