

PART- I  
**CONCEPT OF PAÑCAKOŚA**  
ACCORDING TO YOGA AND SPIRITUAL LORE

PART- II  
**ATTENTION AND CONCENTRATION**  
AFTER YOGA PRACTICES IN NORMAL HEALTHY  
ADULTS AND STUDENTS

A Dissertation Submitted

By

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**Under the guidance of**

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TOWARDS THE PARTIAL FULFILLMENT OF  
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to

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I thank my beloved late mother Smt. Aryadevi who brought me up and motivated to attain more spiritual knowledge through systematic study.

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M S Student (I Batch)

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## DECLARATION

I hereby declare that the work presented in this dissertation is done by me under the guidance of Dr H. R .Nagendra & Dr R. Nagarathna. I also declare that this work entitled

### Part-I

**Concept of PAÑCA KOŚA according to texts of yoga and spiritual lore.**

### Part- II

**STUDY-1** Attention and concentration after yoga practices in normal healthy adults and **STUDY-11** Attention and concentration in students ( 14-17 years )after integrated yoga practices have not previously formed the basis of any degree, diploma, membership or similar titles.

**Place: Praśānti Kuṭīram**

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*(32 kms from Bangalore)*

**Date: August 18, 2004**

# CERTIFICATE

This is to certify that P.M.Kesavan is submitting this dissertation containing two parts: Part-I; Concept of Pañca Kośa according to texts of yoga and spiritual lore and Part-II; Experimental Research on, (study-1) Cognitive changes after yoga practices in normal adults and (study-2) Attention & concentration in students ( 14-17 years) after integrated yoga practices in partial fulfillment of the requirements for the Master of Science (Yoga). He registered for the course on September 11, 2002 in Vivekananda Yoga Mahavidyapeetham of Swami Vivekananda Yoga Anusandhana Samsthana under the division of Yoga & life sciences and this dissertation is a record of the work carried out by him in this institute.

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# ABSTRACT

## PART - I: LITERARY RESEARCH

### CONCEPT OF PAÑCAKOŚA ACCORDING TO YOGA AND SPIRITUAL LORE

This report commences with the relevance and need “CONCEPT OF PAÑCAKOŚA” in this 21<sup>st</sup> century, where the Eastern Wisdom and Western Science wish to join hands and work together to promote new inventions through scientifically researched results establishing that a communion of the modern scientists and our seers are able to nullify the imbalances and it’s adverse effects on universe. This approach will also promote Dharma, peace and happiness.

Kośa means a covering. The self is covered by five sheaths. This is explained as conversations between Varuṇa and Bṛgu. It is followed by the knowledge from other scriptures and upaniṣads. The science of illnesses according to scriptures, mainly with the yogic concept of diseases, has also been discussed.

The integrated approach to psychosomatic illness with the three bodies in consideration has also been dealt with at length. An attempt has also been made to understand the interaction among the kośas and the importance of the concept of sauca in relation to their proper functioning.

Thus the report is an attempt to understand one’s own true self from the Upaniṣadic point of view.

## **PART-II - STUDY - 1**

### **ATTENTION AND CONCENTRATION AFTER YOGA PRACTICES IN NORMAL HEALTHY ADULTS**

The objective of this research was to ascertain the cognitive changes after yoga practices on the attention, concentration and memory in normal healthy people. For this purpose, logical memory, digit span, visual reproduction and letter cancellation tests were assessed on 31 (14 men and 17 women) normal healthy volunteers who attended the post conference session of the 14<sup>th</sup> International Conference on Frontiers on yoga research and applications with special emphasis on Prāṇanveṣaṇa from 23<sup>rd</sup> December to 30<sup>th</sup> December 2003 at Praśānti Kuṭīram, near Bangalore. They stayed in the campus and were provided sattvik vegetarian food. The participants were divided into 3 groups. There was a common programme, special techniques, voice culture, pranic energisation and cosmic energy transmission.

The yoga intervention included Sithilikaran Vyāyāma, Kriyās, Asanās, Prānāyāma, Deep Relaxation Technique(Savāsana), Dhyāna, Devotional Songs, Voice Culture, and Prānic Energisation.

The baseline data was collected on 23.12.2003 and the post test was conducted on 29.12.2003 after six days of practice. Participants were from different cross sections who participated in the conference with different age groups, educational and social backgrounds. Pre and post data were compared by non parametric two tailed Wilcoxon signed Rank test. A significant improvement was observed in all variables as follows:

Logical Memory	- P<.000
Digit Span	- P<.002
Visual Reproduction	- P<.000
Letter Cancellation	- P<.000

The overall effect of this integrated yoga practice is more on reduction of anxiety, better concentration and mind relaxation. Thus the findings of this study corroborates the findings of earlier studies of effects of Yoga practice on mind and its performance irrespective of difference in age, gender and other background.

## PART - II - STUDY - 2

### **ATTENTION AND CONCENTRATION IN STUDENTS (14-17 YEARS) AFTER INTEGRATED YOGA PRACTICES**

The present study was conducted to understand the cognitive changes of two different integrated modules. Participants were 61 school students, of both gender aged between 14 to 17 years. They were randomly assigned to two groups – IAYM (Integrated approach of Yoga Module) (n=28) and I.Q.(Intelligent quotient) (n=33).

Both groups were trained in specific yoga modules for 10 days in the residential personality development camp (PDC) at Vivekananda Yoga Research foundation, Praśānti Kuṭīram, Bangalore, South India.

Two different modules of yoga specially designed for improving IAYM and I.Q. developed by an expert team were used. The modules included **yogāsana, Prānāyāma, Kriya, Meditation** along with yogic breathing, games and lectures in general. In addition to the above, each group has specific special yoga breathing practices included to facilitate the quality of the group. They are:

#### (i) IQ Group

1. Surya Anulaoma Viloma (Right nostril breathing): 1 Hour/day
2. Chanting ( Gita-Jnana yoga) : 1 Hour/day

#### (ii) IAYM Group

1. Chandra Anuloma Viloma(Left nostril breathing):1 Hour/day
2. Chanting ( Gita-Bhakti Yoga) : 1 Hour/day



Test of cognition (attention and concentration) was administered to children in the groups on the first and ninth day. Test for normality was done through Shapiro-wilk and skewness test. IAYM pre of baseline and I.Q. of baseline were transformed by using  $\text{Log } 10(x+1)$  transformations and the data turned normal. Comparison between baseline data was done using student paired "t" test. Between group comparison of post intervention data was carried out by means of "t" test (Independent samples).

The parametric test for baseline values showed that the two groups did not differ significantly showing the homogeneousness between them. Comparison pre and post values showed that there was a significant improvement ( $P < 0.001$ ) in both groups. Cognitive effect improved in I.Q. group by 12.75% and IAYM group by 8.27%. Between group analysis of the post data showed I.Q. group as better. Thus it is further confirmed the earlier studies that the integrated yoga module helps in improving cognitive power among the children. The module designed for the two groups were useful in improving cognitive changes.

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## INTERNATIONAL TRANSLITERATION CODE

अ आ इ ई उ ऊ ऋ ॠ  
a ā I ī u ū ṛ ṝ  
ल लृ ए ऐ ओ औ अं अः  
lṛ lṝ e a o au am aḥ

क ख ग घ ङ  
ka kha ga gha ṅa  
च छ ज झ ञ  
ca cha ja jha ṅa  
ट ठ ड ढ ण  
ṭa ṭha ḍa ḍha ṇa  
त थ द ध न  
ta tha da dha na  
प फ ब भ म  
pa pha ba bha ma  
य र ल व श ष स ह  
ya ra la va śa ṣa sa ha  
ळ क्ष ज्ञ ॐ  
ḷa kṣa jña AUM

### ABBREVIATION

T.Y.U. – Taittirīya Upaniṣat

K.U. - Kaṭha Upaniṣat

Pa.Yo.Su. Patañjali yoga sutras

C.H. - Chapter

B.G. – Bhagavad Gīta

## PART – II

### *Study-1*

# ATTENTION AND CONCENTRATION AFTER YOGA PRACTICES IN NORMAL HEALTHY ADULTS

## **PART – II**

### *Study –2*

# **ATTENTION AND CONCENTRATION IN STUDENTS (14 – 17 YEARS) AFTER INTEGRATED YOGA PRACTICES**



**PART – 1**

**CONCEPT OF PAÑCAKOŚĀ  
ACCORDING TO  
YOGA AND SPIRITUAL LORE**

## CHAPTER-1

# INTRODUCTION

The threshold of a new century is an appropriate occasion to take a broad view of the state of the world and assess its future direction. Most people, however, are at a loss to explain the perplexing paradox which exists between the marvelous technological advances of the 20th century and the simultaneous decline in the overall quality of human life worldwide – environmentally, socially, morally, health-wise and otherwise.

The United Nations General Assembly has declared that the next decade be dedicated to the creation of a culture of peace. UNESCO has initiated a programme for the global promotion of peace, non-violence, tolerance, solidarity and respect for life. It is, however, increasingly obvious that the prevailing powers of economics, politics, religion and science are not capable of bringing about stable and lasting peace, happiness and well-being which are longed for and are indeed the right of every individual.

Humanity yearns for an era of harmony, peace and prosperity wherein people share the bounties of nature and care for one another. Memories and dreams exist in every culture of a time when the lion and the lamb lived together amicably and when health, wealth and happiness were the order of the day. We believe, in India, that all efforts to provide humanity with health and happiness will succeed only when complemented by spiritual

empowerment. This is the most vital and missing dimension. In fact, an astute review of human history reveals that all the suffering, which has come to humanity, is a result of the spiritual dimension in favors of the material.

By spiritual empowerment we do not mean religious empowerment. Our fundamental tenet is that humanity is a spiritual family - a family of souls, whose supreme mother and father is one incorporeal Being of Light, or God. The majority of world's people are suffering from poverty, disease, torture, war, famine, abuse and addiction. They are calling out for relief and mercy with increasing desperation. Time itself is now calling for transformative change. We believe that only spiritual empowerment offers the solution to the wide spread and complex problems facing the world today.

Paradoxically, this is also the most opportune time in world history -- a time when any one craving for a divine experience and God's blessings can be in intimate communication with Him through a simple and easy method of meditation. This is an infallible method for regaining one's original peace and spiritual strength.

Having recognized, understood and practically experienced the benefits of spiritual empowerment in our own lives, we consider it our God-given duty to make the knowledge and methods of spiritual empowerment available to our fellow humans, whom we regard as our brothers and sisters, irrespective of caste, creed, religion or color.

In the context explained above, "Concept of Pañca Kośa" plays a dominant role to direct and renovate our understanding how we are built thereby releasing us from the clutches of illusionary bondage we currently have as to "who we are?". Therefore, this study is the "Call of the Time". The spiritual power is the imperative need of our time - for a bright future - golden age.

The Taittirīya Upaniṣat is one of the ten major Upanishads. It has special importance for students of Advaita Vedanta and Jnana Yoga because it is the main Upaniṣat that sets forth the doctrine of five sheaths (kośas).

The five sheaths (Pañca Kośas) are ;

- 1) Food Sheath (Anna-maya Kośa)
- 2) Vital Air Sheath (Prāṇa-maya Kośa)
- 3) Mental Sheath (Mano-maya Kośa)
- 4) Intellectual Sheath (Vijñāna-maya Kośa)
- 5) Bliss Sheath (Ānanda-maya Kośa)

The Annamaya Kośa, Food Sheath, is the physical frame which is the grossest of the five Kośas. Food Sheath is the physical body. The five organs of perception and the five organs of action are a part of it. It is called food sheath because it is caused by food, maintained by food and finally ends up as food. The physical body is mistaken for the pure Atman by false identification on account of ignorance.

The Prāṇamaya Kośa, Vital Air Sheath, has five functional dimensions. They manifest as the five physiological functions. They are called the five Prāṇas. Together they maintain the vital-air sheath. They are:-

1. Dimensions for perception (Prāṇa) control the functioning of the five senses as seeing, hearing, smelling, tasting and touching.
2. Dimensions for excretion (Āpāna) controls the throw out, evacuating excreta of the body such as faces, urine, sperms, sputum, perspiration etc.
3. Dimensions for digestion (Samāna) controls digestion of food received by the stomach.
4. Dimensions for touch circulation (Vyāna) controls distribution of digested food to different parts of the body through blood stream.
5. Dimensions for thought-absorption (Udāna) peep into fresh fields of knowledge.

These five dimensions (Prāṇas) are sharp and clear when you are young. As you get older, the pranks lose their strength and vitality. That explains why a ripe old man can hardly see, hear etc. His faculties of excretion, digestion and circulation become very weak. His capacity to absorb and accept new thoughts and ideas is reduced to the bare minimum.

Vital-Air sheath is subtler than food sheath. It encompasses controls the food sheath. When our prāṇas function properly our physical body remains healthy and strong. And when they slacken and work inefficiently the body is adversely affected.

The Manomaya kośa, Mental Sheath, is the inner self of the Prāṇamaya. It permeates the Prāṇamaya Kośa. The Prāṇamaya Kośa is filled by the Manomaya Kośa. It is subtler than the pranamaya Kośa. It controls the Prāṇamaya Kośaś. The Manomaya Kośa controls the organs of knowledge, viz. ear, skin, eye, tongue and nose. The real senses are within. What we see

outside, the physical eyes, etc. are mere instruments. The Manomaya Kośa is more subtle and expansive than the Prāṇamaya Kośa.

The Manomaya Kośa abides within the Prāṇamaya Kośa as well as through the functioning of the Manomaya Kośa only, we say 'We think,' 'We imagine'. The Manomaya Kośa is made up of vrittis or sankalpas (thoughts).

The Vijñānamaya Kośa, Intellectual Sheath, is the fourth layer of existence.

It continuously guides parts of all human beings, which helps in moving towards long term Sukha. Intellectual sheath is made of intellect. It functions as thinking, reflecting, reasoning, discriminating, judging, etc. It analyses and distinguishes between pairs of opposites. It controls the above three sheaths. The inner self of the Manomaya is the Vijñānamaya.

The Ānandamaya Kośa, Bliss Sheath, is the bliss layer of our existence. It is the subtlest aspect of existence of total silence, a state of complete harmony and perfect health. Still the bliss sheath consists of Vāsanās alone in a causal form. When we are in deep sleep i.e., dreamless sleep, we are in bliss sheath. When we cross the bliss sheath and move to other sheaths we experience the dream and waking states of consciousness. Vāsanās are therefore unmanifest in deep sleep while they are manifest in the form of thoughts in the dream and actions as well in the waking state. Consequently you experience mental agitations, be they great or small, as long as you remain in dream and waking states. When, however, we enter the state of deep sleep all our mental agitations cease and we experience undisturbed peace and bliss. Hence this sheath is called bliss sheath. But the bliss experienced in deep sleep is relative. It is not to be confused with the absolute bliss of Self-realization. Of the Ānandamaya self is considered to be the tail of the Supreme Brahman.

The five sheaths enumerated above may also be classified under three different headings viz. gross body, subtle body and causal body. Food sheath and the gross portion of vital-air sheath together constitute the gross body. The subtle portion of vital-air sheath combined with mental and intellectual sheaths form the subtle body. While the gross body is made up of gross matter, the subtle body is constituted of prāṇa, passions, desires, emotions, feelings and thoughts. Bliss sheath is the causal body consisting of Vāsanās alone, in the potential form like a seed containing all qualities of the tree, flowers and fruits in it.

Our causal body is the storehouse of all our impressions and latent energies in us, all our Vāsanās. When this hidden material in the causal body expresses itself as feelings and thoughts, it takes the form of our subtle body. The same material works out as perceptions and actions in the gross body. Let the causal body be instilled with the suggestion of health, the subtle body will entertain thoughts of health and the gross body is bound to be healthy. Let the causal body be saturated with the suggestion of godhead, the subtle body dwell in the thought of godhead; the man is bound to be godly. A man is the architect of his own personality in as much as it is his own causal body that is responsible for his behaviors, movements and environments.

In the rest of this part 1, I present the details of the concept of pañca kośa, its relations to the three bodies and their applications to health as revealed in śāstrās - the books from yoga and spiritual lore.





## CHAPTER - 2

# CONCEPT OF PAÑCAKOŚAS

Brahmānanda Valli (chapter) and Bhṛgu Valli (chapter) of Taittirīya Upaniṣat, which belongs to yajur veda, give us the concept of pañcakośas and their connections with the ultimate reality called Brahman.

The search for Brahman, as in modern science starts with a process of experimentation called Tapas. The teacher Varuṇa directs the student Bhṛgu to investigate and find out for himself Brahman by a process of Tapas. He gives a hint as to how to do Tapas, that from which you are created and sustained and into which you go back (when you die) is Brahman. That process of search is Tapas. Hence find out Brahman by “Tapas – Tapasā Brahma vijijnāsasva” said Varuṇa guiding the seeker Bhṛgu.

### 2.1 FOOD SHEATH

After deep thinking Bhṛgu gets the flash. He jumps with joy exclaiming “I am Anna the matter principle. It is from Anna that I am born, it is the anna that sustains me and when I die I go back to matter. Hence I am anna and Anna is Brahma”.

अन्नं ब्रह्मेति व्यजानात् ।

Annam Brahmeti vyajānāt ।

अन्नाद्धयेव खल्विमानि भूतानि जायन्ते ।

annāddhayeva khlvimāni bhūtāni jāyantel

अन्नेन जातानि जीवन्ति । अन्नं प्रयन्त्यभिसंविशन्तीति ।

annena jātāni jīvantil annam pryantyabhisamvisantītil

तद्विज्ञाय । पुनरेव वरुणं पितरमुपससार ।

अधीहि भगवो ब्रह्मेति । तः होवाच ।

**Tadvijñāya| tadvijñāyapunareva varuṇaṁ pitaramupasasāra|**

**adhīhi bhagavo brahmeti| taṁ hovāca|**

*( T.Y.U. Section 3 Ch.II Page 158)*

## **2.2 VITAL - AIR - SHEATH**

Appreciating the finding of the student, Varuṇa directs him to go further. Bhṛgu continues the search by Tapas – Deeper contemplation. He understands that he may have a body but without life, it is all dead matter. So “I am Prāṇa , as Prāṇa is the creator and sustainer into which I merge back. Hence Brahman is Prāṇa. Kindly confirm whether I am right sir seeks the direction from his guru in all humility.

प्राणो ब्रह्मेति व्यजानात्

प्राणाद्धेव खल्विमानि भूतानि जायन्ते ।

प्राणेन जातानि जीवन्ति ।

प्राणं प्रयन्त्यभिसंविशन्तीति ।

तद्विज्ञाय । पुनरेव वरुणं पितरमुपससार ।

अधीहि भगवो ब्रह्मेति । तः होवाच ।

**Prāṇo brahmeti vyajānāt|**

**prāṇāddhyeva khalvimāni bhūtāni jāyante|**

**prāṇena jātāni jīvanti|**

**prāṇaṁ prantyabhisamviśantīti|**

**tadvijñāyapunareva varuṇam pitaramupasasāra|**

**adhīhi bhagavo brahmeti| taṁ hovāca|**

*“Tapas Brahman Vijjanāśasva ” says the guru, the teacher Varuṇa. Bhṛgu goes back for tapas for deeper contemplation*

### 2.3 MENTAL SHEATH

“I may have body and Prāṇa”, but if I am in coma, am I a human being Mind is essential. Hence mind should be Brahman! –he concludes

मनो ब्रह्मेति व्यजानात् ।  
मनसो ह्येव खल्विमानि भूतानि जायन्ते ।  
मनसा जातानि जीवन्ति ।  
मनः प्रयत्यभिसंविशन्तीति ।  
तद्विज्ञाय । पुनरेव वरुणं पितरमुपससार ।  
अधीहि भगवो ब्रह्मेति । त५ होवाच ।

Mano brahmeti vyajānāt|

manaso hyeva khalviumāni bhūtāni jāyantel

manasā jātāni jivantil manah prayatyabhisamvisantītil

tadvijñāyapunareva varuṇam pitaramupasasāral

adhīhi bhagavo brahmetil taṁ hovācal

*When he reveals this to Varuṇa, he had nothing else but to say ‘search further by Tapas’.*

### 2.4 INTELLECTUAL SHEATH

“Yes I can have a mind and can be a lunatic without controller of mind. That is Vijñāna and that is me and not merely the mind, Prāṇa and body – he discovered”

विज्ञानं ब्रह्मेति व्यजानात् ।  
विज्ञानाद्धयेव खल्विमानि भूतानि जायन्ते ।  
विज्ञानेन जातानि जीवन्ति ।  
विज्ञानं प्रयन्त्यभिसंविशन्तीति ।  
तद्विज्ञाय । पुनरेव वरुणं पितरमुपससार ।  
अधीहि भ भगवो ब्रह्मेति । त॰ होवाच ।  
Vijñānam brahmeti vyajānāt  
vijñānāddhyeva khalviimāni bhūtāni jāyantel  
vijñānena jātāni jīvantil  
vijñānaṁ pryantyaabhisamvisantītil  
tadvijñāyapunareva varuṇaṁ pitaramupasasāral  
adhīhi bhagavo brahmetil taṁ hovācal

( T.Y.U. Section 3 Ch.V page-162)

*Incidentally , Varuṇa was Bhṛgu's father as well . The great master guru Varuṇa sends his śiṣya Bhṛgu for a final round of Tapas to find out the source from where the intellect or vijnāna being created, by which it is sustained and into which it diffuses back.*

## 2.5 BLISS SHEATH

Bhṛgu finds through deep meditation that it is pure silence, all pervasive were existence, pure awareness, bliss embodied. He had no doubt this time and returned not to the teacher.

आनन्दो ब्रह्मेति व्यजानात् ।  
आनन्दाद्धयेव खल्विमानि भूतानि जायन्ते ।  
आनन्देन जातानि जीवन्ति ।  
आनन्दं प्रयन्त्यभिसंविशन्तीति ।  
सैषा भर्गवी वारुणी विद्या ।  
परमे व्योमन्प्रतिष्ठिता ।  
स य एवं वेद प्रतितिष्ठति । अन्नवानन्नदो भवति ।  
महान्भवति प्रजया पशुभिर्ब्रह्मवर्कसेन । महान् कीर्त्या ॥ १ ॥

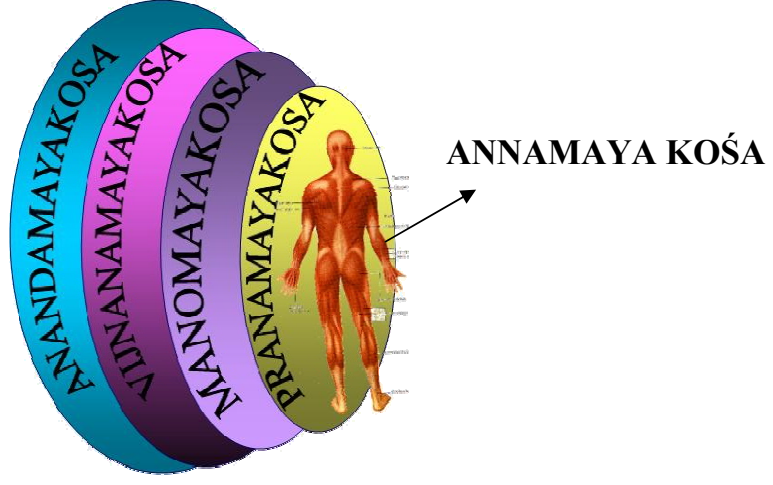
Ānando brahmeti vyajānāt |  
ānandāddhyeva khalviimāni bhūtāni jāyante |  
ānandena jātāni jīvanti | ānandaṁ pryantyaabhisamvisantīti |  
saiṣā bhārgavī vāruṇī vidyā | parame vyumanpratiṣṭhitā |  
sa ya evaṁ veda pratitiṣṭhati | annavānannādo bhavati |  
mahānbhavati pajayā paśubhirbrahmavarcasena | mahān kīrtyā || 1 |

(T.Y.U. Section 3 Ch. VI page 162-163)

*He knew bliss as Brahman. From bliss, indeed, all these beings originate, having been born, they are sustained by bliss; they move towards and merge in bliss. He who knows thus becomes firmly established; He becomes the possessor of food and the eater of food; and he becomes great in progeny, cattle and the luster of holiness and great in glory.*

In this wonderful presentation Taittiriya Upaniṣat elaborates the process of investigating the reality to unravel the concept of pañca kośa. The picture of the 5 Kośas is shown below.

# PAÑCA KOŚA



## 2.6 FROM OTHER SCRIPTURES.

This concept is also found described in Bṛhadāraṇyaka upaniṣat as follows :

स वा अयमात्मा ब्रह्म विज्ञानमयो मनोमयः प्राणमयश्चक्षुर्मयः श्रोत्रमयः  
आपोमयो वायुमयो आकाशस्तेजोमयोऽतेजोमयः  
काममयोऽकाममयः क्रोधमयोऽक्रोधमयः  
धर्ममयोऽधर्ममयः सर्वमयस्तद्येतदिदम्मयोऽदोमय इति ॥

Sa vā ayamātmā brahma vijñānamayo manomayaḥ  
prāṇamayaścakṣurmayaḥ  
śrotramayaḥ āpomayo vāyumayo ākāśastejomayo'tejomayaḥ  
kāmamayo'kāmamayaḥkrodhamayo'krodhamayaḥ  
dharmamayo'dharmamayaḥ sarvamayastadyetadidammayo'domaya iti ॥  
( IV .iv. 5 page 494-495 )

*“The self is indeed Brahman , consisting of knowledge , mind , life , sight , hearing – of earth , water , air , ether , light ,and no light-of desire and absence of desire, anger*

and absence of anger righteousness and absence of righteousness . It consists of all things. This is what is meant by saying that it 'consist of this and consist of that .

The mention of the same is also made in Chāndogya Upaniṣat quoted below:

### About Body

मघवन्मर्त्य वा इदं शरीरमात्तं मृत्युना

तदस्यामृत स्याशरीरस्यात्मनोऽधिष्ठानमात्तो वै सशरीरः

Maghavanmartya vā idaṁ śarīramāttam mṛtyunā

tadasyāmṛta syāśarīrasyātmanodhiṣṭhānamātto vai saśarīraḥ

( VIII – xii. 1 Page 608)

*Indra, mortal indeed is this body, held by death. But it is the support of this deathless, bodiless Atman.*

### About Prāṇā

आपः पीतस्त्रेधा विधीयन्ते तासां यः

स्थविष्ठो धातुस्तन्मूत्रं भवति यो मद्यमस्तल्लोहितं योऽणिष्ठः स प्राणः

Āpaḥ pītastredhā vidhīyante tāsāṁ yaḥ staviṣṭho dhātustanmūtram bhavati

yo madyamastallohitam yo'ṇiṣṭhaḥ sa prāṇaḥ

(Chapter VI section 5 sloka 2. page 433)

*Water, when drunk, becomes divided into three parts. What is its grossest ingredient, that is urine; What is the middling ingredient, that is blood; and what is the subtlest ingredient is prāṇā.*

### About mind

एवमेव खलु सोम्यान्नस्याश्यमानस्य योऽणिमा स ऊर्ध्वः

समुदीषति तन्मनो भवति ॥२॥

**Evameva khalu somyānnasyāśyamānasya yo'ṇimā sa ūrdhvaḥ  
samudīṣati tanmano bhavati.**

*(Chapter VI section 6 sloka 2. Page 436)*

*'So also , dear boy, of the food that is eaten that which is the subtlest part rises upwards and that becomes the mind.*

**About understanding (vijñāna):**

स यो विज्ञानं ब्रह्मेत्सुपास्ते विज्ञानवतो वै स लोकान्  
ज्ञानवतोऽभिसिध्यति यावद्विज्ञानस्य गतं तत्रास्य यथा  
कामचारो भवति यो विज्ञानं ब्रह्मेत्युपास्तेऽस्ति भगवो  
विज्ञानाद्भूय इति विज्ञानाद्वाव भुयोऽस्तीति तन्मे  
भगवान्ब्रवीत्विति ॥ २ ॥ इति सप्तमः खण्डः ॥७ ॥

**“Sa yo vijñānaṁ brahmetsupāste vijñānavato vai sa lokān  
jñānavato'bhisidhyati yāvadvijñānasya gataṁ tatrāsyā yathā  
kāmacāro bhavati yo vijñānaṁ brahmetyupāste'sti bhagavo  
vijñānādbhūya iti vijñānādvāva bhuyo'stīti tanme  
bhagavānbravītviti” 2 ॥ iti saptamaḥ khaṇḍaḥ ॥7॥**

*(Chapter VII section 7 sloka 2.page 506)*

*'He also worships understanding as Brahman attains the worlds of those who understand the vedas, and of those who have the knowledge of other subjects. He becomes free to act as he wishes in the sphere within the reach of understanding, he who worships understanding as Brahman.' Revered sir, is there anything greater than understanding.' 'Revered sir, communicate it to me.'*



## ABOUT HAPPINESS AND BRAHMAN

अथ य एष सम्प्रसादोऽस्माच्छरीरत्समुत्थाय परं  
ज्योतिरुपसम्पद्य स्वेन रूपेणाभिनिष्पद्यत एष आत्मेति  
होवाचैतदमृतमभयमेतदहमेति तस्य ह वा एतस्य ब्रह्मणो नाम सत्यमिति ॥४॥

“Atha ya eṣa samprasādo'smāccharīratsamutthāya param  
Jyotirupasampadya svena rupeṇābhiniṣpadyata eṣa ātmeti  
Hovācāitadamṛtamabhayametahmeti tasya ha vā etasya brahmaṇo  
Nāma satyamiti ॥4॥”

(CH .VIII . section 3 . sloka 4. Page 566-567)

*Now that serene and happy being , rising out of the body and reaching the highest light , appears in his own true form . This is the Ātman , said the teacher . This is the immortal , the fearless . This is Brahman , verily , the name of this Brahman is the true.*

### About Body

तस्मै स होवाचाकाशो ह वा एष देवो वायुर्गिरापः पृथिवी वाङ्मनश्चक्षुः  
श्रोत्रं च । ते प्रकाश्याभीवदन्ति वयमेतद्- वाणमवष्टभ्य विधारयामः ॥ २ ॥

“tasmai sa hovācākāśo ha vā eṣa devo vāyurnirāpaḥ pṛthivi  
ānmanaścakṣuaḥ srotram ca | te prakāśyābhivadanti vayametad-  
vāṇamavaṣṭabhya vidhārayāmaḥ” ॥ 2 ॥

(Prasnopanisad. Sloka 2 page 22.)

*To him he said: Space in fact is this deity, as also are air ,fire, water ,earth, the organs of speech , mind ,eye, and ear . Exhibiting their glory they say, ' Unquestionably it is we who hold together this body by not allowing it to disintegrate.'*

## About Prāṇa

ऊर्ध्वं प्राणमुन्नयत्यपानं प्रत्यगस्यति ।

यमध्ये वामनमासीनं विश्वे देवा उपासते ॥ ३ ॥

“ūrdhaṁ prāṇamunnayatyapānaṁ pratyagasyati ।

madhye vāmanamāsīnaṁ viśve devā upāsate ” ॥ 3 ॥

(Kat.Up. Chapter V. page 107)

(He) sends the prāṇa upward and throws the Apāna downward . All the gods worship that adorable one seated in the middle.

## Muṇḍaka Upaniṣad

यः सर्वज्ञः सर्वविद्यस्यैष महिमा भुवि ।

दिव्ये ब्रह्मपुरे ह्येष व्योमन्यात्मा प्रतिष्ठितः ॥

मनोमयः प्राणशरीरनेताप्रतिष्ठितोऽन्ने हृदयं सन्निधाय ।

तद्विज्ञानेन परिपश्यन्ति धीराआनन्दरूपममृतं यद्विभाति ॥७ ॥

“yaḥ sarvajñaḥ sarvavidyasyaiṣa mahimā bhuvi ।

divye brhmapure hyeṣa vyomnyātmā pratiṣṭhitaḥ ॥

:“manomayaḥ prāṇaśarīranetāpratiṣṭhito'nne hrdayaṁ sannidhāya ।

tadvijñānena paripaśyanti dhīrāānandarūpamamṛtaṁ yadvibhāti” ॥7॥

(Muṇḍ. Upa Chp II canto ii sloka 7 page 59- 60)

That self which is omniscient in general and all knowing in detail and which has glory in this world-that Self, which is of this kind-is seated in the space within the luminous city of Brahman. It is conditioned by the mind, it is the carrier of the vital forces and the body, It is seated in; food by placing the intellect (in the cavity of the heart). Through their knowledge, the discriminating people realize that Self as

*existing in ;Its fullness everywhere-the Self that shines surpassingly as blissfulness and immortality.*

## **2.7 CONQUEST OVER THE KOŚAS THROUGH YOGA – RESULTS**

Cleansing the Kośas is the path of yoga. They are considered to be layers blocking the effulgence of self as dark clouds mask the rays of sun reaching the earth. Like cleaning the layers of dust as a mirror, the reflection becomes proper.

The result of such cleansing are as follows:

Conquest over Annamaya Kośa brings all benefits of total wealth & health.

तस्मात् सर्वोषधा ॥ सर्वं वै ते अन्नमापुवन्ति  
अद्यते अत्ति च भूतानि ॥२॥

**tasmāt sarvoṣadhā|| sarvaṁ vai te annamāpuvanti  
adyate atti ca bhūtāni**

*(T.Y.U.2.2. page 87-88)*

Conquest over Prāṇamaya Kośa brings

सर्वमेव त आयुर्यन्ति  
sarvameva ta āyuryanti

*(T.Y.U. 2.3..Page 92)*

The person gets complete conquest over 'Aayu ' - life span

**Conquest over manomaya Kośa brings**

**Fearlessness :** न बिभेति कदाचनेति  
na bibheti kadācaneti *(T.Y.U. 2.4 page 97)*

**Ananda :** यतो वाचो निवर्तन्ते अप्राप्य मनसाह ।

आनन्दं ब्रह्मणो विद्वान् २ ॥ ४

“yato vāco nivartante aprāpya manasāha!

ānandaṁ brahmaṇo vidvāna”

(T.Y.U. 2.4 page 97)

Conquest over Vijñānamaya Kośa brings

तस्माच्चेन्न प्रमाद्यते

सर्वान् कामान् समस्तुत इति

“tasmāccenna pramādyate

sarvān kāmān samasnuta iti ”

(T.Y.U. 2.5 Page 100)

*He never gets deluded,*

*He gets all desires fulfilled*

*Conquest over Ānandamaya Kośa brings*

*Total power to create the whole world.*

## CHAPTER - 3

# THREE BODIES, PAÑCAKOŚAS AND THEIR INTERACTION

Māndukya Upaniṣat while describing our 3 normal states of consciousness Jāgrat, Svapna and Susupti – wakeful, dream & deep sleep states tells us that these are Sthūla, Śuksma and Kāraṇa (Gross body, subtle & causal bodies) śarīras. Connections to Pañcakośa can be inferred as follows :

sthūla śarīra स्थूल शरीर - अन्नमय कोश (Annamaya kośa)

जागरितस्थानो बहिष्प्रज्ञः सप्ताङ्ग एकोनविंशतिमुखः  
स्थूलभुग्वैश्वानरः प्रथमः पादः ॥३॥

jāgaritasthāno bahiṣprajñah saptāṅga ekonaviṁśatimukhaḥ  
sthūlabhugvaiśvānarah prathamah pādah ॥3॥

(Māṇḍūkya upaniṣad)

*The first quarter is vaiśvānara whose sphere ( of action) is the waking state, whose consciousness relates to thing external, who is possessed of seven limbs and nineteen mouths , and who enjoys gross things.*

Sūkṣma śarīra -

सूक्ष्म शरीर प्राणमय कोश praṇamaya kośa

मनोमय कोश manomaya kośa

विज्ञानमय कोश Vijñānamaya kośa

स्वप्नस्थानोऽन्तः प्रज्ञः सप्ताङ्ग : एकोनविंशतिमुखः

प्रविविक्त भुक्तैजसो द्वितीयः पादः ॥४॥

**“svapnasthānontaḥ prajñāḥ saptangaḥ ekonaviṁśatimukhaḥ  
pravivikta bhuktaijaso dvitīyaḥ pādaḥ” |4|**

*(māṇḍukya upanīśad Page 13)*

*Taijasa is the second quarter , whose sphere (of activity ) is the dream state , whose consciousness is internal , who is possessed of seven limbs and nineteen mouths, and who enjoys subtle objects.*

**कारण शरिर - kāraṇa śarira**

**आनन्दमय कोश - ānandamaya kośa**

**यत्र सुप्तो न कञ्चन कामं कामयते न कञ्चन स्वप्नं पश्यति तत् सुषुप्तम् ।**

**सुषुप्तस्थान एकीभूतः प्रज्ञानघन एवानन्दमयो ह्यानन्दभुक् चेतोमुखः**

**प्राज्ञस्तृतीयः पादः ॥५ ॥**

**Yatra supto na kancana kāmam kāmayate na kancana svapnam paśyati tat  
suṣuptam| suṣuptasthāna ekībhutaḥ prajñānadhana evānandamayo  
hyāndabhuk cetomukhaḥ prajñastrīyaḥ pādaḥ||5||**

*( Māṇḍukya upanīśad sloka 5 page -15)*

*That state is deep sleep where the sleeper does not desire any enjoyable thing and does not see any dream. The third quarter prajñā who has deep sleep as his sphere , in whom everything becomes undifferentiated , who is a mass of mere consciousness, who abounds in bliss , who is surely an enjoyer of bliss, and who is the doorway to the experience ( of the dream and waking states).*

Beyond these 3 is the fourth which is self or Brahman – the eternal unchanging dimensions of our existence.

### 3.1 The Gross Body

त्वङ्मासरुधिरस्नायुमेदोमजास्थिसंकुलम् ।  
पूर्णं मूत्रपुरीषाभ्यां स्थूलं निन्द्यमिदं वपुः ॥ ८७ ॥

“tvañmāmsarudhirasnāyumedomajjāsthisañkulam ।  
pūrṇaṁ mūtrapuriṣābhyāṁ sthūlaṁ nindyamidaṁ vapuḥ” ॥ 87 ॥

(Vivekachuramani verse no 87 page 115)

*This gross body is most offensive as it is composed of skin, flesh, blood vessels, fat, marrow and bones and also it is everfilled with urine and faecal matter.*

इदं शरीरं कौन्तेय क्षेत्रमित्यभिधीयते ।  
एतयो वेत्ति तं प्राहुः क्षेत्रज्ञ इति तद्विदः ॥ १ ॥

“idaṁ śarīraṁ kaunteya kṣetramityabhidhīyate ।  
etayo vetti taṁ prāhuaḥ kṣetrajña iti tadvidaḥ” ॥ 1 ॥

(B.G.Chapter 13 Sloka 1 page 670)

*This body , O son of kunti , is called the kṣetra , the field (because the fruits of action are reaped in it ). He who knows it (as his property) is the kṣetrajña or the spirit who knows the field . So say those versed in this subject.*

स्थूलशरीरं किम् पञ्चीकृतपञ्चमहाभूतैः कृतं सत्कर्मजन्यं  
सुखदुःखादिभोगायतनं शरीरम् अस्ति जायते वर्धते  
विपरिणमते अपक्षीयते विनश्यतीति षड्विकारवेदतत् स्थूलशरीरम्

“Sthūlaśarīraṁ kim Pañcīkṛtapañcamahābhūtaiḥ kṛtaṁ satkarmajanyaṁ  
Pañcīkaraṇa sukhaduḥkhādibhogāyatanam śarīram asti jāyate vardhate  
Vipariṇamate apakṣīyate vinaśyatīti ṣaḍvikāravedatat sthulaśarīram”

(Page-32- Tattva-Bodhaḥ)

*That which is made up of the five great elements that have undergone the process of panchikarana, born as a result of the good action of the past, the counter of experiences like joy, sorrow etc. and subject to the six modifications namely, to potentially exist, to be born, to grow, to mature, to decay and to die is the gross body.*

Presently, our mind is on the gross and so let us start the analysis with the gross body. Made up of the five great elements which have undergone the process of grossification. The five great elements are space, air, fire, water and earth. When they undergo a process of grossification called panchikarana they form the five gross elements. A permutation and combination of these constitute the entire gross world that we perceive. Our body too is part of this world and hence, made up of the five gross elements.

Sthūla Sarīra

The body can be perceived by the five senses, by one's own self and by others' both inside and outside and is therefore called gross. It disintegrates with time and is therefore called sarīra. At death, the body disintegrates back to the five elements from which it is formed. Actually, the body, being part of the five elements is never separate from them. None of the five elements separated or together belong to us, yet we regard this body which is a combination of the five elements to be 'me' and relate to other such aspects related to this body as mine.

The body undergoes six modifications

जायते अस्ति विपरिणमते वर्धते अपक्षीयते विनश्यतीति ।

जब्रयाते ऽसति विपरिण्मिाबहाते वारदहाते ऽपाकश्वरुयाते वनिस्त्रयातरुताञ्ज

*Jāyate asti vipariṇamate vardhate apakṣīyate vinasyatīti*

*Jabra yāte sata viparinvibahāte vardhate*



**Jayate (is born)**

After nine months, the child emerges from the mother's womb to experience the outer world.

**Asti (potential existence)**

The mother experiences changes within and doctor confirms the 'presence' of the foetus in the mother's womb.

**Vardhate (grows)**

Nourished by food, the body grows initially more height-wise and later width-wise!

**Viparinamate (matures):-**

It attains adolescence and matures and over time attains its peak physical vitality.

**Apakshiyate (decays)**

Then, slowly the limbs weaken, the hair grays, the skin loosens and energy ebbs away.

**Vinasyati (dies)**

Finally it disintegrates to totally go back to its constituent elements. We call this death. 'I', the pure self, am a witness to all the modifications of the body. 'I' am neither born, nor do 'I' die with the body. Only out of false identification do I say, "I am dying," "I am fat" etc. Knowing that I am different from the body, I need not neglect the body. It is a vehicle that I use to transact with the world. It is the temple, which houses the pure self within. It

should therefore be kept clean and fit for use, without getting too attached to it or falsely identifying with it.

### 3.2 The Subtle Body

वागादि पञ्च श्रवणादि पञ्च प्राणादि पञ्चाभ्रमुखानि पञ्च ।  
बुद्ध्याद्यविद्यापि च कामकर्मणी पुर्यष्टकं सूक्ष्मशरीरमाहुः ॥९६ ॥

“vāgādi pañca śravaṇādi pañca prāṇādi pañcābhramukhāni pañca ।  
vudhdhyādyavidyāpi ca kāmakarmani puryaṣṭakaṁ sukṣmaśarīramāhuaḥ”  
(*vivekachuramani verse no 96 page 122*)

(1)The five organs-of-action such as speech etc., (2)the five organs-of-perception such as ears etc., (3) the five pranas (4) the five elements starting with space along with (5)the discriminative intellect etc., and also (6) ignorance (7) desire and (8)action- these eight ‘cities’ together constitute the subtle body.

सूक्ष्मशरीरमीकम् ?

The five organs – of - action such as speech etc.,

अपञ्चीकृतपञ्चमहाभूतैः कृतम् सत्कर्मजन्यम् सुखदुःखादिभोगसाधनं पञ्चज्ञानेन्द्रियाणि  
पञ्चकर्मेन्द्रियाणि पञ्चप्राणादयः मनश्चैकं बुद्धिश्चैका एवं सप्तदशकलाभिः  
सह यत्तिष्ठति तत्सूक्ष्मशरीरम् ।

sūkṣmaśarīram kim ?

“Apancīkrtapancamahābhūtaiḥ kṛtaṁ satkarmajanyam  
sukhaduḥkhādibhogasādhanam pancajnānendriyāṇi pancakarmendriyāṇi  
pancaprāṇādayaḥ manaścaikaṁ buddhiścaikā evaṁ saptadaśakalābhiḥ  
saha yattisṭhati tatsūkṣmaśarīram,”

(Page 35 *Tattva-Bodhaḥ*)

*What is the subtle body? That which is composed of the five great elements which have not undergone grossification, born of the good actions of the past, the instrument for the experience of joy, sorrow, etc., constituted of seventeen items, namely, the five sense organs of perceptions, the five organs of action, the five prāṇas, the mind and the intellect – is the subtle body.*

Pervading the gross body is the subtle body. The five great elements in their nascent form are called tanmatrās. The entire subtle world is constituted from their permutation and combination. The subtle body being part of the subtle world is also made up these subtle elements.

They are called subtle, as they cannot be perceived by our senses. Neither can I see another's mind nor my own with my gross eyes. But I am aware of the thoughts in my mind. The subtle body enlivens the gross body. When it leaves the gross body, we say a person is dead and gone. It is also called 'linga sariira' as it exhibits the presence of life in the society.

The sense organs of perception in the physical body are well known. The five sense organs of perception are the ears, skin, eyes, tongue, and nose. The field of experience of sense organs of perception is cognition of sound by the ears; cognition of touch by the skin; cognition of form by the eyes; cognition of taste by the tongue and cognition of smell by the nose.

All these are manifest of the subtle body made up of the five great elements which have undergone the process of grossification. The five great elements are space, air, fire, water and earth. When they undergo a process of grossification called pancikarana they form the five gross elements. Mind and intellect are the higher parts of this subtle body.

### Organs of perception :

Name of the organs	Ears	Skin	Eyes	Tongue	Nose
Presiding deity	DigDevata	Vayu	Sūrya	Varuna	Asvini kumaras
Function	Hearing	Feeling	Seeing	Tasting	Smelling
Sense perceived	Sound	Touch	Form and Color	Taste	Smell

### Sense organs of action :

Name of the organs	Tongue	Hands	Legs	Anus	Genitals
Presiding deity	Agni	Indra	Visnu	Mrityu	Prajapati
Function	Speech	Grasping objects	Locomotion	Elimination of waste	Procreation

### 3.3 The Causal Body

अव्यक्तमेतत्त्रिगुणैरुक्तं तत्कारणं नाम शरीरमात्मनः ॥

सुषुप्तिरेतस्य विभक्त्यवस्था प्रलिनसर्वेन्द्रियबुद्धिवृत्तिः ॥१२०॥

“avyaktametattriguṇainirruktam tatkāraṇam nāma śarīramātmanah ॥

suṣuptiretasya vibhaktavyavasthā pralinasarvendriyabuddhivṛttiḥ” ॥120॥

(Vivekachuramani verse no 120 . Page 151)

This “Unmanifest’ , described as a combination of all three Gunas , is the casual body of the individual . Its special state is deep-sleep , in which all the functions of the mind-intellect and the sense-organs are totally suspended.

यत्र सुप्तो न कञ्चन कामं कामयते न कञ्चन स्वप्नं पश्यति तत् सुषुप्तम् ।  
सुषुप्तस्थान एकीभूतः प्रज्ञानधन एवानन्दमयो ह्यानन्दभुक् चेतोमुखः प्राज्ञस्तृतीयः  
पादः ॥५ ॥

“yatra supto na kañcana kāmam kāmayate na kañcana svapnam paśyati tat  
susuptam|susuptasthāna ekībhūtaḥ prajñānadhana evānandamayo  
hyānandabhuk cetomukhaḥ prājñastrīyaḥ pādaḥ”

(Māṇḍūkya upaniṣad sloka 5 page 15)

*That state is deep sleep where the sleeper does not desire any enjoyable thing and does not see any dream. The third quarter prājña who has deep sleep as his sphere , in whom everything becomes undifferentiated , who is a mass of mere consciousness, who abounds in bliss , who is surely an enjoyer of bliss, and who is the doorway to the experience ( of the dream and waking states).*

कारणशरीरं किम् ?

अनिर्वाच्यानाद्यविद्यारूपं शरिरद्वयस्य कारणमात्रं  
सत्स्वरुपाज्ञान निर्विकल्पकरूपं यदस्ति तत्कारणशरीरम् ।

Kāraṇaśariraṁ kim ?

Anirvācyānādyavidyārūpam ariradvayasya kāraṇamātraṁ  
satsvarupājñānam nirvikalpakarupam yadasti tatkāraṇaśarīram|

(Page 43-Tattva-Bodha)

*That which is inexplicable, beginning less, in the form of ignorance, the sole cause of the two bodies (gross and subtle), ignorant of one's own true nature, free from duality is the causal body. The causal body is the subtlest of the three bodies and pervades the other two. It is not made up of matter like the other two bodies.*

## **Avidya – Rūpam**

It is of the nature of ignorance. Ignorance has no shape, size or quality. It is always related to an object (Ex. Ignorance of computer). But by itself, it is objectless. 'I' am the locus of ignorance. Ignorance cannot exist without me. I exist, therefore I can be ignorant.

## **Anirvācyam: Inexplicable**

- a) Since it has no shape, size or quality, it cannot be described by words or grasped by the mind.
- b) Ignorance implies lack of knowledge. It does not actually have any existence. Yet it cannot be said to be non-existent. We experience its effects. It manifests as the gross and the subtle bodies and we also experience sorrow caused by ignorance.
- c) Being nothing it still does a great deal, hence it is an inexplicable power.

## **Anādi**

Ignorance is beginning less. If we say ignorance began at a particular time, then therefore there should have been either

- a) A void, but ignorance cannot emerge from nothing.
- b) Knowledge, but ignorance cannot come from knowledge either. One cannot point out a beginning for ignorance. Therefore it is beginning less.

Ignorance can be destroyed by knowledge. Therefore the causal body is not eternal. The self, being beyond birth and death, is eternal. I am different from the casual body. Thus knowing my true nature, I experience myself as different from all the three bodies – gross, subtle and casual.

### 3.4 Beyond The Five Sheaths

आत्मा कः ?

स्थूलसुक्ष्मकारणशरीराद्यतिरक्तिः पञ्चकोशातितः सन्  
अवस्थात्रयसाक्षी सच्चिदानन्दस्वरूपः सन् यस्तिष्ठति स आत्मा । तत्त्व बोध त्तमब्र काह्

“Sthūlasukṣmakāraṇaśarīrādvyatiraktiḥ PAÑCAkośātitaḥ san  
avasthātrayasākṣī saccidānandasvarupaḥ san yastiṣṭhati sa ātmā”

(Tattva bodha. page-28 )

*What is the self? That which is other than the gross, subtle and casual bodies , beyond the five sheaths , the witness of the three states of consciousness and of the nature of Existence consciousness –Bliss is the eternal. Beyond the five sheaths discussed earlier, is the Atman, the eternal soul, the real self, the very Brahman in Its pure microcosmic state. It is the First Being, the unchanging, imperishable self in man. It is beyond the senses, beyond all conscious human experience. It is also called puruṣa. It is the True Body. He who attains it becomes freed from fear. He is not perplexed or tormented by conflicting thoughts. His mind becomes tranquil.*

It may be noted that while Sri Sankaracharya considered the bliss body and Ātman to be different, Sri Rāmānuja regarded the bliss body and Ātman together as the one pure transcendental state.

The first four sheaths, namely, the gross body, the three subtle bodies and the casual body (which is sometimes grouped together with the life and mental bodies as casual body), constitute the Jīva. Jīva is the living element, the product of Prakṛti who comes under the influence of illusion and develops ahaṅkāra or the ego consciousness which gives rise to feelings of separation and alienation from the rest of the creation and fails to perceive the

omnipresence of God. It is the Jīva which together with Ātman goes through the chain of repeated births and deaths. While Ātman is impervious to change and suffering during this process of evolution, the Jīva remains at the center of desire-oriented sensory activity and suffers from its consequences. At the time of death it leaves behind the gross body and goes to the other worlds with its subtle and casual bodies, where after exhausting its karma it returns again to take birth in this world in accordance with its previous samskāras or residual memories of its past lives.

यस्तु विज्ञानवान् भवति समनस्कः सदा शुचिः ।  
स तु तत् पदमाप्नोति यस्माद् भूयो न जायते ॥ ८ ॥

“yastu vijñānavān bhavati samanaskaḥ sadā śuciḥ ।  
sa tu tat padamāpnoti yasmād bhūyou na jāyate” ॥ 8॥

(chapter III.Kathopanīsat page 78.)

*But he who is intelligent, ever pure and with the mind controlled, verily reaches that goal whence none is born again.*

धूमो रात्रिस्तथा कृष्णः षण्मासा दक्षिणायनम् ।  
तत्र चान्द्रमसं ज्योतिर्योगी प्राप्य निवर्तते ॥२५॥गीता १८ ।

“dhūmo rātristathā kṛṣṇaḥ ṣaṇmāsā dakṣiṇāyanam ।  
tatra cāndramasaṁ jyotiryogī prāpya nivartate” ॥25॥

(Bhagavad Gītā Chapter 8 sloka 25 page 478)

*The other path is that wherein are stationed the gods presiding over smoke, night, the dark fortnight, and the six months of the southward course of the sun; the Yogi (devoted to action with an interested motive) taking to this path after death is led by*



*the above gods, one after another, and attaining the luster of the moon (and enjoying the fruit of his meritorious deeds in heaven) returns to this mortal world.*

ते तं भुक्त्वा स्वर्गलोकं विशलं क्षीणे पुण्ये मर्त्यलोकं विशन्ति ।  
एवं त्रयीधर्ममनुप्रपन्ना गतागतं कामकामा लभन्ते ॥२१ ॥गीता १९।

**“te taṁ bhuktvā svargalokaṁ viśalaṁ kṣīṇe puṇye martyalokaṁ viśanti |  
evaṁ trayīdharmamanuprapannā gatāgataṁ kāmakāmā labhante|”|21||**

**(Bhagavad Gītā|Chapter 9 sloka 21 page 506)**

*Having enjoyed the extensive heaven-world, they return to this world of mortals on the stock of their merits being exhausted. Thus devoted to the ritual with interested motive recommended by the three Vedās(as the means of attaining heavenly bliss), and seeking worldly enjoyments, they repeatedly come and go(i.e., ascend to heaven by virtue of their merits and return to earth when their fruit has been enjoyed).*

The Taittirīya and Katha upaniṣads are important sources of information for our understanding of the constitution of man. In the Katha Upaniṣat says Lord Yama, “Beyond the senses are the objects and beyond the objects is the mind. Beyond the mind is buddhi and beyond buddhi is the great self (mahān ātma)”.

आत्मानं रथिनं विद्धि शरीरं रथमेव तु ।  
बुद्धिं तु सारथिं विद्धि मनः प्रग्रहमेव च ॥३ ॥

**“ātmānaṁ rathinaṁ vidvi śariraṁ rathameva tu |  
buddhiṁ tu sārathiṁ vidvi manaḥ pragrahameva ca|” |3||**

**(Kathopaniṣad Chapter III Sloka 3 page 74)**

*Know that the soul is the master of the chariot who sits within it, and the body is the chariot. Consider the intellect as the charioteer, and the mind as the rein.*

In the Taittirīya Upaniṣat we come across the description of the various stages of Brahman starting with matter and life (II.2.1), life and mind (II. 2.1), mind and buddhi (II. 2.1), buddhi and bliss (II.2.1) and Brahman (II.2.1). The Taittirīya Upaniṣat ends with a mystical chant which is a joyous expression of a liberated soul who has realized the true nature of his self.

## CHAPTER-4

### APPLICATION OF THE CONCEPT OF PAÑCA KOŚA

Any system or process will be accepted by the common man if it can prove its usefulness in his day-to-day aspects of life. In the past we have seen how the society accepted and adopted science as an integral part of its structure a technology solved the problem of providing the basic necessities of life and offering a more comfortable life to an individual. We have also seen now that the society is all set for Yoga. Why? ,“Yoga” offers man a conscious process to solve the menacing problems of unhappiness, restlessness, emotional upset, hyper activity etc., in the society and helps to evoke the hidden potentialities of man in a systematic and scientific way by which man becomes a fuller individual. All his faculties-physical, mental, intellectual and emotional-develop in a harmonious and integrated fashion to meet the all round challenge of the modern technological era with its hectic speed.

The speciality of Pañca kośa concept is that, the faculties get sharpened in tune with the spiritual progress of man allowing him an integrated personality development with spiritual growth. Promotion of positive health is being nurtured by many who do not want to be the victims of modern ailments. Yoga is playing a vital role in this aspect in the new millennium.

#### 4.1 SCIENCE OF ILLNESSES:

In Ānandamaya kośa a man is healthiest with perfect harmony and balance of all his faculties. At Vijñānamaya kośa there are movements, but are channelised in the right direction. As such, it is in the Manomaya level the imbalances start, say the yoga texts. Likes and dislikes have come to play at this level. They start governing our action; often they are in the wrong

direction. The liking of gulab jamoon in a diabetic may lure him to eat the same against the doctor's advice. Thus going against what is right causes imbalances. These imbalances amplify themselves resulting in mental illnesses called Ādhis. At this stage there are no symptoms at the physical level.

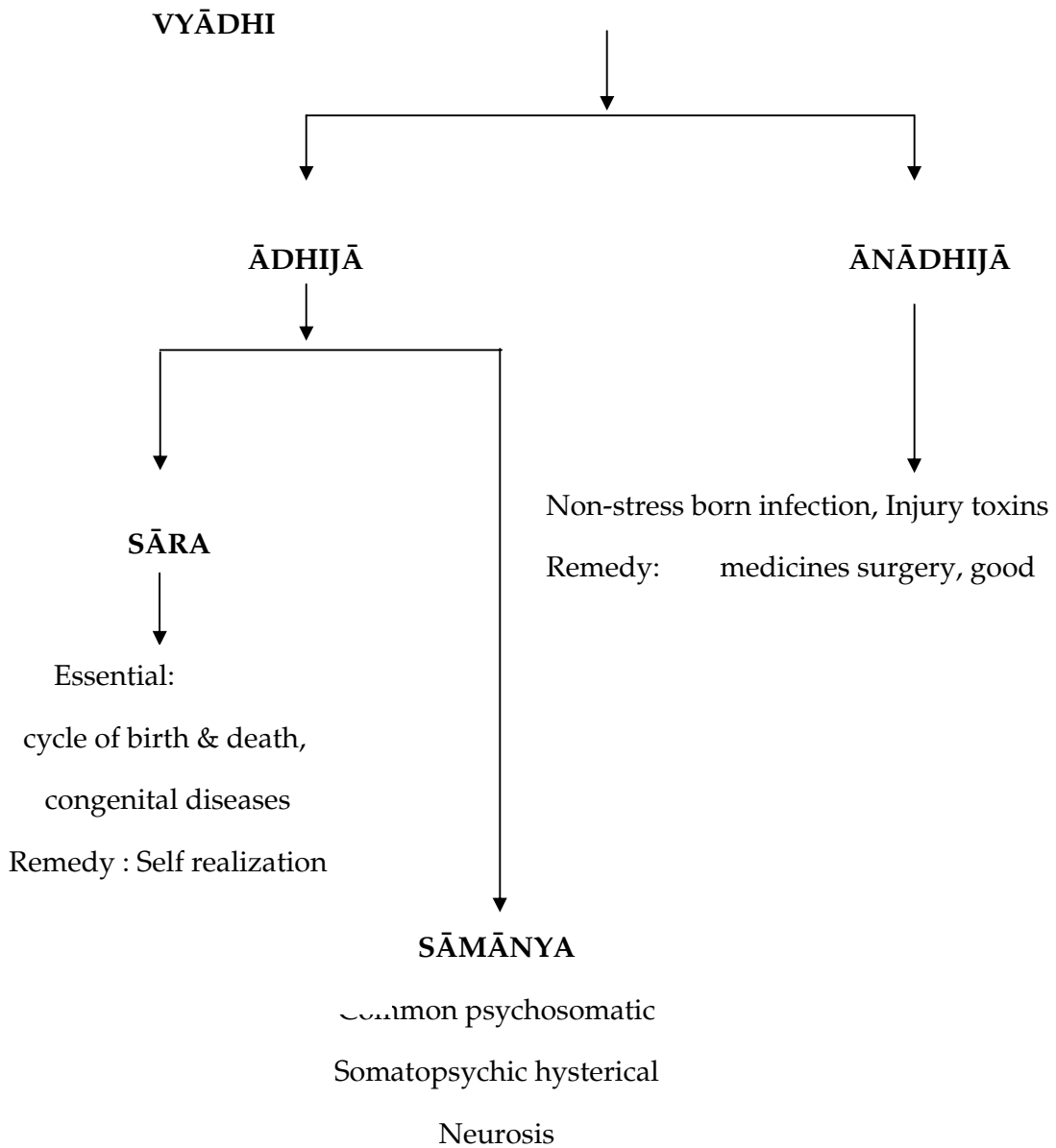
Prompted by the perpetual growth of desires, these mental diseases concealed in us, begin to manifest themselves externally and gradually they percolate into the physical frame. Preponderance of Ajnāna (ignorance about one's real state of bliss) leads one to perform wrong action such as eating of unwholesome food, living in unhealthy dwelling, doing things at untimely hours, association with the wicked, evil thought, inflict injuries, etc. These breed physical diseases called Ādhis. The Ādhis (primary diseases) are two fold - Sāmānya (ordinary) and Sāra (essential). The former includes the diseases incidental to the body while the latter is responsible for rebirth to which all men are subject.

The Sāmānya are normally produced during the interaction with the world. These may be termed as psychosomatic ailments. When dealt with by suitable techniques and congenial atmosphere, Ādhis of the ordinary type will vanish. Along with it are destroyed the physical ailments i.e., the Vyādhis caused by these Ādhis – Ādhijāh Vyādayaḥ. The subtler Ādhis of the essential type (Sāra) which causes the birth of the causal states of mind and a corresponding ability to live in Vijñānamaya and Ānandamaya Kośas. In that state, man transcends the cycle of birth and death.

The second category of ailments is Anādhijāh Vyādayaḥ, those not originated by mind. These would probably include the infectious and contagious diseases. The text says that Anādhijāh Vyādhis can be handled through

conventional medicines (the chemotherapy of modern medicine and Āyurveda), and good actions. These bring about the purity of the mind, the prāṇa flowing freely in the body and the food getting digested better and assimilated properly allowing the diseases to vanish.

#### 4.2 YOGIC CONCEPT OF DISEASE

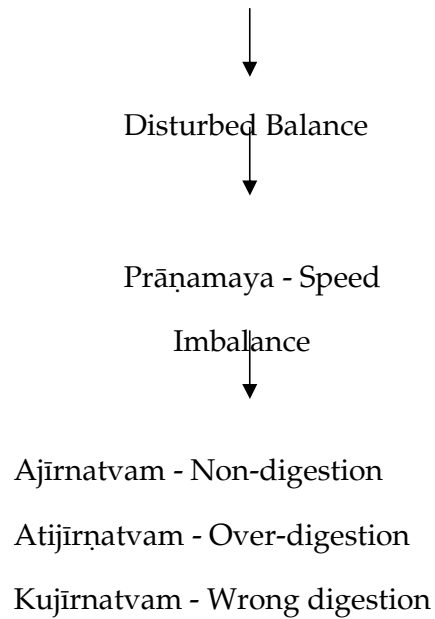


### 4.3 THE PSYCHOSOMATIC ILLNESSES

Between the two types of Ādhis described, the Sāmānya (ordinary) type corresponds to the modern psychosomatic ailments. When the mind is agitated during our interactions with the world at large, the physical body also follows in its wake. These agitations cause violent fluctuations in the flow of prāṇa in the nādis.

The prāṇa flows in wrong paths flying from one to the other without rhythm and harmony. The nādis can no longer, in this condition, maintain stability and steadiness and the food do not get properly digested. There arises kujīratvam (wrong digestion), atijīratvam (over-digestion) and ajīratvam (non-digestion). When this improperly digested food settles down in the body amidst such commotion it results in ailments of the psychosomatic type. Contained in this process of generation of psychosomatic ailments is the method for treating such ailments.

Ādhija Vyādhi in Manomaya Kośa – Speed -Long Standing



#### 4.4. SAUCA - THE CLEANSING

शौचात्स्वाङ्गजुगुप्सा परैरसंसर्गः ॥४०॥ प यो सु

śaucātsvāṅgajugupsā parairasamsargah |

(Pa. Yo. Su 40 page 207)

*cleanliness from cleanliness there comes indifference towards body and non-attachment to others.*

From this sutra begins the discussion of the niyamas. These are fixed disciplines necessary for the practice of meditation and samadhi. All these are means and not the end. The first rule, namely, cleanliness or purity, is described in this sutra. It is said that by practising bodily or physical you develop in course of time a kind of indifference towards your own body. At the same time a kind of non-attachment to others is also developed.

सत्त्वशुद्धिसोमनस्यैकाग्र येन्द्रियाजयात्मदर्शयोग्यत्वानि च ॥४१॥

sattvaśuddhisoumanasyaikāgra yendriyājayātmdarśnayoogyatvānica.

(Pa. Yo. Su. 41 page 208)

*By the practice of mental purity one acquires fitness for cheerfulness, one-pointedness, sense control and vision of the self.*

This is also found described in the Bhagavad-Gita. When the mind is purified or when mental purity is practiced, one becomes fit to practice cheerfulness, concentration and sense control, and because of mental cleanliness, one is able to see the vision of one's self.

Every human being is basically the jīvatma (Soul), enveloped by the Pañca Kośas. Here we are trying to explain how each kośa sends ripples in the

environment and affects others is a process of cleansing to manifest the hidden potential in all of us.

In this context, the effects of Annamaya Kośa and Prāṇamaya Kośa in some detail. The effects of other three Kośas are similar. The Annamaya Kośa is composed of solids, liquids and gases, and infinite number of small particles constantly passing off from the body.

Apart from the obvious daily losses sustained by the body in the excrements and sweat, there is this ceaseless emission of minute particles, alike in night and day, whether the body is awake or asleep. The body is like a fountain, throwing off a constant spray. Every physical object is in this condition - stones, trees, animals, men; all are ceaselessly throwing off these tiny and invisible particles. Simultaneously, they all ceaselessly receive the rain of particles thrown off by others, which fills the air in which they live, and which they breathe in with every breath. A continual interchange is thus going on between all physical bodies; no one can approach another without being sprinkled by the other, and sprinkling him in turn, with particles from their respective bodies. Everything a man goes near, he receives some particles from that body ; every object he touches retains a minute portion of his body on its surface ; his clothes, his house, his furniture, all receive from him this rain of particles, and rain particles from themselves on him in turn. The Prāṇamaya kośa, composed of the physical ethers and animated by the life energies, affects all around it, and is affected by all around it, not by emitting or receiving particles, but by sending out, and being played upon by vibrations, which cause waves, currents in the etheric matter. The life waves, magnetic waves, go out from each man as ceaselessly as the fine rain of particles from his Annamaya Kośa. And similar waves from others play upon



him, as ceaselessly as the fine rain of particles from others falls on him. Thus every man is being affected by others, and is affecting them, in the physical world, in these two ways: by a rain of particles given off from the Annamaya Kośa, and by waves given off from the Prāṇamaya Kośa. The object of the rules of 'sauca' is to make this inevitable influence of one person on another a source of health instead of a source of disease and also to preserve and strengthen the bodily and mental health of the performer. The Annamaya Kośa is to be kept scrupulously clean, so that it may send off a rain of health on everyone and everything that is near it. The Prāṇamaya Kośa is to be reached by the mantra-produced vibrations in the ether matter which permeates the things used in the ceremonies - as ether matter permeates everything - so that these vibrations may act beneficially on it and may cleanse and purify it.

The rules affecting bodily cleanliness are definite and strict. On rising, the calls of nature are first to be attended to, plenty of water being used for cleaning purposes, and then the mouth and teeth are to be washed, and a bath taken. A man is to be careful that no unclean matter remains near his dwelling. Much disease is caused by the neglect of the rules of sanitation. It is part of the duty of a good citizen to see that rivers in the neighbourhood of cities are not poisoned, nor filth is allowed to accumulate to injure the public health.

A man must wash in some cases bathe the whole body, before taking part in any religious ceremony, and sip water with appropriate mantras. He must wash before and after meals. That is why you see the following frequently in any religious ceremony: Acamya (Sipping water), Apaupasprusya (Washing hands), and Snānam (Bath). But no body can be truly pure unless the mind

and heart be pure. The body is purified by water, the mind by Truth, the soul by knowledge and austerity, the reason by wisdom. Infectious diseases of all kinds run riot where the rules of individual purity are disregarded, and where houses, clothes and articles in daily use are not scrupulously cleaned. Modern science is re-establishing, with infinite labor and pains, the facts on which these ancient rules were based, and a clear understanding of the reason for their imposition will render obedience to them willing and cheerful.

#### **4.5 THE INTEGRATED APPROACH OF YOGA**

The disturbances in the Manomaya Kośa percolate into the physical layer (Annamaya Kośa) through the Prāṇamaya Kośa hence in the treatment of these psychosomatic ailments it becomes mandatory to work at all these levels of our existence to bring about the quickest results. The integrated approach, thus, not only consists in dealing with physical sheath, the relief of which could at best be temporary as is happening with the drugs used in modern medicine to treat diseases of the psychosomatic type like Asthma, Diabetes Mellitus, Hypertension, etc., but it also includes using techniques to operate on different sheaths of our existence. The large number of yoga practices available in the texts of Yoga and Upaniṣads are adapted to balance and harmonize the disturbances at each of the Five Kośas and tackle this type of complex psychosomatic ailments.

##### **4.5.1 Practices at Annamaya Kośa (The Physical Layer) :**

A healthy yogic diet, Kriyās, loosening exercises and Yogāsanas are used to operate at the Annamaya Kośa level and to remove the physical symptoms of the ailments.

### **A. Kriyās:**

They are yogic processes described in the HaṭhaYogā to cleanse the inner organs of our body. They bring about the following effects:

- a) Activating and revitalizing the organs
- b) Toning up their function
- c) Desensitization
- d) Development of deep internal awareness

### **B. Physical Exercises & Movements Śītalīkarana Vyāyāma**

Very simple physical movement to mobilize and activate the affected parts of the body. The effects are to:

- e) Loosen the joints
- f) Stretch and relax the muscles
- g) Improve power
- h) Improve stamina

### **C. Yogāsanās :**

Posture – Yogāsanās are the physical postures of imitating the natural position of the animals meant to make the mind tranquil. Through these postures the physical revitalization and deep relaxation and mental calmness are achieved.

#### **4.5.2 Prāṇamaya Kośa (The Layer Of Prāṇa)**

Prāṇa is the basic life principal. Prāṇamaya is a process for gaining control over prāṇa. The five manifestations of prāṇa and the corresponding most comprehensive definition of Prāṇamaya in the human system are described in Praśnopaniśat. Also the conventional Prāṇamaya through regulation of breath is described therein.

By practicing proper breathing Kriyās and prāṇayama, we start operating on the Prāṇamaya Kośa. Suitable types of prāṇayama and breathing help to remove the random agitations in prāṇic flows in the Prāṇamaya Kośa. Thus the ailments are handled at Prāṇamaya Kośa level.

### **4.5.3 Manomaya Kośa (The Mental Layer)**

#### **Dhāraṇa and Dhyāna**

A direct operation on this level is made possible by the last three limbs of Aṣṭāṅga Yoga of Patanjali – Dhāraṇa, Dhyāna and Samādhi. The culturing of mind is accomplished by focusing of the mind (dhāraṇa) initially, followed by relaxed dwelling of the mind in a single thought (dhyāna) for longer and longer duration leading ultimately to super consciousness.

Samādhi :

A progressive habituation allows the mind to remain relaxed during the period of meditation (Dhyāna). The benefits of Transcendental Meditation, a simple standardized technique, are numerous, interesting and noteworthy. Its application to treat many psychosomatic ailments has become popular.

#### **Emotional culture**

To handle and gain control over the basic cause for mental agitations, we use the yoga techniques that control our emotions. A devotional session containing Prayers, Chants, Bhajans, Dhuns, Strotrās etc. help to build a congenial atmosphere to evoke, recognize, attenuate and dissipate the Emotions. Thus control over emotions is obtained through the devotional session. The emotional imbalances and upsurges are eliminated by such control.

#### **4.5.4 Vijñānamaya Kośa (The Layer of Wisdom) :**

A basic understanding is the key to operate from Vijñānamaya Kośa. Upanishads are the treasury of such knowledge which is the redeemer of all miseries and obsessions. It is the lack of that inner Jñāna which is responsible for many wrong habits, agitations etc. The Happiness Analysis Ānanda Mimāmsa of the Taittirīya upaniṣat handles the most fundamental problem relevant to that substratum from which prāṇa and mind emerge –the Ānandamaya Kośa. It helps the person to change his attitude of greed and deep attachment to material possessions and enjoyments towards the realization that happiness is within and 'each one of us' in our causal state is 'Ānanda embodied'. As a result, man's outlook in his life has changed. Knowledge burns the strong attachments, obsessions, likes and dislikes which are the basic reasons for the agitations of mind. The Sāra type of Ādhis can be removed only by this knowledge (Ātma-jñāna or self-realisation).

#### **4.5.5 ĀNANDAMAYA KOŚA (THE LAYER OF BLISS)**

To bring the bliss of our causal body called Ānandamaya Kośa in all our actions is the key for a very happy and healthy life. This also brings our innate healing power to affect, accompanied by the cure of our ailments. The techniques used come under the heading karma yoga, the secret of action.

The secret lies in maintaining an inner silence, equipoise at the mental level as we perform all our actions. Normally we get upset or excited over things which we don't like or we like. But we have to learn to maintain equipoise (samatva). The next step is to have a deep silence and a blissful awareness in the inner subtler layers of our mind while we are in action.

This is accomplished by self-awareness, constant drive to change oneself and auto – suggestions. To recognize that 'I am getting tensed' is the first step. Correct by withdrawing to the inner compartment of total bliss, peace, and rest. Remember this by repeated inner silence several times in the day. Retain a smiling relaxed face during all the yoga practices.

Integrated approach of yoga therapy

**Kośas :**

Annamaya Kośa	:	Loosening exercises, Āsanās, Kriyās and Diet.
Prāṇamaya Kośa	:	Kriyās Breathing Exercises, Prāṇayama.
Manomaya Kośa	:	Dhyāna , Bhakti, Devotional Songs.
VijñānamayaKośa	:	Jnāna, Lecture & Yogic Counselling.
Anandamaya Kośa	:	Working in Blissful Awareness.

## CHAPTER- 5

### SUMMARY AND CONCLUSIONS

The self is covered by the five sheaths, viz., Annamaya Kośa, Prāṇamaya Kośa, Manomaya Kośa, Vijñānamaya Kośa and Ānandamaya Kośa. The fact that one sees, thinks, feels, etc. indicates the presence of 'I'. The functioning of these sheaths proves the presence of the self.

At a time when communication technology has closed the gap between people of all nations, the decline in moral and spiritual values has increased the sense of separation, isolation and confusion for many people. Although science has freed the human mind from irrational thinking and superstitious fears, it has "enslaved it within the confines of physical phenomena" covering the self.

Over the years, this knowledge of our true self has been present only in the pages of scriptures but with the growing interest in the knowledge given to us by the sages, our proper understanding of the self has opened up new avenues in the understanding of not only the diseases confronting the mankind but also in our spiritual evolution. However, there is still a long way to go before this ultimate knowledge can be made use of in our daily life to reach a perfect state of harmony with our true self.



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## CHAPTER – 1

# INTRODUCTION

The effect of yoga is now becoming very relevant for the modern society and yoga is to help in totality to become macrocosm from the microcosm. The constricted selfish thinking to get everything has to be assimilated to that of unselfish universal being – to give everything and become an “AKSHAYA PATRA”. To attain this self analysis to look into the real present nature of the self understanding the need [a transformation to purity] and a self identification of method, strategy etc. which is very much feasible, workable and convenient to our system has to be used. This will elevate the man to his fullness and become a macro being. The ancient seers were grown to such a level, lived in that status, delivered peace and guided even the ruling machinery to establish the enlightened UNIVERSAL peace and DHARMA.

The practice of yoga has been implicated to produce great impact on the cerebral functioning. Evidence from literature suggests that postures, breath controls, and meditation can have a positive effect on cognitive performance on memory, attention, concentration, psychomotor speed and flexibility and general intelligence. (Nagendra.H.R. (1986), Iyengar B.K.S (1997),Jenving. R (1992) and Selvamurthy .W(1986).

Yoga Postures may influence the functioning of brain cell through dynamic physical maneuvering. Practice of postures brings about such effect. During post-practice rest periods, the practitioner experiences great relaxation of all body muscles, which means lesser amount of muscular metabolism rate. Less metabolism rate at the muscular level leads to greater supply of blood to the

brain. Based on research evidence, Selvamurthy (1986) observes that the regular practice of postures and breath controls may improve cognitive ability of the brain, including concentration and memory.

Pranayama improves cognitive functioning through its breath control effects on the ANS directly and indirectly by including relaxation at the physical and mental levels and redistributing blood supply to the cerebral cells. The practice of Pranayama leads to greater oxygen supply to the blood system and carbon dioxide drainage. As a result, greater amount of oxygen is available for cerebral metabolism. Further, as Sri. Iyengar (1997) observes, "regular practice of various pranayamas will promote mental stillness and concentration, which resembles a state of meditative relaxation". Mental and physical relaxation leads to an integrated physiological response, in which blood is redistributed to the effect of providing greater supply to the cerebral cells. All these physiological effects will have an enhancing effect on cognitive functioning.

The practice of pranāyama, by including relaxation and cerebral blood flow and making more oxygen available for cerebral consumption, can prevent decline in cognitive functioning.

Meditation in the long-term has been reported to have significant impact on several aspects of neuropsychological functioning, especially those related to the sensory-perceptual mode (Jenving et., 1992)

Meditation's effect on the brain functioning is most successfully proved by studies on visual and auditory evoked potential latencies. There are various technique meditation introduced by different schools of yoga. But all of them are aimed at calming the mind and leading to bliss.

This study is also to examine whether the integrated intensive yoga practice is applicable to all at par without any age restrictions. Therefore the member participants selected are from the age group of 22 – 71. They have been fully engaged from 5 am to 10 pm from the first day to last day, by participating in daily yoga activities as follows:

1. Pratasmaran - ½ hour

2. Special Techniques - 1 hour

Various special technique to overcome different ailments. These techniques are researched and proved.

3. Maitri Milan - 45 minutes

Educating the participants with added knowledge so that they will be elevated to the real purified soul through Jnāna.

4. Lecture on Yoga Therapy - 2 hours daily

Explanations on the applications of Yoga on different major diseases.

5. Special Techniques - 1 ½ hour daily

Pranic energisation - scientific method. Mind Emotional management technique {MEMT} [alternate days]

6. Advanced Special Techniques

Advanced study on Pranic Energisation as well as Mind Emotional Management Technique and living in that during the whole day.

7. Deep Relaxation Technique - ½ hour daily

8. Interaction with experts and cultural programs

Since the integrated intensive intervention of yoga modules are applied for experiment the study go along with the “Five sheath” principle and different yoga modules have been introduced to elevate the members to the totality of

human being to be the soul. Over and above this, different methods have been introduced to direct the members from tamas to satvik and gunatita stages.

Over all this study allowed the members to go through the sadhana path also and the whole group become self motivated through the integrated approach but our purpose was to study the effect of intensive yoga practices on concentration, attention and memory.

## CHAPTER – 2

### AIMS AND OBJECTIVE OF THE STUDY

#### **Aims**

The study is to find:

1. The changes after yoga practices on attention, concentration and memory.
2. To examine whether the application of integrated intensive yoga practices are equally possible to be practiced by elderly people also at par with others.

#### **Objective**

1. To study the changes after yoga practices on memory of normal healthy adults aged between 22-71 years including both sexes.
2. To study the changes after yoga practices on attention and concentration of normal healthy adults aged between 22-71 years including both sexes.

## CHAPTER – 3

### LITERATURE SURVEY

Yoga, an ancient Indian science of living described by sages provides an exhaustive literature on its basis, systematic practices, and goals. These ancient seers recognized the 'mind & its modifications (mind stuff)' as the root cause for all the inefficiencies and miseries. Hence the seers like sage Patanjali proposed 'science of yoga' to restrain the mind from its modifications (yogah citta vritti nirodhah); Vasistha in his Yoga Vasistha presents the practice of yoga as a tool to calm down the mind (Manah prasamanah upayah yogah); and, Lord Krishna in Bhagavadgita prescribes yoga practice to be skillful in action (Yogah karmasu kausalam). Hence the primary goal of yoga is to be calm, free from mental modifications and skillful in action and thus realize the capability of highest possible functional harmony in body and mind. This comprehensive understanding of the mind with its modifications and yoga as a solution elicited the scientific investigations to understand the effects of yoga practices and underlying neural mechanisms involved.

Yoga, a magnificent inheritance commands a strong and benevolent presence in this world. Yoga is a way of life an integrated system of education for

mind, body and spirit. This art was perfected and practiced in India thousands of years ago. Many have responded to the call of yoga in recent times and reaped diverse benefits in terms of enhancement of quality of life.

In this study I wish to present various interventions applications of yoga for all age groups.

The core of cognition is the perception of the world around us. Unicellular organisms have a non-specific sensitivity to mechanical, thermal, chemical and various other stimuli all over their surface which helps them direct their movements towards food and away from danger. A similar sensitivity is displayed by simple multi cellular organisms. Further, the simple nervous system that multi cellular organisms possess enables them to vary their future responses in light of previous 'experiences'. But it is unlikely that these organisms 'know' their environment. A major evolutionary advance was the arrival of bilaterally symmetrical animals with a well defined head-end and tail-end. The head developed collection of sensory cells specifically sensitive to only one type of stimulus, which made a high degree of specialization possible. Secondly, the head lodged a large collection of neurons, the brain, where information arriving from sensory cells was received and processed. Further evolution, in general, led to a progressive increase in the size of the

brain, and consequently greater complexity in the processing of sensory information (Bijlani 1997). At some point along the evolutionary journey, the neuronal processing somehow led to the animal becoming aware, or conscious, of the stimulus. When we put together information extracted from a variety of sense organs, we get a composite picture of the environment. Cognition is essentially this knowledge about our environment, but it is closely related to several other processes. We may store some of this knowledge for future use (memory), and may use the stored knowledge to modify our future behaviour (learning). Further, sensory stimuli frequently affect our emotions and elicit a response. Hence the process of perception cannot be separated from the process involved in these sequelae of perception. Therefore cognition is defined as “all the process by which the sensory input is transformed, reduced, elaborated, stored, recovered and used” (Neisser 1967). Looking at cognition from this broad angle, cognitive neurosciences include study of virtually all higher neural functions.

Cognition is a subject which has attracted psychologists, physiologists and philosophers alike. Further, observations made by neurologists and neurosurgeons on their patients have valuable contributions to our understanding of the neural processes involved in cognition.

## PSYCHOLOGICAL VIEW POINT

Modern psychology was born about a hundred twenty years ago, and started with fairly simple concepts. It considered human beings to be essentially animals endowed with a mind. Following this surface view, psychology has progressed in three directions. First, it has tried to reduce the black box called mind to objective, quantifiable components and indicators so that it can be studied through reproducible experiments. Secondly, it has tried to understand the biological mechanisms of the mind using psychological techniques. Finally, it has added 'depth' to its view of the mind by introducing the concept of the 'unconscious', and recently also 'height' by accepting the possibility of higher states of consciousness than the ordinary (Dalal 1991). Thus psychology has, on one hand, acquired a stronger scientific basis, and on the other hand moved closer to philosophy. The core of the psychological view of cognition was enunciated by William James who stated that perception arises from the object before us and from what is in our head. "What is in our head" refers to the result of processing in the brain, which influences the way the same object may be perceived by an individual under different circumstances, or by different individuals. The same processing also accounts for various illusions. In fact, cognitive processes may operate in the



absence of any sensory input, as in dreams, or simply by using one's imagination in the waking state.

Although the brain is fairly well developed at birth, cognitive development is a life-long process. A wide accepted scheme of cognitive development was provided by Jean Piaget (Morgan et al 1993). Up to the age two years, the child operates primarily on the basis of reflex patterns. From the age of two to seven, the child uses sensory inputs and rudimentary reasoning skills to develop some concept of cause and effect. But the child remains highly ego centric like an animal. From the age of seven till about twelve, the child's reasoning skills get refined, but are still applied only to areas of concrete experience. From the age of twelve onwards, the child learns to apply reasoning skills even to hypothetical propositions.

A little reflection would show that Piaget's stages roughly correspond to abilities seen in animals at progressively higher levels in the evolutionary scale. Thus 'ontogeny recapitulates phylogeny' is a concept not restricted to foetal development. Secondly, there is no reason to believe that evolution has stopped at the level of human beings may give a clue to the direction of future evolution. What is possible for only a few now might become the average achievements of a superior species in times to come. The exceptional

achievements may further be the result of not only exceptional talent, but rather follow concentrated effort, or sadhana. The intelligent but ordinary human being depends on sensory input and reasoning for shaping his worldview. But the limitations and fallibility of both sensory perception and reasoning are well known. Therefore the additional channels by which an advanced sadhaka acquires knowledge may indicate the direction of future evolution.

### **PHYSIOLOGICAL VIEW POINT**

Although the cognitive psychologists have expecting from physiologists for about 40 years the neuronal mechanisms underlying perception and related phenomena, till recently the physiologists did not have much to offer. The ascending sensory pathways had been worked out as was the representation of the body in the somato sensory cortex by neuro anatomical and electrophysiological techniques. But the process by which the modality and finer features of a sensory stimulus are abstracted from information delivered to the central nervous system in the form of nerve impulses was not known.

Many observes have, assumed that here, in the interface between input and output, the grand syntheses of mental life must occur (Fischbach 1992), and recent discoveries indicate that they are right. The posterior parietal

association cortex is concerned with visuomotor integration, spatial perception and directed attention, the parietal-temporal-occipital cortex with perception and language, the prefrontal cortex with cognitive behaviour and motor planning, and limbic association cortex with emotions and memory (Kandel et al 1995). A unique feature of the human brain is cerebral asymmetry. The right hemisphere specializes in visuo spatial tasks such as reading faces. On the other hand, the left hemisphere specializes in verbal and mathematical tasks. Cerebral asymmetry is an ingenious way of economizing on neural tissue. It effectively doubles the capabilities of the brain for a given brain size. It is indeed a marvel how so much of sophistication has been packed into just about a kilo of neural tissue, and yet there is enough physiological reserve for some parts of the brain to take over the function of adjacent parts in case of loss of neurons due to a disease process.

The ultimate aim of physiological exploration is to understand how events in the brain give rise to the phenomenon called the mind. This is a question we still cannot answer but there are some answers available to the related question, viz., correlation between events in the brain and mental events.

There appears to be synchronous and rhythmic firing by all neurons in the visual cortex affected by a visual stimulus. The frequency of the rhythmic discharge is 35 –75 Hz. It has been suggested that rhythmic and synchronous

firing might be the neural correlate of awareness and that it might serve to bind together activity in different cortical areas concerning the same object (Crick & Koch 1992). Although these recent advances are impressive and tell us what happens where in the brain when a particular mental event takes place, we are still far from understanding how feeble electrical impulses and regulated release of neurotransmitters and neuro modulators are transformed into subjective experiences like a graceful sanyasin or a beautiful bhajan.

### **PHILOSOPHICAL VIEW POINT**

The philosophical quest about the nature of perception extends to directions scarcely touched upon by physiologists. It raises two fundamental questions about our picture of the universe based on information gathered by sense organs: is the picture real, and if it is real, is it the total reality? Some philosophers with a spiritual bent of mind have dismissed everything perceived by the sense as unreal, as an illusion or maya, because of the impermanence of all terrestrial existence. But that is something we are not concerned with here, and in any case that is not the view of even all spiritual philosophers. In the language of the Upanishads, the universe, as we perceive it, is a manifestation of the Absolute, or the Brahman. If the Brahman is real, its manifestation cannot be unreal. The manifestation may be only a partial

reality, but it still remains real. However, what distorts our view of even the partial reality is the process by which it is perceived. Sight or hearing do not have a direct contact with the object of their attention. What we receive is an image or vibration, which is translated into a neural message. This machinery is highly ineffective, and if that were our only means, our perception would be very poor indeed. "But there intervenes a sense-mind intuition which seizes the suggestion of the image or vibration.....what ever is different in the interpretation of the image thus constructed is filled up by the intervention of the reason or the total understanding intelligence.

The question which naturally arises from our awareness of our limitations is whether these limitations can be overcome. Turning once again to Sri Aurobindo, they can be overcome by changing our method of acquiring knowledge. Methods better than employing our sense organs involve a more intimate contact with the objects being observed. The culmination of these methods is the observer identifying himself with the observed, i.e. when the subject and object acquire the same identity. Hence knowledge gained by this method has been termed knowledge by identity. The ability to acquire knowledge by identity is not, however, inherent in human beings at the present stage of evolution. But the ability can be cultivated as a by-product of spiritual growth. The core of spirituality is belief in a common spirit

permeating the universe. Once that belief is truly realized, the separative ego that separates self from non-self dissolves. The individual's consciousness acquires a new height, depth and width, which enables him to identify himself not with his mere physical body but with everything living and non-living in the universe. Sri Aurobindo has termed this state supra mental consciousness.

## **TECHNIQUES AND COGNITION**

Let us descend from the technique for a few and the technique of the far away future to something more pragmatic. Absence of suitable techniques has been a stumbling block in the study of cognitive sciences. Most scientists concede that presently it is not possible to explore the subjective aspects of cognition. But instead of ignoring the subject altogether, they have adopted an analytical approach. First, they select some relatively simple aspect of cognition, e.g. seeing a spot or slit of light. Then they break the task into components, such as the form, colour and movement of the object seen. Then they study the neuronal correlates of these components with the help of techniques that happen to be available. Electro physiologists have looked at single cell activity as well as patterns of activity of groups of neurons. The techniques have been adopted for delivering molecules which mimic or antagonize various:

neurotransmitters, in order to get an idea of the chemicals involved in transmission of message for a specific function. Much has also been learnt from the behaviour of patients with cortical lesions. But none of these techniques has given us much idea as to what neural correlates of higher mental function in the living normal human brain. That has become possible only very recently with the advent of non-invasive imaging techniques. The first of these to make its debut in the mid-eighties was positron emission tomography (PET). PET is based on increased uptake of glucose by the neurons which show enhanced activity during a specific mental task. Then came functional magnetic resonance imaging (fMRI). After the first paper on human fMRI was published in 1991, the number of MRI related papers that had been presented at international conferences exceeded 200 by 1998 (Tanaka 1999). Compared to PET, there are several advantages of fMRI. First, fMRI uses no isotopes, and therefore repeated measurements are safe. Secondly, it gives better spatial resolution than PET. Finally, MRI systems are more commonly available in medical institutions because of their clinical applications. Functional MRI is based on the principle that increased neuronal activity leads to a local increase in blood flow which is accompanied by increased oxygen consumption, the blood flowing through the hyperaemic region has more oxygenated hemoglobin than the blood flowing through the rest of the

brain. Since the magnetic properties of oxygenated and deoxygenated hemoglobin are different, the magnetic resonance signals from the active region of the brain increase. Functional MRI systems currently in common use give a spatial resolution of about 2 mm. However, a resolution of 0.5 mm seems to be within reach, and when this happens it will be an important breakthrough because cortical columns also have a width of about 0.5 mm. Even that will not tell us how information is processed by individual neurons, but we are still far from a non-invasive technique for measuring single cell activity. Another useful non-invasive technique is magnetoencephalography (MEG), which can complement the information obtained from the conventional electroencephalography (EEG). MEG is based on the principle that neuronal activity in the cerebral cortex generates -not only fluctuations in electrical potential (detected by EEG) but also magnetic fields. Unlike EEG signals, MEG signals are not distorted by the intervening tissues and low-pass filtering effects (Cichocki 1999). These technical advances have given hope for rapid progress in the near future.

Concentration is a measure of accuracy of work and receiving power is a measure of understanding while memory is a measure of ability to reproduce the knowledge/known things. Of course there are different options for the measurement of concentration, memory and receiving power. However, the



concentration and memory can be measured/understood from the psychology based tests.

Perception is a process of recognizing and interpreting environmental events. This is a constructive process that is influenced by proximity, similarity, closure, context, past experience and expectation. Attempts have been made by many authors to unravel the influence of yoga on sensory perception and various factors influencing it (Manjunath N.K tellis (1999)).

Research support is available for pranāyāma's effect on the brain by affecting the ANS. Basically, this effect is produced by the pressure exerted by inspired air on the autonomic nerve endings on the respiratory tract and lungs. It has been proved that ultradian changes in nasal dominance have differential effects on the two cerebral hemispheres. Unilateral nasal dominance in breathing results in increased flow of air through the dominant nostril, while the non-dominant nostril remains congested and allow less flow of air. Such ultradian changes are attributed to the shift in sympathetic dominance from one side to the other. For instance, when the right nostril breathing is dominant for a particular period of time, the sympathetic nerve endings of this side is activated leading to constriction of blood vessels of the right nostril and increased space for air to pass through, while on the left side

parasympathetic nerve endings are activated leading to dilation of blood vessels and congestion of air way. The same ultradian rhythm is active in cerebral hemispheres also. That means, when right nostril -- breathing is dominant, the SNS is activated in the ipsilateral hemisphere leading to increased vascular resistance and decreased blood flow and perfusion and consequent decline in cognitive functioning.

The higher forms of life have a mind which imparts them some awareness of their surroundings, and also the curiosity to question the nature of whatever they observe. Human beings have questioned, among other things, the mechanism of awareness itself. Depending upon their inclinations and the tools available to them, they have looked at it from different angles. Nature evolved only the phenomena, the different viewpoints are a human creation. Therefore, to understand the phenomenon better, a periodic synthesis of different viewpoints is essential. The phenomenon of cognition consists of perception and its sequelae. Perception depends on information gathered by our sense organs. Sense organs are like dim torches which light up a bit of the universe, not perfectly, but sufficiently well for us to our way. One way look at yoga is to consider it as a path which makes such enhancement of human capabilities possible. As Swami Vivekananda has said, yoga may be regarded as a means of compressing one's evolution into a single life.

## CHAPTER - 4

# DESIGN AND METHODS

### 4.1 SUBJECTS

The subjects were admitted from the members of 14th international conference and they are pre-selected. The test have been planned to conduct in different stages as follows :

Pre-test [base line data collection - 9 am 23rd December 2003

Post-test [final data collection] - 9 am 29th December 2003

There were 82 members. 29 members have been excluded on the basis of diseases reported by them. All the members submitted consent letter to undergo the study. Out of the remaining 53, only 41 participated in all the Pre-tests. Only 31 participated in all the post-tests. Out of 31, 14 were men and 17 were women. All the subjects were provided with boarding, lodging facilities during the course. They were all from different walks of life.

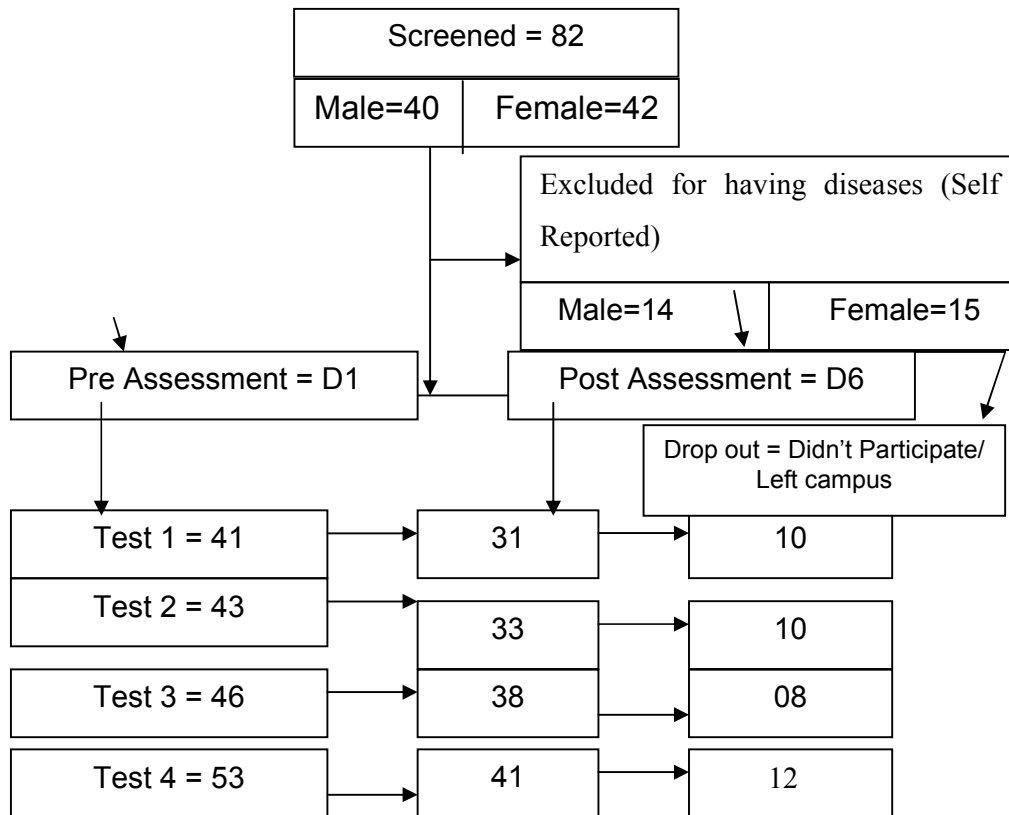
### 4.2 INCLUSION CRITERIA

1. Normal healthy adult volunteers
2. Age group 18 years and above

### 4.3 EXCLUSION CRITERIA

1. Those who are suffering from basic ailments
2. Age below 18 years

## TRIAL PROFILE



*Note: For all the 4 tests, 31 subjects who have completed all the 4 tests are considered for statistical analysis*

### 4.3 DESIGN

Since the study was from the members of 14th International Conference, the members are already selected by the organisation. Therefore the design is "Pre-selected longitudinal. All the members took part in the tests on 23rd December' 2003 and 29th December, 2003. The time taken each day is one hour (from 9 AM to 10 AM). The members were within the age group of 22 to 71. [mean 42.55 and Sd. 12.45]. The study was also to examine whether the changes after Yoga practice is applicable to all irrespective of any age restrictions. There was no control group for the study.

### 4.4 ASSESSMENTS

Since the study is on attention, concentration and memory the following tests were undertaken :

- ❖ Logical memory
- ❖ Visual reproduction
- ❖ Digit span
- ❖ Letter cancellation

**Logical Memory:** Logical memory test of the Wechsler memory scale assesses learning and retention for meaningful verbal material. Different types of memory were included in the study effect on cognition performance by the subjects. Simple stories have been used for this purpose.

**Visual Reproduction :** This is a part of the Wechsler memory scale and in common use as a test of visual memory. Three cards with printed design were used. These designs are also commonly used.

**Digit Span :** Attention and concentration of the group were assessed before and after the intervention to examine the effects on their cognitive function. It also measures the immediate verbal recall (LEZAL 1995) This test used is also a part of Wechsler scale (1945). Digit Span forward involves simplest form of mental tracking. Digit Span backward involves complex attentional functions and components of short term memory.

**Letter Cancellation:** This is a modification of the paper-pencil task originally designed by DILLER et al [1974].The task requires the subject to attend strings of letter and search for the target character. The subject indicates his awareness of the target by making it out on the sheet.

#### **4.5 INTERVENTION**

##### **Attention and Concentration:**

Attention and concentration of the group were assessed before and after the intervention to examine the effects on these cognitive functions. Two commonly used tests were used to assess them.

##### **Digit Span: (Wechsler, 1945)**

Digit Span Test is commonly used to assess attention and concentration (Walsdstein, 1995). It also measures the immediate verbal recall (Lezak, 1995).

The test used in the present study is part of the Wechsler Scale (1945). It comprised two tests: Digits Forward and Digits Backward. Both parts require different mental activities and are differently affected by brain damage (Banken, 1985; Kaplan et al., 1991). They consist of seven pairs of random number sequences that the examiner reads aloud and the subject repeats. It is therefore argued that the test involves auditory attention and depends on short-term retention capacity (Shum, McFarland, and Bain, 1990). This test is reported to have successfully identified cognitive deficits, primarily of attention and concentration.

**Digit Span- Forward:**

Digit Span-Forward involves the simplest form of mental tracking and requires the subject to repeat a string of digits in the exact serial order as it is read out to him. It is more clearly related to the efficiency of attention, i.e., freedom from distractibility, than to what is commonly thought as memory (Kaufman, McLean, and Reynolds, 1991)

**Digit Span – Backward**

It also involves mental, but with complex attention functions, and components of short-term memory. Here the subject is required to repeat digit sequences in the exact reverse order. It measures components of short-term memory. It has been suggested that with advancing age, backward span tends to shrink, while the forward remains stable (Lezak, 1995). Anxiety during test performance may adversely affect the test score (Mueller, 1979; Pyke and Agnew, 1963)

However, mean baseline scores of the pre and post on digit span tests indicate that subjects shown good performance. Considering that the normal range of

forward digit span is  $6 \pm 1$  (Lezak, 1995), mean scores of 6.83 for the treatment group and 7.04 for the control group reveals that subjects at baseline had an above-average performance level on the test. Similarly a score of 4-5 is considered within the normal limit on Digit Span-Backward (Lezak, 1995); however, the group has a mean score of 9.81 and the post group 11.29 on the same test at baseline, showing that the performance of the two groups were superior to normative scores. Because to improve attention span has a relatively restricted range in the population, it is difficult to improve attention span beyond this limit. Applying this reasoning to the present results, it seems possible that the significant change in Digit Span scores from baseline to post-intervention might be directly attributed to the effectiveness of the intervention but to the basic characteristic of attention span, which delimits performance on this test. However this reasoning does not seem to be applicable in the case of performance on letter/digit cancellation task.

In summary, results suggest that a yoga-based intervention programme of this kind have much impact on the attention performance of normal healthy individuals, although previous studies have shown that yoga practice can improve attention and concentration. One of the studies (Vani, Nagarathana, and Nagendra, 1997) that used critical frequency tests to assess attention found that one-month training in yoga, involving postures, breath controls, meditation and cleansing practices significantly improved subjects performance on these tests. According to the authors, the enhancing effects of the training were clearly visible after 20 days of practice. Since the test performance involves abilities of visual attention and concentration in these subjects, these finding suggest that attention and concentration may be



improved through regular practice of yoga. Another study by the same authors (1995) replicated the above findings in young adults after intensive 10 day training in yoga, confirm the pathological role of hypertension process in gradually impairing cognitive functions, such as memory.

### **Test Administration**

The test was administrated individually to each subject in a quiet hall without external distraction. As per the directions in the manual, the sequence with three digits was first read out at the rate of one per second. If the subject was able to successfully repeat it, the next sequence with four digits was read out. Thus, a more difficult number sequences with one more digit followed every successful trial. If the subject was not able to correctly repeat a sequence, another chance was given with an alternative having the same number of digits. If the subject failed in that too, the test was stopped there. The number of digits in the previous sequences correctly repeated was recorded as the score on this test. The following instructions were given for Digit Span-

Forward:

“I would like to see how well you can pay attention. I am going to say some numbers and when I am through, I would like you to write them right after me. Listen carefully. Please remember, you should write the numbers in the exact order they are presented to you”.

**For Digit Span-Backward the following additional instructions were given:**

“Now I would like to see how well you can hold number in your mind. Again I will read to you a series of numbers; however, this time you have to write them in the reverse order. For example, if I say 2-8-3, you will write 3-8-2, i.e., just reversing the sequence without altering the order. You have to listen carefully to perform well on this task”.

The maximum and minimum scores on Digit Span- Forward are eight-three, respectively, while those on Digit Span – Backward are two and seven, respectively. The test score of a given subject is the maximum number of digits he has correctly repeated.

### **Letter Cancellation**

It is a modification of the paper-pencil task originally designed by Diller et al. (1974). Cancellation tests consist of a sheet with 25 printed rows and in each row there were 29 letters or characters. The task requires the subject to attend strings of letter and search for the target letter. Subject indicates his awareness of the target by making it out on the sheet.

The test requires visual selectivity and visual scanning at fast speed on a respective motor response task and activation and inhibition of rapid responses. It is a simple task of focused attention examining the ability to sustain attention, withstand distraction and be vigilant. Basically, attention involves the ability to selectively focus on or perceive specific incoming information while excluding other input; concentration refers to a heightened state of attention; and vigilance requires the ability to sustain attention over time (Lezak, 1995). Cancellation test formats have been used successfully for various patient groups (Lezak, 1995)

### **Test Administration**

The task was administered individually to each subject after giving the following instructions:

“This is a test to assess how attentively and efficiently you can do a task which requires concentration. Your task is to visually scan each row and cancel out letters E whenever you find them among other digits. Try not to cut any letters other than E or omit any E. You have to work as fast as possible without compromising for accuracy. Start when the “Go” signal is given.

A Stopwatch was used to calculate the time to complete the task. The time taken was noted in seconds. Number of errors, which includes both cutting non-targets and omitting targets, were calculated as separate scores.

### ***Memory***

Different types of memory were included in the study to test effect on cognitive performance by the subjects. Logical memory – immediate and delayed recalls and immediate visual memory are selected for memory assessment.

### **Logical memory**

Logical Memory Test of the Wechsler Memory Scale assesses learning and retention for meaningful verbal material. It involves both immediate and delayed recalls of meaningful paragraphs (Lezak, 1995). The subject to recall two story-type paragraphs immediately after they have been out to him/her. The two passages used in the test – story A and story B – demonstrate consistent difference in performances. Typically, 3 to 4 more items are recalled from story A than from story B (Henry, Adams, and Buck, 1990; Ivison, 1986).

Delayed recall tends to be more sensitive to the variables that affect verbal learning than immediate recall. A number of studies have noted that logical memory- immediate recall remains fairly stable through middle age and then progressively decline (Lezak, 1995). Wechsler (1987) suggest that delayed memory may start declining at early age, as early as the 20s, slowly leveling off until the 50s and then again start shrinking progressively. The age-dependent performance has a strong correlation with the levels of education. Retest after 3 months and 12 months show some practice effects, i.e., a gain of 1 ½ to 2 points on immediate recall and 2 ½ to 3 points on delayed recall after 3 months, and one point or less gain after 12 months (Kaszniak, Poon, and Riege, 1986).

### **Test Administration**

First, story A was read out to the subject with following instructions:

“This is a test to assess how much you can recall from a simple passage of about 5-6 lines length. I will read out the passage to you. Listen carefully because when I am through I would like you to write everything I read to you”.

Then the subject was allowed to recall as many contents as he can from the story, on completion of which story B was read out with the following instruction;

“Now I am going to read to you another little selection and would like to see how much more you can remember on this.” Listen carefully.”

He was asked to write the two stories again with as many details as he could. For both immediate and delayed recalls subject's response was taken. The maximum score is 23.

### **Visual Reproduction**

Visual Reproduction is a part of the Wechsler Memory Scale and has been in common use as a test of visual memory. There are three cards with printed designs adopted from the Army Performance test and Binet. Each card is exposed for ten seconds before the subject is asked to draw it from memory (Lezak, 1995). The cards are footnoted: Card A, Card B, Card C. Card C has two designs on it.

### **Test Administration**

Each card was shown to the subject for 10 seconds then he was asked to reproduce it on a sheet of paper with a pencil. The following instructions preceded the test:

"I am going to show you three cards with drawings on them. You will have just 10 seconds to look at it, and then I shall take it away and let you draw the same from memory. Don't begin to draw till I tell you to do so. Ready?"

After the subject had drawn Card A, Card B was presented, and then Card C. For Card C following additional instructions were given:

"Here is a little harder one with two drawings on it. Carefully watch them for 10 seconds and draw them: the one on the left side should be drawn on the left of the sheet while the other on the right should be drawn on the right of the sheet. Maximum score is 14.

### **Intervention through yoga**

1. Pratasmaran [morning prayer] and special Techniques on ailments such as Diabetics, Asthma, Arthritis, Anxiety, Depression, Obesity, Cancer and Promotion of positive health.
2. Maitri Milan
3. Lecture on yoga therapy
4. Special technique( prānic energisation technique)
5. Deep Relaxation Technique
6. Special technique MEMT
7. Interaction with expert and cultural programmes

During Pratasmaran, the people are led to experience bhakti yoga and special techniques allowed them to increase their knowledge in yoga skills and progress for serving.

Maitrimilan is the Jnāna Ganga of Praśānti Kuṭīram . The knowledge of Bhagavat Gita elevated the people from man to superman, tamas to satva and gunatita states. The tensions are relieved through Jnāna so that the participants began to practice the whole 8 limbs of yoga.

**Lecture on Yoga Therapy:**

Each session of yoga therapy allowed the participants to go to their own soul and come out with new motivated vigour to serve the people without much medicines and dedicate the life for the suffering people in a systematic, disciplined manner.

### **Special Technique**

Special Technique – Prānic energisation taught the technique of scientific method to travel inwardly and feel prāna, evoke prāna, stay in fruitful prāna etc. This was also a travel towards the reality.

### **Advance Technique:**

This method also covered to enter into stay in and out and re-enter, stay and come out with full relaxation. This technique also thought to stay back in the same experience through out the day.

### **Deep relaxation Technique (DRT)**

This technique makes the members experience the art of going deep in thoughts and get fine deep relaxation.

### **Mind Emotion Management Technique**

This technique is practiced to study the mind emotions, look inwards and stay in peace with reality.

### **Interaction with Experts**

This allowed the participants to clarify their doubts and fill with good spiritual knowledge. All the interventions were at pañca kośa level.

## **4.6 DATA EXTRACTION AND ANALYSIS**

The data (Pre and Post) extracted from 31 members (17 women and 14 men) have been scored according to the norms. There after it is tested for normal distribution. Since it was not normally distributed Wilcoxon signed ranks test have been used {TWO TAILED}. Thus the data extracted and analyzed was

Pre LM – Post LM, Pre-DS and Post DS, Pre VR and Post VR, LC Pre and Post

LC and Pre Lcome and Post Lcome.

## CHAPTER-5

### RESULTS

#### Comparisons between Pre data and Post data

	Pre - Lm Post - Lm	Pre – ds Post – ds –	Pre – vr Post – vr	Prelc - Postlc –	Precome Postlcome
Z	-4.666a	-3.160 a	- 4.661 a	-4.795 a	- 1.607 b
Asymp. Sig.(2tailed)	.000	.002	.000	.000	.108

#### Descriptives

Sl. No.		N	Mean	Std. Deviation
1.	Pre-lm	31	10.74	4.39
	post-lm	31	16.23	4.52
2.	Pre-ds	31	9.81	2.70
	post-ds	31	11.29	2.71
3.	Pre-vr	31	5.00	1.81
	post-vr	31	7.48	1.48
4.	Prelc	31	34.48	7.66
	Postlc	31	46.97	10.99
5.	Prelcome	31	3.03	8.90
	Postlcome	31	.94	1.55
	Valid N (listwise)	31		

*LM: Logical Memory DS: Digit Span VR: Visual Re-production*



*LC: Letter Cancellation Lcome: Letter Cancellation Omission and Error*

All the results show significant improvement Post LM, Post VR and Post LC shows positive significance in change  $<.000$  and Post DS show  $P < 0.05$  Pre Lcome show the reduction of errors. Therefore, the result indicated that there is a significant improvement from the baseline data through intensive yoga intervention.

*CHAPTER - 6*

**DISCUSSIONS**

In the present study attention and concentration were assessed by Digit Span and a letter cancellation task. As revealed from results, there was significant improvement on the pre and post performance on these tests, suggesting that the participation in the intervention result shows improvement in their attention and concentration in comparison with the pre-test. The findings, therefore, give support to the research hypothesis that the participation in the intervention programme would enhance attention and concentration compared with the pre-post. Memory also improved significantly. There were significant positive improvement on Pre and Post groups on the logical memory, digit span and visual reproductions. The errors identified on post-test were lesser than the pre test figure.

On the basis of reported findings that yoga practice can improve cognitive functions in normal healthy subjects; it was hypothesized that integrated yoga practice would improve attention, concentration and memory. It is also found that all irrespective of any age restrictions can practice yoga.

The previous study was done on 108 school children who performed better in spatial memory test following yoga breathing with nostril manipulation with

no changes in verbal memory scores. Self instruction and relaxation training showed significant change in attentive behavior of learning disabled children on a cognitive task. Drawing evidence from these previous findings, it may be tentatively concluded the significant improvement in cancellation score could be attributed to the relaxation effect of the yoga. In all three-cancellation tests there was no significant difference. In letter cancellation test it could be due to the fact that letter cancellation is more complex than digit and character cancellation (Wood.C.1993)

In Visual reproduction also a significant improvement was seen in many of the respondents. Only one negative performance was seen. In 9 cases the improvement was doubled or more.

As the data analysis shown in this experiment, integrated approach, the result was comparable to those of earlier studies (Ref: 24 and25) and also better. The participants, could perform well after 6 days exposure, in all the 3 areas of Visual reproduction, Logical memory, Digit span and also complex task of Letter cancellation. In Letter cancellation, only 3 cases, there was no significant improvement while in one there was negative performance.

Only in Digit span we see more number of negative performances or no significant improvements, 6 participants out of 31 showed negative marking while in another 9 cases either no improvement or nominal improvement was seen.

The best performance has come in logical memory test, where only one has performed poorly and 2 others recorded nominal improvement. All other 28 participants registered significant improvement.

The overall effect of this integrated yoga practice is more on reduction of anxiety, better concentration and mind relaxation. Thus the findings of this study corroborates the findings of earlier studies of effects of Yoga practice on mind and its performance irrespective of difference in age, gender and other background.

## **CHAPTER - 7**

### **SUMMARY AND CONCLUSIONS**

The impact of the study indicates significant improvement on concentration, attention and memory. In LC error/omission the post result comparisons shows the reduction of errors. The study has shown positive improvement in attention, concentration and memory. It is felt that further study with different tests instruments will reveal the exact statistics and results. In our test we have used the same test in pre and post stages. The subjects may remember the first test after 6 days also.

## **CHAPTER – 8**

### **LIMITATIONS OF THE STUDY**

1. Previous exposure to yoga, if any was not eliminated
2. Size of the sample was small and of this only 31 completed all the tests
3. This experiment did not have any control group.

## CHAPTER - 9

### SUGGESTION FOR FUTURE WORK

This study still have a scope on further study on changes after yoga practices on subjects with normal health and unhealthy people. It is yet to be studied and proved that “Yoga more or less works on the system of both healthy and non healthy people”. The study will help with new inventions for the development of children and adults. More over it will contribute to the education.

The studies still have scope on the application of yoga on behavior modification of attaining Jnāna, reduction of diseases and the grade at which level the member participants concluded. The intensive studies on attention, memory and concentration will be a great support to the younger generation, especially students. There is much scope for randomized study and the magnitude of change in each category. Study with a larger group as well as study on the baseline data and final one with a control group.

The study can also be tested on school going children by using different variables. Testing can also be conducted on members of non-formal education by using indigenous methods. Then this will become a modified innovation.

A study about the actual increase of effectiveness and productiveness on normal subjects by interventions through a systematic application of Yoga is also solicited. More over, the study is very much useful for all the people especially students, teachers and officials.

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