

CERTIFICATE

This is to certify that Shreeganesh H R is submitting this Literature Research “**Concept of Psycho kinesis according to Yoga and Spiritual Lore**” and Experimental Research on “**Effect of yoga on heart rate variability, heart rate coherence and psychokinetic power in school children – a randomized control trial** ” in partial fulfillment of the requirements for Master of Science (Yoga) with effect from September 11, 2005 to September 5, 2007 by **Swami Vivekananda Yoga Anusandhana Samsthana (SVYASA)** under the Division of Life Sciences and this is a record of work carried out by him in this university.

Dated: / /2007

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DECLARATION

I undersigned Shreeganesh H R declare that this study was conducted by me at Swami Vivekananda Yoga Anusandhana Samsthana (SVYASA), Bangalore, under the guidance of Dr. H R Nagendra, Vice-Chancellor, Swami Vivekananda Yoga Anusandhana Samsthana and Dr. R. Nagarathna, Dean, Division of Life Sciences, Swami Vivekananda Yoga Anusandhana Samsthana, the University, Bangalore. I also declare that this work entitled:

PART I

Concept of Psycho kinesis according to yoga and spiritual lore.

PART II

Effect of yoga on heart rate variability, heart rate coherence and psychokinetic power in school children – a randomized control trial

And has not previously formed on the basis of any degree, diploma, membership or similar titles.

Place: Praśāntī Kuṭīram

Date:

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Any endeavor nearing its completion provides ample scope and opportunity for introspection of the journey undertaken. The moment I step to introspect my heart fills with gratitude towards all those hearts, heads and hands that have taken pain and care in seeing me through this journey. Innumerable are the stars that have lighted my path and I am blessed to acknowledge a few names here.

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ABSTRACT

Yoga is to accelerate the process of unfolding the hidden potentialities or powers (siddhis) from an individual. Though it is not a final aim or goal of yoga, but that gives the person confidence of being in correct direction towards the goal.

Psycho kinesisis is the process of moving or otherwise affecting physical objects by the mind only, without making any physical contact. Though psychokinesis is the term predominantly used in the western world, in our yoga and Indian scriptures concept of sidhhis is mentioned; Concept of siddhis is described in better perspective compared with psycho kinesisis.

Foremost authentic scripture of yoga i.e. Patanjali yoga sutras mentions that doing samyama on any object gives arise for psychic power i.e. sidhhis. When a person achieves stage of samyama that is together ness of dharana dhyana and Samadhi he will be in the stage of a complete mental concentration. Application of this samyama to different objects or thoughts will give rise to psychic powers. Psycho kinesisis is one of the powers mentioned in it, where person is capable of moving objects with mental power without any physical contact with the object.

When we collage western concept of psychic powers in Indian scriptural frame, our Indian scriptural frame with it's widen knowledge and spiritual base shines brighter.

The scope of the present investigation showed that the concept of psychokinesis which is present in modern world or modern science has its still deeper knowledge in Indian scriptures, yogic texts and Upanishads.

PART – 1
CONCEPT OF PSYCHO KINESIS ACCORDING TO YOGA AND
SPIRITUAL LORE

PART – 2
EFFECT OF YOGA ON HEART RATE VARIABILITY, HEART RATE
COHERENCE AND PSYCHOKINETIC POWER IN SCHOOL CHILDREN –
A RANDOMIZED CONTROL TRIAL

PART I
CONCEPT OF PSYCHO KINESIS ACCORDING TO YOGA
AND SPIRITUAL LORE

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CHAPTER 1

INTRODUCTION

Psycho kinesis, a form of psi, meaning that apparently it is a technique of mind over matter through invisible means. Examples of Psychokinesis (PK) are movements of objects, bending of metals, and determining the outcome of events. It can occur spontaneously and deliberately which indicates it is both an unconscious and conscious process (1).

Psycho kinesis is the process of moving or otherwise affecting physical objects by the mind only, without making any physical contact. For example, Uri Geller claims he can bend keys and spoons, and stop watches with his thoughts. Others claim to be able to make pencils roll across a table by a mere act of will. The variety of magic tricks used to demonstrate psychokinetic powers is impressive (2).

Originally telekinesis was coined to refer to the movement of objects thought to be caused by ghosts of deceased persons, mischievous spirits, demons, or other supernatural forces. Later when speculation increased that humans might be the source of the witnessed phenomena (that which was not caused by fraudulent mediums) and could be possible cause movement without any connection to a spiritistic setting, such as in a darkened room, Psycho kinesis was added to the lexicon, this done to differentiate between the earlier use of the term telekinesis.

Eventually, Psycho kinesis was the preferred term by the parapsychological community (and still is) and it was suggested that telekinesis become obsolete. Popular culture, however, such as movies, television, and literature, over the years preferred telekinesis to describe the paranormal movement of objects likely due to the worlds resemblance to other terms, such as telepathy, teleportation, telephone and television.

Psycho kinesis, then, is the general term that can be used to describe a variety of complex mental force phenomena (including object movement) and telekinesis is used to refer only to the movement of objects, however tiny (a grain of salt or air molecules to create wind) or large (an automobile, building or bridge). Hypothetically, a person could have very profound telekinetic ability, but not be able to produce any of the additional effects found in Psycho kinesis, such as softening the metal of a spoon to allow its bending with minimal physical force. Conversely, someone who has succeeded in psychokinetically softening metal once or a number of times may exhibit no telekinetic ability to move objects(1,2).

CHAPTER 2

AIMS AND OBJECTIVES

- To understand the phenomena of psycho kinesis as postulated in different śastras.
- To know about the interaction of mind and objects.

CHAPTER 3

FUNDAMENTALS OF PSYCHO KINESIS

3.1 Origin

The term Psycho kinesis was coined in 1914 by American author-publisher Henry Holt and adopted by his friend, American parapsychologist J. B. Rhine (3).

3.2 History

The term *psycho kinesis* is derived from the Greek words *psyche* meaning "breath," "life," or "soul," and *kinein* meaning "to move." The occurrences of PK have been recorded since ancient times and it was called by the name *siddhis*. The occurrences include levitation, miraculous healings, luminosities and other physical phenomena attributed to holy persons and adepts of magic around the world.

It is thought that possibly magic spells, curses, and rituals to control the weather may involve PK. The use of the evil eye has been placed within this classification.

Manifestations of PK have occurred in spiritualism such as alleged materializations and dematerializations, levitations, table-tipping, raps, and the appearances of ectoplasm and pseudo pods. One 19th century D. D. Holmes was known for his ability to levitate and to handle hot coals without being burned. But, also during this time, there were individuals known as "electric people" who experienced a "high-voltage syndrome". They made knives and forks cling to their skin, and with a touch could send furniture flying across a room.

It can be stated that psycho kinesis does occur, by the necessary conditions and requirements for its occurrence. Patterns have been identified according to experimenters and subjects, but it is known such patterns do not apply in all circumstances.

An American parapsychologist at Duke University in North Carolina, J. B. Rhine began conducting PK experiments in 1934. Although he was not the first to study PK, he

did so after conducting ESP experiments which yielded significant results. Rhine's subject was a gambler who claimed to be able to influence the fall of the dice to roll certain numbers or number combinations. Early experimental data showed results far beyond the probabilities of chance(1).

In the publication of his experiments Rhine reported that he observed that PK does not seem connect with any physical process of the brain, or to be subject to any of the mechanical laws of physics. Rather, it does seem to be a nonphysical force of the mind which can act on matter in statically measurably ways. The results produced cannot be explained by physics.

Also, it was Rhine's belief that faith healing and folk magic healing were PK phenomena, in which a psychogenic effect, sometimes at a distance, was exerted on the body (3).

Following Rhine's work the experimentation of PK was divided into two categories: macro-PK, or observable events; and, micro-PK, weak or slight effects not observable to the naked eye and requiring statistical evaluation. More emphasis was placed on micro-PK.

Physical energy is created by electromagnetic impulses. Universal life force energy, or psychic energy, is called Chi. [Chee] In Psycho kinesis one taps into Chi energy then combines it with physical energy.

Psycho kinesis cannot be created by *wishing* it to happen. For example, you may try to bend a spoon by focusing on it, but nothing happens. An hour later, you return to look at the spoon, only to discover it has changed shape.



As with all psi phenomena, there is wide disagreement and controversy within the sciences and even within the field of parapsychology as to the very existence of Psychokinesis and the validity or interpretation of PK-related experiments.

To date there has never been a scientifically demonstrated instance of Psychokinesis. Parapsychologists usually make a distinction between macroscopic PK (large-scale effects observable by the naked eye or by a single measurement) and microscopic PK (small-scale effects only observable by statistical analysis of multiple measurements), and both types are still studied today, with more attention to the micro variety (1, 2, 3).

Some of the more extravagant accounts of macro PK in recent times were the so-called physical phenomena claimed to be observed during seances with mediums of the spiritualist era in the late 19th and early 20th century and studied by members of the Society for Psychical Research. Such phenomena included table tipping, rapping, and levitation, and the playing of musical instruments with minimal or no contact. In more modern times, claimed macro PK phenomena include the remote bending of cutlery (usually forks or spoons) or metal bars, and the production of images on unexposed photographic film by Uri Geller and other psychics(2).

By its nature, study of micro PK phenomena requires an experimental approach. The first recorded experiments of this type were conducted by J. B. Rhine and his

associates in 1934, investigating whether subjects could affect the throws of dice. Similar experiments were soon conducted by many other parapsychologists

Some Christian religious scholars believe that Psycho kinesis is a spiritual gift and is apparent in various Bible stories, such as the release of Paul and Silas's bands during their escape from prison in Acts 16, and others. Other religions also cite various cases of Psycho kinesis including astral projection in Shamanism, Yogic flying, poltergeists and various healings (1).

CHAPTER 4

MEASUREMENT AND OBSERVATION

Currently researchers describe two basic types of measurable and observable psychokinetic effects in experimental laboratory research and in case reports occurring outside of the laboratory.

Micro PK- A very small effect, cannot be observed directly. Manipulation of molecules, atoms, subatomic particles, etc.

Macro PK- A large scale effect seen with the unaided eye; clearly observed movement or physical change of an object. Sometimes the word "gross" is used, as in "gross movement of an object".

4.1 Belief in Psycho kinesis

In September 2006, a survey was published by the Baylor Institute for Studies of Religion, Baylor University, of Waco, Texas, in the United States. It was conducted by phone and mail-in questionnaire the Gallup Organization between October 8, 2005 and December 12, 2005 on behalf of the university. Among its 77 questions and 350 possible answers, one section polled Americans on their belief in various paranormal topics. One of the questions in this section surveyed belief in Psycho kinesis. The word "Psycho kinesis" was specifically used in the subsequent published report, but it did not appear on the printed questionnaire version that was filled out and mailed in by participants. However, those questioned knew they were responding to questions about paranormal beliefs. There were 1,721 participants with a margin of error of plus or minus four percent. Of these participants 28 percent of male participants selected "agree" or "strongly agree" with the statement *It is possible to influence the world through the mind alone*, as did 31 percent of female participants(1).

Robert L. Shacklett at Speculation about PK says that laboratory tests demonstrate that "the release of relatively large amounts of physical energy can be triggered by thought power." And this power can move or influence things, essentially, because

cosmologically we are all connected to everything else. "'Thought' takes place at a different level than the physical (call it 'mind') but interacts with the physical through a weak coupling between physical energy and a more subtle energy form," he says. "The physical level operates in accordance with natural law except at the times when thought interacts with it."

Random event generator is a device that is connected to computer to generate random event numbers which are converted to a plot .It measures the extent to which our state of consciousness can influence the process of random event generator in REG. It measures our psychokinetic power.

How remains the puzzle. But there are theories:

- Some researchers suspect there might be a quantum connection. Unpredictable, often bizarre effects have been documented in the world of subatomic particles, ruled by the perplexing laws of quantum mechanics. Are our minds capable of directing subatomic particles and energies in a way that results in PK phenomena?
- One theory is that Psycho kinesis is the manipulation of a sort of human "magnetic field" around the body, which can be concentrated in a specific area. For this to work, they say, you must be able to relax completely and focus your attention without distraction.
- Another speculation is that mediums or participants in a séance are able to coalesce sound or heat waves within a room to form coherent energy which can then be directed at an object, such as a table, causing it to move.

“Everyone has the potential to be able to psychokinetic. Psycho kinesis is created by higher levels of consciousness. The energy to move or bend an object is created by a person’s thoughts created by their subconscious mind.”

CHAPTER 5

MIND-MATTER INTERACTION

The European and Indian theories of the relation between or interaction of mind and matter may be thus, summarized:

We may take first the dualistic theories. The Vedanta agrees with cause theory in so far as the latter holds that conscious process and nervous process are causally related, provided we substitute for the word 'conscious' the word 'mental'. The process is not in consciousness but in mind. The mental is a subtle quasi-material process. It holds that process, psychical and material, have a common ground in consciousness and thus, escapes the difficulty in conceiving interaction between things of a wholly different nature as mind and body are commonly supposed to be. It differs, therefore from psychophysical parallelism in that the latter offers no explanation of the relation between psychosis and neurosis. It asserts as stated, not a mere concomitance, the nature of which is unexplained, but a causal interaction between mind and matter rendered possible by this common ground. It differs again from any system for pre-established harmony in that there is not merely synchronistic change, but on action by matter on mind and by mind on matter which is possible for the reason stated.

It therefore, also differs from any theory of occasionalism according to which no influence passes from one to the other, but on occasion god intervenes when the one changes to bring about change in the other. In this connection, however, it may be noted that Malebranch's theory that "we see all things in God" seems to be adumbrate the Indian doctrine which says that the mind is enabled to perceive matter because both are forms of supreme power (mahā śakti) which is an attribute of the supreme consciousness. Turning then to monistic western theories, these hold that mind and matter are parallel manifestation of one underlying substance. They are not two substances in interaction, but this interaction is the outer form of the inner ideal unity of consciousness. Each particle of matter has a mental aspect. "It is as if the same thing were said in two languages(5)."

CHAPTER 6

PSYCHO KINESIS ACCORDING TO ANCIENT YOGIC SCRIPTURES

In pātañjali yoga sūtras, there are so many methods called as siddhis which can be achieved by yogīs through saṁnyama which resemble PK.

This saṁnyama is the totality of the 3 processes, Dhāraṇā, Dhyāna and Samādhi. It contains 2 parts – “sam” means Perfect or thorough, “yama” means Control. So saṁnyama means complete mastery over the psychic process or a complete control of mental concentration. This is very important topic of yoga. It reveals to us the secret of yogic powers. The application of saṁnyama to different objects or thoughts will give rise to psychic powers called *vibhūtis* (6, 7).

The saṁnyama cannot be said to be complete unless there is fusion of the three processes of concentration. The object of meditation must become extremely clear and there should be no personal consciousness. The objects may pertain to the body or mind or society or personal possessions and so on, but there should be these two factors. The saṁnyama starts with the subjective and objective awareness; that is a dual awareness. You are aware of your object of meditation within as well as in the outside world, but gradually the outer doors are closed and you see only the thing that is inside. That is dhyāna. Then the thing seen inside becomes clearer and clearer and simultaneously, you lose your personal consciousness; that is called samādhi. The three put together are known as saṁnyama. By practicing saṁnyama i.e, combining all the three process together on one object one will achieve powers. These powers are called as psychic power or siddhis. Yoga practioner should do saṁnyama initially on the gross objects to achieve knowledge of it which is beyond coverage of maya. Then he should do saṁnyama on that knowledge to get all types of siddhis (6, 7).

There are eight kind of psychic powers which go together and are called as Aṣṭa Siddhis. These eight siddhis appear as result of complete mastery over the five mahābhūtās.

In the third chapter, 45th śhloka of pātañjali yoga sūtra says about the mastery over the bhūtās

Mastery of the bhūtās

स्थूलस्वरूपसूक्ष्मान्वयार्थवत्त्वसंयमात् भूतजयः ॥ प . यो . सू . ३ . ४५ ॥

Sthūlasvarūpasūkṣmānvayārthavattvasamyamātbhūtajayah ॥ PYS:3.45 ॥

By samyama on the gross, basic, subtle and interpenetrating states and the purpose of the bhūtās, mastery over them is obtained.

There are five states of the five elements, namely, their gross form, their real form, their subtle form, their universal form and their purpose. Samyama on these states of the elements gives mastery over them.

The five tattvas mean the elements called earth, water, fire, air and ether. By doing samyama on these five a yogi get mastery over them, he can change them, he can change fire into water, water into earth etc.

In the 46th sūtra, there is a description of Aṣṭa Siddhis. If you get mastery over the five elements as declared in the 45th sūtra, the yogī develops the eight psychic powers.

The 46th sūtra describes these eight Siddhis:

Attainment of aṇimā, etc.

ततोऽणिमादिप्रादुर्भावः कायसम्पत्तद्धर्मनिभिघातश्चन ॥ प . यो . सू : ३ . ४६ ॥

Tato'ṇimādiprādurbhāvaḥ kāyasampattaddharmānabhighātaścha ॥ PYS:3. 46 ॥

From that the appearance of aṇimā (and other powers), perfection of the body and non-obstruction from the functions of the body (follows).

By having mastery over the five elements as declared in the previous sūtra, the yogī develops the eight psychic powers: Aṇimā, Laghimā, Mahimā, Garimā, Prāpti, Prākāmya, Vaśitva, and Iśitva. His body becomes perfect and he overcomes all the obstructions due to limitations of the body and the bhutas.

There are eight kind of psychic powers which go together and are called the aṣṭa

siddhis:

1. Aṇimā – the yogī can make his body small like an atom.
2. Laghimā – the body can be made light.
3. Mahimā – the body can be made large.
4. Garimā – the body can be made heavy.
5. Prāpti – capacity to reach anywhere.
6. Prākāmya – unobstructed fulfilment of desire.
7. Vaśitva – control over all objects, organic and inorganic.
8. Iśitva – the capacity to create and destroy at will.

In Bhāgavatam also there is mentioning of Aṣṭa Siddhis, in which Lord Krishna tells one can acquire these Siddhis; by steady mind, controlled senses and breath and concentrate his mind on me (8).

There are so many sūtras or ślokas in the pātañjali yoga sūtra, swara yoga, few Upaniśads which talks about these aṣṭa siddhis or Psychokinesis, all these we are classifying here under these eight siddhis.

1) **Aṇimā** : This is a type of siddhi in which yogī can make his body small like an atom.

The 10th shloka of 15th skandha of shrimad bhagavatam gives details about Aṇimā.

भूतसुक्ष्मात्मनि मयि तन्मात्रं धारयेन्मनः ।

अणिमानोमवाप्नोति तन्मात्रोपासको मम ॥भागवतम् ११ स्कन्ध १५ अध्याय १० श्लोक ॥

bhūtasukṣmātmani mayi tanmātraṁ dhārayenmanaḥ।

aṇimānomavāpnoti tanmātropāsako mama ॥bhāgavatam 11 skandha 15 adhyāya 10 śloka ॥

He who focuses his mind identified with the subtle elements, on me as and ensouling the subtle elements and worships (me in) that form alone acquires my power of assuming an atomic size.

2) **Laghimā**: This is a type of siddhi in which the body of a yogī will become light. The 40th and 43rd sūtra of third chapter of PYS mentions of Laghimā.

Levitation.

उदानजयाज्जलपङ्ककण्टकादिष्वसंग उत्क्रान्तिश्च ॥ प . यो . सू : ३ . ४० ॥

Udānajayājjalapaṅkakaṅṭakādiṣvasaṅga utkrāntiścha ॥ PYS:3. 40 ॥

By mastery of udāna there is non-contact with water, mud, thorns etc. and the body levitates.

The centre of udāna is in the throat, but moves upwards in the region of the head. By mastery of udāna, you can work against the gravitational pull of the earth.

Levitation is a well-known phenomenon. You can walk on water, fire, air etc. *Adi shankaracharya*'s disciple i.e. *Padmapadacharya* is suppose to cross ganges river merely walking barefoot on stream of river to meet his guru .

Moving through space

कायाकाशयोः सम्बन्धसंयमाल्लघुतूलसमापत्तेश्चाकाशगमनम् ॥ प . यो . सू : ३ . ४३ ॥

Kāyākāśayoḥ sambandhasaṁyamāllaghutūlasamāpatteśchākāśagamanam ॥ PYS:3. 43 ॥

By saṁyama on the relation of the body and ākāśa and by fusing the mind with the lightness of cotton, there is going through space.

Tūla means the finest fibres of cotton which are extremely light and so float in the air. Similarly, a yogī can float in the air if he does saṁyama on the relation of his body with ākāśa, and also concentrates on the lightness of cotton fibres.

Svara yoga which explains how the flow of the svara changes at regular intervals; and in svara yoga breathing is a process which can be manipulated and controlled. It enables us

to understand the nature of the breath and its influence on the body because the different svaras lead to different types of action; mental, physical and spiritual (9).

Mentioning of this siddhi is also found in scripture svara yoga.

लंबीजं धरणीं ध्यायेच्चतुरस्रां सुपीतभाम् ।

सुगन्धां स्वर्णवर्णाभां प्राप्नुयाद्देहलाघवम् ॥ स्वर योग : २०९ ॥

lambījam dharaṇīm dhyāyēcaturasrām supītabhām |

sugandhām svarṇavarṇābhām prāpnuyāddehalāghavam || svara yoga : 209 ||

Lam is the seed mantra of the element. One should concentrate on this element which has the shining yellow colored square, the pleasant smell, and the golden light. By this one can get the lightness of body.

यंबीजं पवनं ध्यायेद्दुर्तुलं शामलप्रभम् ।

आकाशगमनाद्यं च पक्षिवद्गमनं तथा ॥ स्वर योग : २१२ ॥

yambīja pavanam dhyāyēdurtulam śāmalaprabham |

ākāśagamanādyam ca pakṣivādgamanam tathā || svara yoga: 212 ||

Yam, the bija mantra of the air element, should be mediated upon. It is circular and blue and dark in color. The person who has power over it can move through the air, fly like a bird (experience levitation).

वाचासिद्धिश्चतुर्थे च दूरदृष्टिस्तु पञ्चमे ।

षष्ठे त्वाकाशगमनं चण्डवेगश्च सप्तमे ॥ स्वर योग : २२५ ॥

vācāsiddhiścaturthe ca dūradṛṣṭistu pañcame |

ṣaṣṭhe tvākāśagamanam caṇḍavegaśca saptame || *svara yoga : 225* ||

Reduction of the length of prāṇa by four fingers, gives the power of speech (whatever one says comes true); five, telepathy; six, the ability to levitate; seven enables one to move with enormous speed.

The 12th shloka of 15th skandha of shrimad bhagavatam gives details about laghimā.

परमाणुमये चित्तं भुतानां मयि रज्जयन् ।

कालसुक्ष्मार्थतां योगी लघिमानमवाप्नुयात् ॥ भागवतम् ११ स्कन्ध १५ अध्याय श्लोक १२ ॥

paramāṇumaye cittaṁ bhutānām mayi rajjayan.

kālasukṣmārthatām yogī laghimānamavāpnuyāt | |bhāgavatam 11 skandha 15 adhyāya

śloka12||

which means, ‘Concentrating his mind on me as ensouling the atoms of the elements, a yogi attains lightness; the capacity to become as subtle as subtlest division of the time’.

3) Mahimā: This is the siddhi in which the yogi can make his body large. This is explained in the 25th sūtra of third chapter of PYS.

बलेषु हस्तिबलादीनि ॥ प . यो . सू : ३ . २५ ॥

Baleṣu hastibalādīni || PYS:3. 25 ||

By saṁyama on the strength of an elephant, etc. the corresponding strength is developed.

One can make anything, may be a person, an animal or an event as the object of his saṁyama. When strong animals like the elephant, lion or tiger are made the objects for practicing saṁyama, the strength of that animal can be acquired. The strength of these animals is to be meditated upon while doing saṁyama, then the same strength can be developed in the student of yoga. If he does the mental alertness of a tiger, he can develop that mental alertness in himself (10).

Shrimad Bhagavatam briefs about this power as;

महत्यात्मन्मयि परे यथासंस्थं मनो दधत ।

महिमानमवाप्नोति भूतानां च पृथक पृथक ॥ भागवतम् ११ स्कन्ध १५ अध्याय श्लोक ११ ॥

mahatyātmanmayi pare yathāsamsthaṁ mano dadhata ।

mahimānamavāpnoti bhūtānāṁ ca pṛthaka pṛthaka | bhāgavatam 11 skandha 15 adhyāya

śloka || 11 ||

which means, ‘It means Concentrating his mind, identified with mahat tattva ,on me the supreme ensouling the mahat tattva , he acquires the capacity to assume any magnitude and focussing his mind on me as ensouling any of the elements individually , he attains magnitude of that particular element’.

4) Garimā: This is a type of siddhi in which a yogī can make his body as heavy as he wants. This is explained in the 32nd sūtra of 3rd chapter of PYS.

कूर्मनाड्यां स्थैर्यम् ॥ प . यो . सू : ३ . ३२ ॥

Kūrmanāḍyām sthairyam. ॥ PYS:3. 32 ॥

Steadiness is achieved by saṁyama on the kurma nāḍī.

Steadiness here means both in an ordinary capacity and a miraculous capacity. The student may become so immovable that you cannot move him even with the application of great force. Steadiness may also mean steadiness of the body during the state of meditation. It may also mean perfect mental stability.

5) Prāpti: This is a type of Siddhi in which yogī can have the capacity to reach anywhere. There are so many sūtras in PYS which talks about prāpti.

The 37th sūtra of 2nd chapter of PYS which describes the fruits of asteya resembles prāpti.

अस्तेयप्रतिष्ठायां सर्वरत्नोपस्थानम् ॥ प . यो . सू : २ . ३७ ॥

Asteya pratinsṭhāyām sarvaratnopasthānam. ॥ PYS:2. 37 ॥

On being firmly established in honesty, all gems present themselves.

When the spiritual aspirant is established in the yogic virtue of honesty, he develops within himself a power of cognition like clairvoyance or intuitive awareness. Through this cognizing faculty the aspirant becomes aware of valuable stones and jewels nearby.

The 38th sūtra of 2nd chapter which describes the fruits of aparigraha also resembles prāpti.

अपरिग्रहस्थैर्ये जन्मकथन्तासम्बोधः ॥ प . यो . सू : २ . ३८ ॥

Aparigrahasthairye janmakathantāsambodhaḥ ॥ PYS:2. 38 ॥

On becoming steady in non-possessiveness, there arises the knowledge of how and from where birth comes.

When this sādhana is firmly established, the aspirant comes to know about the previous birth - its kind, its time and its reason. Similarly, one can even know the next birth. Just as by seeing a cloud you know that there will be rain, similarly, you know about the previous or the next birth by being firmly established in aparigraha.

The 16th sūtra of 3rd chapter which describes about the knowledge of past and future also resemble prāpti.

परिणामत्रयसंयमादतीतानागतज्ञानम् ॥ प . यो . सू : ३ . १६ ॥

Pariṇāmatrayasaṅnyamādatītanāgatajñānam ॥ PYS:3. 16 ॥

By performing saṅnyama on the three transformations, knowledge of past and future arises.

Samādhi, ekāgratā and nirodha are the three transformations. To perform saṅnyama on these three means to perform saṅnyama first on samādhi, then on ekāgratā and then on nirodha. Then the citta becomes so fine that it transcends the barriers of time and knows the happenings of the past and the future.

The 18th sūtra of 3rd chapter which describes about the knowledge of previous birth, also resembles prāpti.

संस्कारसाक्षात्करणात् पूर्वजातिज्ञानम् ॥ प . यो . सू : ३ . १८ ॥

Saṁskārasākṣātkaraṇāt pūrvajāti jñānam. ॥ PYS:3. 18 ॥

By direct perception of the impressions, knowledge of previous births arises.

The 26th sūtra of 3rd chapter which describes about the hidden knowledge also resembles prāpti.

प्रवृत्त्यालोकन्यासात् सूक्ष्मव्यवहितविप्रकृष्टज्ञानम् ॥ प . यो . सू : ३ . २६ ॥

Pravṛttyālokanyāsāt sūkṣmavyavahitaviprakṛṣṭajñānam. ॥ PYS:3. 26 ॥

The knowledge of subtle, obscure or distant (objects) is gained by dilating the light of the super physical faculty.

The mind can develop a super physical faculty, which is called *Jyotismati* pravṛtti, the illuminating faculty. In this sūtra, the word pravṛtti is used to indicate that faculty. By developing this illuminating faculty in the mind, which is capable of penetrating anywhere, the yogī can see hidden, obscure or distant objects.

When the illuminating faculty is directed toward a person or an object which is missing, it can immediately be known where that person or thing is. Thus, treasures which are buried underground, or objects which are very distant can be directly observed. Even subtle things like atoms or individual cells in the body can be observed.

The 27th, 28th, 29th and 30th sūtras of 3rd chapter which describes about the knowledge of solar system, stars, stars movement and knowledge of body respectively resembles prāpti.

knowledge of the solar system.

भुवनज्ञानं सूर्ये संयमात् ॥ प . यो . सू : ३ . २७ ॥

Bhuvanajñānaṁ sūryesaṁyamāt ॥ PYS:3. 27 ॥

Knowledge of the solar system is gained by performing saṁyama on the sun.

This knowledge can be gained by practicing saṁyama on the sun. In ancient times the modern techniques of astronomy were not available, yet the Rṣiss were able to calculate various astronomical facts very correctly.

Knowledge of the stars.

चन्द्रे ताराव्यूहज्ञानम् ॥ प . यो . सू : ३ . २८ ॥

Chandre tāravūhajñānam ॥ PYS:3. 28 ॥

By performing saṁyama on the moon, knowledge about the position of the stars is gained.

knowledge of stars movements

ध्रुवे तद्गतिज्ञानम् ॥ प . यो . सू : ३ . २९ ॥

Dhruve tadgatijñānam ॥ PYS:3. 29 ॥

By performing saṁyama on the pole star, knowledge of the movement of the stars can be obtained.

Knowledge of the body.

नाभिचक्रे कायव्यूहज्ञानम् ॥ प . यो . सू : ३ . ३० ॥

Nābhicakre kāyavyūhajñānam ॥ PYS:3. 30 ॥

By performing saṁnyama on the navel centre, knowledge of the arrangement in the body is gained.

The 213th śloka of svara yoga describes about prāpti.

हंबीजं गगनं ध्यायेन्निराकारं बहुप्रभम् ।

ज्ञानं त्रिकालविषयमैश्वर्यमणिमादिकम् ॥ ॥ स्वर योग : २१३ ॥

hambījaṁ gaganam dhyāyennirākāraṁ bahuprabham ।

jñānaṁ trikālavīṣayamaīśvaryaṁṇimādikam ॥ svara yoga : 213 ॥

For concentrating on the ether element which is formless and multicoloured, one uses the bija mantra Ham. Through these practises comes the knowledge of past, present and future and gain of prosperity, jewels, gems, etc.

The 13th shloka of 15th skandha of shrimad bhagavatam gives details about prāpti.

धारयन् मय्यहंतत्वे मनो वैकारिकेखिलम् ।

सर्वेन्द्रियाणामात्मत्वं प्राप्तिं प्राप्नोति मन्मान ॥ भागवतम् ११ स्कन्ध १५ अध्याय श्लोक १३ ॥

dhārayan mayyahantatve mano vaikārikekhillam ।

sarvendriyāṇāmātmatvaṁ prāptiṁ prāpnoti manmāna ॥ bhāgavatam 11 skandha 15

adhyāya śloka 13 ॥

which means, ‘Focussing his entire mind on me as ensouling the ego , born of sattvaguna the yogi who has given his mind to me attains the sidhhi of prāpti in the shape of control over the senses of all’.

6) Prākāmya: This is a type of siddhi in which a yogī can have an unobstructed fulfillment of desire. This is explained in the 35th and 36th sūtra of 2nd chapter of PYS.

अहिंसाप्रतिष्ठायां तत्संनिधौ वैरत्यागः ॥ प . यो . सू : २ . ३५ ॥

Ahimsāpratiṣṭhāyām tatsamnidhau vairatyāgaḥ ॥ PYS:2. 35 ॥

On being firmly established in ahimsā, there is abandonment of hostility in his vicinity.

Ahimsā means love, harmlessness, non-killing, non-violence. It means absence of enmity, hostility, and harm. When one established in ahimsa, there develops a kind of magnetism around one that influences anybody who approaches. One becomes free of a very dangerous, evil complex- that of violence and hostility.

This śloka describes the fruits of satya

सत्यप्रतिष्ठायां क्रियाफलाश्रयत्वम् ॥ प . यो . सू : २ . ३६ ॥

Satyapratīṣṭhāyām kriyāphalāśrayatvam. ॥ PYS:2. 36 ॥

On being firmly established in truthfulness, the actions result in fruits, entirely depending on it.

When the aspirant becomes established in truthfulness by practicing it as a universal law, unconditioned by time, country, birth and circumstance, then he develops a kind of divine buddhī in himself. Thereby he is able to acquire the result from his karma according to his wish. Usually the result of karma is independent of our wishes but it is not so with a person who has perfected truthfulness.

This sūtra may also be interpreted to mean that the truthful aspirant develops truth of speech. Whatever he speaks will come true, whatever he says happens. In yoga this is called as psychic speech.

In Chāndogya Upaniṣat there is a śloka which resembles Prākāmya

यं यमन्तमभिकामो भवति यं कामं कामयते सोऽस्य सङ्कल्पादेव समुत्तिष्ठति तेन सम्पन्नो महीयते

॥ छान्द उ : ८ . २ . १० ॥

yam yamantamabhikāmo bhavati yaṁ kāmaṁ kāmayate so'sya saṅkalpādeva
samuttiṣṭhati tena sampanno mahīyate ॥ chānda up: 8.2.10 ॥

Whatever province he becomes attracted to, whatever objects he desires, that appears by his very desire, and being associated with that he becomes glorified.

In Muṇḍaka Upaniṣat also there is a śloka which resemble Prākāmya

यं यं लोकं मनसा संविभाति विशुद्धसत्त्वः कामयते यांश्च कामान्

तं तं लोकं जयते तांश्च कामान् तस्मादात्मज्ञमर्चयद्भूतिकाकामः ॥ मुण्डक उ . ३ . १ . १० ॥

yaṁ yaṁ lokam manasā sanvibhāti viśuddhasatvaḥ kāmayate yāṁśca kāmān taṁ taṁ
lokam jayate tāṁśca kāmān tasmādātmañāmarcayedbhūtikākāmaḥ.

॥ Muṇḍaka up 3.1.10 ॥

The man of pure mind wins that world which he mentally wishes for and those enjoyable things which he covets. Therefore one, desirous of prosperity, should adore the knower of the self.

Whatever wishes the purified soul who is the knower of Self has, he achieves and whatever realm he decides to go through mind, he attains.

The 224th śloka of svara yoga elaborates about prākāmya

एकांगुले कृते न्यूने प्राणे निष्कामता मता ।

आनन्दस्तु द्वितीये स्यात्कामशक्तिस्तृतीयके ॥ स्वर योग : २२४ ॥

ekāṅgule kṛte nyūne prāṇe niṣkāmatā matā |

ānandastu dvitīye syātkāmaśaktistṛtīyake | svara yoga: 224 | |

If a yogi concentrating on breath and from that if he succeeds in reducing the length of prāṇa by one finger, he obtains desirelessness, with the reduction of it by two fingers he gets bliss, if reduced by three fingers he gets the energy of love.

There are few more ślokas which describes about prākāmya, where in the yogī will be able to fulfill all his desires unobstructed:

दशशतायुतं लक्षं देशाधिपबलं क्वचित् ।

शतक्रतुसुरेन्द्राणां बलं कोटीगुणं भवेत् ॥ स्वर योग : २७१ ॥

daśaśatāyutam lakṣam deśādhipabalam kvacit |

śatakratusurendrāṇām balam koṭīguṇam bhavet | svara yoga: 271 | |

Some possess the strength of ten people, some of a hundred, some of ten thousand, some of a hundred thousand and some are equal in strength to the king of the country. But the

strength of the person who has knowledge of the swara has a crore times of strength of a hundred Indras.

शत्रुं हन्यात्स्वरबले तथा मित्रसमागमः ।

लक्ष्मीप्राप्तिः स्वरबले कीर्तिः स्वरबले सुखम् ॥ स्वर योग : २२ ॥

śatruṃ hanyātsvarabale tathā mitrasamāgamaḥ ।

lakṣmīprāptiḥ svarabale kīrtiḥ svarabale sukham । svara yoga: 22 ।

Through the power of the swara you can overcome the enemy; and you can be sure to meet your friend. You can get the favour of Lakshmi (the goddess of wealth and prosperity), popularity and all sorts of pleasures.

कन्याप्राप्तिः स्वरबले स्वरतो राजदर्शनम् ।

स्वरेण देवतासिद्धिः स्वरेण क्षितिपो वशः ॥ स्वर योग : २३ ॥

kanyāprāptiḥ svarabale svarato rājadarśanam ।

svareṇa devatāsiddhiḥ svareṇa kṣitipo vaśaḥ । svara yoga: 23 ।

Through the power of the swara you can get a wife, meet with the great rulers and attain the perfection of the gods. Even the most powerful ruler can be overcome by this power.

स्वरेण गम्यते देशो भोज्यं स्वरबले तथा ।

लघुदीर्घं स्वरबले मलं चैव निवारयेत् ॥ स्वर योग : २४ ॥

svareṇa gamyate deśo bhojyaṃ svarabale tathā ।

laghudīrghaṃ svarabale malaṃ caiva nivārayet । svara yoga: 24 ।

With the power of swara one can undertake journeys, eat the best food, urinate and excrete.

The 14th shloka of 15th skandha of shrimad bhagavatam gives details about prākāmya.

महत्यात्मनि यः सूत्रे धारयेन्मयि मानसम् ।

प्राकाम्यं पारमेष्ठ्यं मे विन्दतेऽव्यक्तजन्मनः ॥ भागवतम् ११ स्कन्ध १५ अध्याय श्लोक १४ ॥

mahatyātmani yaḥ sūtre dhārayenmayi mānasamprākāmyam
pārameṣṭhyam me vindate'vyaktajanmanaḥ | bhāgavatam 11 skandha 15 adhyāya śloka 14 ||

It means he who concentrates his mind on me as ensouling the mahat tattva attains prākāmya , the highest siddhi possessed by me as presiding over the sutra which is born of unmanifest .

7) **Vaśitva**: This is a type of siddhi in which a yogi can have a control over all objects, organic and inorganic.

In the 40th sūtra of first chapter of pātañjali yoga sūtra which mentions about the fruits of mediation where you can get the mastery over the smallest atom to the infinitely large.

परमाणुपाममहत्त्वान्तोस्य वशीकारः ॥ प . यो . सू . १ . ४० ॥

Paramāṇuparamamahattvānto'sya vaśīkāraḥ ॥ PYS:1. 40 ॥

When the person will get mastery in meditation he gets the mastery over all objects for meditation ranging from the smallest atom to the infinitely large.

There is one example of the present time for this: when swami Vivekananda was in the USA, he used to borrow several books from a library every day and return them the next day. The librarian, wondering if so many books could be read in a single day, wanted to test the swami, but to his astonishment he noticed that the swami remembered every word and line he had read. This is how a yogi has control over the finest and largest.

In second chapter 36th sūtra mentions about the fruits of satya resembles vaśitva.

सत्यप्रतिष्ठायां क्रियाफलाश्रयत्वम् ॥ प . यो . सू : २ . ३६ ॥

Satyapraṭiṣṭhāyāṁ kriyāphalāśrayatvam. ॥ PYS:2. 36 ॥

On being firmly established in truthfulness, the actions result in fruits, entirely depending on it.

When the aspirant becomes established in truthfulness by practicing it as a universal law, unconditioned by time, country, birth and circumstance, then he develops a kind of divine buddhi in himself. Thereby, he is able to acquire the result from his karma according to his wish. Usually the result of karma is independent of our wishes but it is not so with a person who has perfected truthfulness.

This sūtra may also be interpreted to mean that the truthful aspirant develops truth of speech. Whatever he speaks will come true, whatever he says happens. In yoga this is called as psychic speech.

The 43rd sūtra of second chapter which describes the fruits of tapas resemble vaśitva.

कायेन्द्रियसिद्धिरशुद्धिक्षयात्तपसः ॥ प . यो . सू : २ . ४३ ॥

Kāyendriyasiddhirśuddhikṣayāttapaṣaḥ ॥ PYS:2. 43 ॥

By practicing austerities, impurities are destroyed and there comes perfection in the body and sense organs.

He will get the kāyendriya siddhi, means perfection in the body and sense organs.

In third chapter there are few sūtras which resemble vaśitva.

The 17th sūtra which elaborates about the knowledge of speech also resembles vaśitva.

शब्दार्थप्रत्ययानामितरेतराध्यासात् संकास्तत्प्रविभागसंयमात् सर्वभूतरुतज्ञानम् ॥ प . यो . सू : ३ .१७ ॥

*Śabdārthapratyayānāmitaretarādhyāsāt saṅkarastatpravibhāgasamīyamāt
sarvabhūtarutajñānam. ॥ PYS:3. 17 ॥*

The word, object and mental content are in a confused state because of mutual superimposition. By performing saṁnyama on them separately, knowledge of the speech of all beings arises.

Usually our knowledge of objects is confused because of a confusion of śabda, artha and pratyaya. If we do saṁnyama on them separately, we can know the speech of all animals. This sūtra says you will know the speech or language of the cow or any other animals or creatures.

The 19th sūtra which describes the knowledge of others minds is also an example.

प्रत्ययस्य परचित्तज्ञानम् ॥ प . यो . सू : ३ .१९ ॥

Pratyayasya paracittajñānam. ॥ PYS:3. 19 ॥

By performing saṁnyama on the pratyayas, knowledge of another's mind arises.

The 23rd sūtra which describes the knowledge of time of death

सोपक्रमं निरुपक्रमं च कर्म तत्संयमादपरान्तज्ञानमरिष्टेभ्यो वा ॥ प . यो . सू : ३ .२३ ॥

*Sopakramam nirupakramam ca karma tatsamīyamādaparāntajñānamariṣṭebhyo vā
. ॥ PYS:3. 23 ॥*

Karma is of two kinds, active and dormant. By performing saṁyama on them knowledge of death is gained, also by omens.

Karma is of two kinds. *Sopakrama* means that karma which has started giving its fruits. *Nirupakrama* karma is that which is dormant at present and would be exhausted after some time. The first kind of karma is also called *prārabdha*, and the second kind *sañcita*, that which remains in store.

By performing on these two types of karma, the time of death can be known beforehand.

The 31st sūtra which describes the cessation of thirst and hunger.

कण्ठकूपे क्षुत्पिपासानिवृत्तिः ॥ प . यो . सू : ३ . ३१ ॥

Kaṇṭhakūpe kṣutpipāsā nivṛttiḥ ॥ PYS:3. 31 ॥

By performing saṁyama on the throat pit, hunger and thirst retire.

The gullet or the throat pit is the centre of the gland that secretes the fluid which causes dryness in the throat, resulting in thirst, and burning in the stomach which causes hunger. By performing saṁyama on that particular centre of the gland, the secretion can be checked and thereby, the student obtains mastery over thirst and hunger.

The 35th, 36th, 37th and 39th sūtras which describe about the awareness of citta, knowledge of puruṣa and intuitive perception, entering another's body respectively resemble vaśitva.

Awareness of citta.

हृदये चित्तसंवित् ॥ प . यो . सू : ३ . ३५ ॥

Hṛdaye chittasānvit ॥ PYS:3. 35 ॥

By saṁyama on the heart, awareness of citta dawns.

Heart here means the lotus called anāhata cakra. By performing meditation on anāhata cakra, the student gains knowledge about the nature of his mind.

Knowledge of puruṣa and intuitive perception.

सत्त्वपुरुषयोरत्यन्तासङ्कीर्णयोः प्रत्ययाविशेषो भोगः परार्थत्वात् स्वार्थसंयमात् पुरुषज्ञानम्
॥ प . यो . सू : ३ . ३६ ॥

*Sattvapuruṣayoratyantāsaṅkīrṇayohḥ pratyayāviśeṣo bhogaḥ parārthatvāt
svārthasaṁyamāt puruṣajñānam. ॥ PYS:3. 46 ॥*

ततः प्रातिभश्रावणवेदनादशारस्वादवार्ता जायन्ते ॥ प . यो . सू : ३ . ३७ ॥

Tataḥ prātibhaśrāvaṇavedanādarśāsṣvādavārtā jāyante ॥ PYS:3. 47 ॥

Citta and puruṣa are extremely distinct. On account of non-difference of the awareness of both there is objective or subjective experience. By saṁyama on subjective awareness apart from objective awareness the knowledge of puruṣa is obtained.

Therefrom are produced transcendental audition, sensation, perception, taste and olfactory knowledge.

The transcendental faculties concerning the sense organs are called the pratibhā faculties.

By practicing saṁyama on the puruṣa or subjective awareness as described in the 36th

sūtra, the transcendental faculties pertaining to the sense organs of hearing, touch, seeing, taste and smell arise.

Entering another's body.

बन्धकारणशैथिल्यात्प्रचारसंवेदनाच्च चित्तस्य परशरीरावेशः ॥ प . यो . सू . ३ . ३९ ॥

Bandhakāraṇaśaithilyātprachārasaṁvedanāchcha chittasya paraśarīrāveśaḥ

॥ PYS:3. 46 ॥

By losing of the cause of bondage and by knowledge of the passage, the subtle body enters another person's body.

This particular psychic power is of a very high order. The aspirant steps out his body and enters the body of another person. We hear this in case of many liberated persons and advanced students of yoga, such as Adi Shankaracharya.

The 42nd sūtra is about the Divine hearing.

Divine hearing

श्रोत्राकाशयोः सम्बन्धसंयमादिव्यं श्रोत्रम् ॥प यो सु ३: ४२ ॥

śrotrākāśayoḥ sambandhasaṁyamādivyaṁ śrotram ॥P Y S: 3 42॥

By saṁyama on the relation of the ear and space (there is) divine hearing.

Ākāśa is the medium through which sound travels; the ear is the organ which grasps the sound. saṁyama on the relationship of this gives rise to super physical sounds which are no different from the sounds of the physical plane.

Divine hearing is becoming sensitive to those subtle sounds which are beyond the range of normal mental capacity.

The 45th, 47th and 48th sūtras which talk about mastery over bhūtās, perfection of body, and mastery of sense organs respectively comes under vaśitva.

Mastery of the bhutas

स्थूलस्वरूपसूक्ष्मान्वयार्थवत्वसंयमात् भूतजयः ॥ प . यो . सू : ३ . ४५ ॥

Sthūlasvarūpasūkṣmānvayārthavatvasaṁyamāt bhūtajayaḥ ॥ PYS:3. 45 ॥

By saṁyama on the gross, basic, subtle and interpenetrating states and the purpose of the bhūtās, mastery over them is obtained.

There are five states of the five elements, namely, their gross form, their real form, their subtle form, their universal form and their purpose. Saṁyama on these states of the elements gives mastery over them.

The five tattvas mean the elements called earth, water, fire, air and ether. By doing saṁyama on these five a yogi gets mastery over them, he can change them, he can change fire into water, water into earth etc.

Perfection of the body.

रूपलावण्यबलवज्रसंहननत्वानि कायसम्पत् ॥ प . यो . सू : ३ . ४७ ॥

Rūpalāvṇyabalavajrasaṁhananatvāni kāyasampat ॥ PYS:3. 47 ॥

The perfection of the physical body includes beauty, grace, energy and hardness.

Mastery of sense organs.

ग्रहणस्वरूपास्मितान्वयार्थवत्त्वसंयमादिन्द्रियजयः ॥ प . यो . सू . ३ . ४८ ॥

Grahaṇasvarūpāsmītānvayārthavattvasaṁyamādindriyajayaḥ. ॥ PYS:3. 48 ॥

Mastery over the sense organs is gained by saṁyama on the power of cognition, real nature, egoism, all-pervasiveness and purposefulness.

In Aitareya upaniṣad there is a śloka which resemble vaśitva.

स एवं विद्वानस्माच्छरीरभेदादूर्ध्व उत्क्रम्यामुष्मिन् स्वर्गे

लोके सर्वान् कमानाप्त्वाऽमृतः समभवत् समभवत् ॥ ऐत उ : २ . १ . ३ ॥

sa evaṁ vidvānasmāccharīrabhedādūrdhva utkramyāmuṣmin svarge

loke sarvān kamānāptvā'mṛtaḥ samabhavat samabhavat ॥ Aita up ॥

He who had known, thus, becomes identified with the supreme, and attains all desirable things; and having ascended higher up after the destruction of the body, he becomes immortal, in the world of the self. He becomes immortal.

“By knowing Brahman he attains all his wishes in the luminous realm and became immortal”

The 142 śloka of svara yoga describes about vaśitva, in which yogī can recognize the evil qualities of all types of creatures.

तत्वानां नाम विज्ञेयं सिद्धियोगेन योगिभिः ।

भूतानां दुष्टचिन्हानि जानातीह स्वरोत्तमः ॥ स्वर योग : १४२ ॥

tattvānām nāma vijñeyam siddhiyogena yogibhiḥ ।

bhūtānām duṣṭacihnāni jānātiha svarottamaḥ ॥svara yoga: 142॥

Through the means of their siddhis the yogis should know the names of the elements. A person having expertise in svara yoga can recognise the evil qualities of all types of creatures.

There are some other śloka in svara yoga which describes about vaśitva, in which an yogī can attain control over hunger, thirst, who can withstand under water for long time, who can have the control over power of water, who can control over heat.

वंबीजं वारुणं ध्यायेत्तत्वमर्धशशिप्रभम् ।

क्षुत्तृष्णादिसहीष्णुत्वं जलमध्ये च मज्जनम् ॥ स्वर योग : २१० ॥

Vambījam vāruṇam dhyāyettatvamardhaśaśiprabham ।

kṣutṭṛṣṇādisahīṣṇutvaṁ jalamadhye c majjanam ॥svara yoga: 210॥

Vam is the bija mantra of the water element. By concentrating on it and the form of a shining crescent moon, hunger and thirst can be overcome, and one can stay for a long time under water. Thus, one has power over water.

रंबीजं अग्निं ध्यायेत्त्रिकोणमरुणप्रभम् ।

बह्वन्नपानभोक्तृत्वमातपान्निसहिष्णुता ॥ स्वर योग : २११ ॥

rambījaṁ agniṁ dhyāyettrikoṇamaruṇaprabham |

bahvannapānabhokṛtvamātapāgnisahiṣṇutā | svara yoga: 211 |

One who concentrates on the bija mantra Ram of the fire element situated in a shining red triangle can eat and drink colossal amounts of food, and bear the heat of the sun and fire.

द्वादशे हंसचारश्च गङ्गाऽमृतरसं पिबेत् ।

आनखाग्रं प्राणपूर्णे कस्य भक्ष्यं च भोजनम् ॥ स्वर योग : २२७ ॥

dvādaśe haṁsacāraśca gaṅgā'amṛtarasaṁ pibet |

ānakhāgraṁ prāṇapūrṇe kasya bhakṣyaṁ ca bhojanam | svara yoga: 227 |

Reduction of the length of prāṇa by twelve fingers enables one to attain the state of haṁsa and drink the nectar of the gaṅgā (to be immortal). The yogī who achieves control over the prāṇa, right from his toes to his head, needs no food and has no desire to eat.

न कालो विविधं घोरं न शस्त्रं न च पन्नगाः ।

न शत्रुर्व्याधिचौरद्याः शून्यास्थानाशितुं क्षमाः ॥ स्वर योग : २६८ ॥

na kālo vividhaṁ ghoram na śastraṁ na ca pannagāḥ |

na śatrurvyādhicauradyāḥ śūnyāsthānāśitum kṣamāḥ | svara yoga: 268 |

When one is merged in the flow of suṣumnā, then even the most horrible times (kāla), weapons, snakes, the enemy, disease, a thief, etc., are unable to destroy or cause suffering to him.

This power is mentioned in bhāgavatam as ,

नारायणे तुरियारख्ये भगवच्छब्दशब्दिते ।

मनो मय्यादधद योगी मध्दर्मा वशितामियात् ॥ भागवतम् ११ स्कन्ध १५ अध्याय श्लोक १६ ॥

nārāyaṇe turiyākhye bhagavacchabdaśabdite |

mano mayyādadhada yogī madhdarmā vaśitāmiyāt | |bhāgavatam 11 skandha 15 adhyāya

śloka16||

It means the yogi who concentrates his mind on me as lord narayana spoken of as fourth or as a trasdent principle and called by the name of bhagavan acquires my virtues and attains vaśitā.

8) Isitva: This is a type of siddhi in which a yogī can have the capacity to create and destroy at will. This is explained in the 22nd, 41st, 45th and 50th sūtras of 3rd chapter of PYS.

The 22nd sūtra describes about the Disappearance of the tanmatras.

एतेन शब्दाद्यन्तर्धानं उक्तम् ॥ प . यो . सू : ३ . २२ ॥

Etena śabdādyantardhānam uktam || PYS:3. 22 ||

By what has been said the disappearance of sound and other tanmatras can be understood.

By performing saṁyama on your own form, you can make yourself invisible, in the same manner, by performing on sound, touch, taste etc, those faculties can be made to disappear. In a similar way, the yogī can stop other sensations also and control the phenomena concerning them.

The 41st sūtra

समानजयाज्ज्वलनम् ॥ प . यो . सू : ३ . ४१ ॥

Samānajayāj्ज्वalanam. ॥ PYS:3. 41 ॥

By mastery of the samāna vāyu the body blazes.

The samāna vāyu produces the digestive fluid and is related to the fire which digests food in the stomach. Its range of operation is from the heart to the navel. When the samāna vāyu is mastered by developing the fire principle, the body develops an aura around itself.

The 50th sūtra mentions about the Omnipotence and omniscience.

सत्त्वपुरुषान्यतारख्यातिमात्रस्य सर्वभावाधिष्ठातृत्वं सर्वज्ञातृत्वं च ॥ प . यो . सू : ३ . ५० ॥

Sattvapuruṣānyatākhyātīmātrasya sarvabhāvādhiṣṭhātṛtvaṁ ca ॥ PYS:3. 50 ॥

Just by knowledge of the awareness of the difference between chitta and purusha comes supermacy over all states and forms of existence and omniscience. He can become anything and he can know everything.

In Chāndogya Upaniṣat there are few ślokas which describes iśitva .

स यदि पितृलोककामो भवति सङ्कल्पादेवास्य पितरः

समुत्तिष्ठन्ति तेन पितृलोकेन सम्पन्नो महीयते ॥ छान्द उ : ८ . २ . १ ॥

sa yadi pitṛlokakāmo bhavati saṅkalpādevāsya pitarah| samuttiṣṭhanti tena

pitṛlokena sampanno mahīyate ॥ *Chānda up: 8.2.1* ॥

He should become desirous of the manes as objects of enjoyment, the forefathers appear by his very wish, and being associated with those manes as objects of enjoyment, he becomes glorified.

How there is freedom of movement in all the worlds is being stated. One who, being endowed with the disciplines like celibacy etc. that will be spoken of, has directly realized in his heart the self as described and also the unfailing desires included there.

अथ यदि मातृलोककामो भवति सङ्कल्पादेवास्य मातरः

समुत्तिष्ठन्ति तेन मातृलोकेन सम्पन्नो महीयते ॥ छान्द उ : ८ . २ . २ ॥

atha yadi mātṛloka-kāmo bhavati saṅkalpādevāsya mātaraḥ samuttiṣṭhanti tena

mātṛlokena sampanno mahīyate. ॥ chānda up: 8.2.2 ॥

Then, should he become desirous of the mothers as objects of enjoyment, the mothers appear by his very wish, and being associated with those mothers as objects of enjoyment, he becomes glorified.

अथ यदि भ्रातृलोककामो भवति सङ्कल्पादेवास्य भ्रातरः

समुत्तिष्ठन्ति तेन भ्रातृलोकेन सम्पन्नो महीयते ॥ छान्द उ : ८ . २ . ३ ॥

atha yadi bhratṛloka-kāmo bhavati saṅkalpādevāsya bhrātarāḥ samuttiṣṭhanti tena

bhratṛlokena sampanno mahīyate ॥ chānda up: 8.2.10 ॥

Then, should he become desirous of the brothers as objects of enjoyment, the brothers appear by his very wish, and being associated with those brothers as objects of enjoyment, he becomes glorified.

अथ यदि स्वसलुककलडु डवतल सङुकलडुदुवलसुड सुवसरः

सडुतुतलषुठनुतल तुन सुवसलुकुकन सडुडनुनु डुडुडतु ॥ कुनुद उ : ॢ . ॢ . ॡ ॥

*atha yadi svasṛlokakāmo bhavati saṅkalpādevāsya svasārah samuttiṣṭhanti tena
svasṛlokena sampanno mahīyate. ॥ chānda up: 8.2.4 ॥*

Then, should he become desirous of the sisters as objects of enjoyment, the sisters appear by his very wish, and being associated with those sisters as objects of enjoyment, he becomes glorified.

अथ डदल सखलुककलडु डवतल सङुकलडुदुवलसुड सरखलडुः

सडुतुतलषुठनुतल तुन सखलुकुकन सडुडनुनु डुडुडतु ॥ कुनुद उ : ॢ . ॢ . ॡ ॥

*atha yadi sakhilokakāmo bhavati saṅkalpādevāsya sakhāyaḥ samuttiṣṭhanti tena
sakhilokena sampanno mahīyate. ॥ chānda up: 8.2.5 ॥*

Then, should he become desirous of the friends as objects of enjoyment, the friends appear by his very wish, and being associated with those friends as objects of enjoyment, he becomes glorified.

अथ डदल गनुधडललुडलुककलडु डवतल सङुकलडुदुवलसुड गनुधडललुडे

सडुतुतलषुठनुतल तुन गनुधडललुडलुकुकन सडुडनुनु डुडुडतु ॥ कुनुद उ : ॢ . ॢ . ॡ ॥

*atha yadi gandhamālyalokakāmo bhavati saṅkalpādevāsya gandhamālye
samuttiṣṭhanti tena gandhamālyalokena sampanno mahīyate. ॥ chānda up: 8.2.6 ॥*

Then, should he become desirous of the perfumes and garlands as objects of enjoyment, perfumes and garlands appear by his very wish, and being associated with those friends as objects of enjoyment, he becomes glorified.

अथ यद्यन्नपानलोककामो भवति सङ्कल्पादेवास्यन्नपाने

समुत्तिष्ठन्ति तेनान्नपानलोकेन सम्पन्नो महीयते ॥ छान्द उ : ८ . २ . ७ ॥

atha yadi gandhamālyalokakāmo bhavati saṅkalpādevāsya gandhamālye

samuttiṣṭhanti tena gandhamālyalokena sampanno mahīyate ॥ chānda up: 8.2.7 ॥

Then, should he become desirous of the food and drink as objects of enjoyment, food and drink appear by his very wish, and being associated with those friends as objects of enjoyment, he becomes glorified.

अथ यदि गीतवादित्रलोककामो भवति सङ्कल्पादेवास्य गीतवादित्रे

समुत्तिष्ठन्ति तेन गीतवादित्रलोकेन सम्पन्नो महीयते ॥ छान्द उ : ८ . २ . ८ ॥

atha yadi gītavāditralokakāmo bhavati saṅkalpādevāsya gītavāditre samuttiṣṭhanti tena

gītavāditralokena sampanno mahīyate ॥ chānda up: 8.2.8 ॥

Then, should he become desirous of song and music, as objects of enjoyment, song and music appear by his very wish, and being associated with those friends as objects of enjoyment, he becomes glorified.

अथ यदि स्त्रीलोककामो भवति सङ्कल्पादेवास्य स्त्रियः

समुत्तिष्ठन्ति तेन स्त्रीलोकेन सम्पन्नो महीयते ॥ छान्द उ : ८ . २ . १ ॥

atha yadi strīlokakāmo bhavati saṅkalpādevāsya strīyaḥ

samuttiṣṭhanti tena strīlokena sampanno mahīyate. ॥ chānda up: 8.2.9 ॥

Then, should he become desirous of women as objects of enjoyment, women appear by his very wish, and being associated with those friends as objects of enjoyment, he becomes glorified.

In svara yoga there is a śloka in which if a yogī is able to reduce his length of prāṇa by ten fingers then he will be able to create his own body in ten forms. This is an very good example for īsitva

.अष्टमे सिद्धयश्चैव नवमे निधयो नव ।

दशमे दशमूर्तिश्च छाया नैकादशे भवेत् ॥ स्वर योग : २२६ ॥

aṣṭame siddhayaścaiva navame nidhayo nava ।

daśame daśamurtiśca chāyā naikādaśe bhavet ॥svara yoga: 226॥

Reduction of the length of prāṇa by eight fingers gives attainment of the eight siddhis (perfections); nine, attainment of the nine niddhis (wealths); ten, ability to change the body into ten forms; eleven, the ability to make the body shadowless.

स्वरज्ञानबलादग्रे निष्फलं कोटिधा भवेत् ।

इहलोके परत्रापि स्वरज्ञानी बली सदा ॥ स्वर योग : २७० ॥

svarajñānabalādagre niṣphalaṁ koṭidhā bhavet ।

ihaloke paratrāpi svarajñānī balī sadā ॥svara yoga: 270॥

Crores of other kinds of powers are useless before the strength of knowledge of the svara. One who has this knowledge is always powerful both in this world as well as the next.

CHAPTER 7

DIMENSIONS OF EXTRA SENSORY PERCEPTION (ESP)

Extra-Sensory Perception (ESP) is defined as ability to acquire information by paranormal means independent of any known physical senses or deduction from previous experience. The term was coined by Duke University researcher J.B. Rhine to denote psychic abilities such as telepathy, precognition, and clairvoyance. ESP is also sometimes casually referred to as a sixth sense(1).

Many different types of ESP have been described and these are called as the siddhis according to ancient Indian scriptures.

- Clairvoyance and remote viewing, the paranormal perception of people, places or events by means other than the normal senses.
- Precognition, the perception of other times.
- Retrocognition
- Abilities such as Aura reading and medical intuition.
- Psychometry, the perception of aspects of things.
- Telepathy, the ability of sense communications from and/or communicate with people by means other than the normal senses.
- Out-of-body experiences
- Astral projection
- Levitation

1) Clairvoyance: It is a French word, *Clair* meaning “Clear” and *Voyant* meaning “seeing”. It claims the transference of information about an object, location or physical event through means other than the known human senses

The words “clairvoyance” and “psychic” are often used to refer to many different kinds of paranormal sensory experiences, but there are more specific names:

Clairsentience (feeling/touching): In the French language *clair* “clear” and *sentience* “feeling” is ultimately derived, wherein a person acquires psychic knowledge primarily by means of feeling. In addition to PK power, the term also plays a role in some religions. For example: clairsentience is one of the six human special functions mentioned or recorded in Buddhism. It is an ability that can be obtained at advanced meditation level. Generally the term refers to a person who can feel the vibration of other people. There are many different degrees of clairsentience ranging from the perception of disease of other people to the thoughts or emotion of other people.

Clairaudience: It is the clear hearing wherein a person acquires the information by paranormal auditory means.

Clairaliense: It is the clear smelling where in a person acquires the psychic knowledge primarily by means of smelling.

Clairgustane: It is the clear tasting in which allows one to taste a substance without putting anything in one’s mouth.

Clarivoyance can be called as a siddhi which a yogī can get by the practise of astheya, that is what the 37th sūtra of second chapter of PYS tells. So clarivoyance can be classified as Prāpti.

2) Remote viewing: here the viewer attempts to gather sense impressions and knowingness, non-sensorial information, about a target. The target is usually an object, a place, or a person, but can be almost anything.

This Remote viewing is very simillar to 27th, 28th and 29th sūtras of third chapter of PYS in which you can get the information of the target. So this is also classified under Prāpti.

3) Precognition: It is a latin word *Pre* meaning “Prior” and *Cognitio* means “a getting to know”, wherein a person is said to perceive information about places or events through paranormal means before they happen.

A related term, *Persentiment*, refers to information about future events which is said to be perceived as emotions.

This is a similar siddhi like *prāpti* in which you can get the information or knowledge of past and future. This is similar to 16th sūtra of third chapter PYS.

4) Aura: An aura is a subtle field of luminous multicolored radiation surrounding a person or object as a cocoon or halo. An aura may be held to represent or be composed of soul vibrations or chakras and may reflect the moods or thoughts of the person it surrounds.

This is very similar to the 41st sūtra of third chapter of PYS in which he will be able to blaze his body by concentrating on *samāna*, this may be classified under *Ísitva*.

5) Retrocognition: This word is derived from latin word *Retro* mean “backward, behind” and *Cognition* meaning “knowing”. This is a term used to describe the paranormal transference of information about an event or object in the past by means that are unknown to current science.

This is a type of siddhi in which a yogi will attain the knowledge of previous births and this is very similar to 18th sūtra of third chapter of PYS which can be classified under *prāpti*.

6) Psychometry: It is derived from the greek word *Psyche* mean “spirit, soul” and *metron* mean “measure” in which a psychic is said to be able to obtain information about an individual through paranormal means by making physical contact with an object that belongs to them.

This can be classified as *prākāmya*, in which yogi can be able to get the unobstructed desires, and he can get the hidden knowledge of any object.

7) Telepathy: It is derived from greek word *Tele* meaning “remote” and *Patheia* meaning “to be affected by”, is a term used to describe the transfer of information on thoughts or feelings between individuals by means other than the five classical senses.

This may be considered as *prāpti* in which the yogi can be able to reach anywhere.

8) Out-of-body-experience (OBE): It is an experience that typically involves a sensation of floating outside of one’s body and, in some cases, perceiving one’s physical body from a place outside one’s body.

This can be called as *Vaśitva*, in which yogi will be having control over all the objects both organic and inorganic, he can move out of the body.

9) Astral projection: It is a paranormal interpretation of an out-of-body experience achieved either awake or via lucid dreaming or deep meditation. The concept of astral projection assumes the existence of another body, separate from the physical body and capable of traveling to non-physical planes of existence.

This is also very similar to *Vaśitva*, and we may put it under *Iśitva*, because here a person can create another body separated from his physical body.

10) Levitation: Levitation is derived from a latin word *Levare* meaning “to raise” is the process by which an object is suspended against gravity, in a subtle position, by a force without physical contact.

This is a popular siddhi among the eight siddhis called as *Laghimā*, in which yogi makes his body light like cotton and lifts his body against the gravitational pull without any physical contact.

CHAPTER 8

SUMMARY AND CONCLUSION

Modern science has started highlighting this ancient phenomenon of Psychokinesis related with hidden powers within human beings. Science has reached the stage where it gets stagnant only on the concepts related with matter. This makes scientist to give separate identification for the concept of mind.

Recent studies have shown that matter can get influenced by mind. Consciousness which is highly grossified in matter can get manifest in subtle level which can be because of influential power of the mind.

Concept of psychokinesis is highly sophisticated phenomenon in field of parapsychology. Experts in the field of parapsychology are opening new dimensions in this subject. Parapsychologists study two kinds of so-called psi phenomena: extrasensory perception (ESP), or the acquiring of information through non-sensory means; and psychokinesis (PK), or the ability to affect objects at a distance by means other than known physical forces.

Psychokinetic power modifies matters merely with mental approach without any kind of physical connection. Depending on effect of such power parapsychologist have categorized it in micro psychokinesis and macro psychokinesis. Micro PK is minor effect compared with Macro PK. Interesting results in different research projects gives strong background in this subject.

Indian spiritual lore gives lot of scope for this subject since ancient time. Concept of PK is deeply described in many scriptures. Foremost authentic scripture of yoga i.e. Patanjali yoga sutras mentions that doing samyama on any object gives rise for psychic power i.e. sidhhis. When a person achieves stage of samyama that is together ness of dharana dhyana and Samadhi he will be in the stage of a complete mental concentration. Application of this samyama to different objects or thoughts will give rise to psychic

powers. Psycho kinesis is one of the powers mentioned in it, where person is capable of moving objects with mental power without any physical contact with the object.

Out of many psychic powers main are eight in number Aṇimā ,Laghimā, Mahimā , Garimā, Prāpti, Prākāmya, Vaśitva , Iśitva .

Other ancient scriptures like Chandogya upanishad and svarayoga also mentions about various kinds of siddhis and their benefits .Various forms of these siddhis helps to overcome obstacles and make life luxurious.

Modern science has also noticed these para psychological phenomenons and classified them in to Clairvoyance, Clairsentience (feeling/touching), Clairaudience, Clairience, Clairgustane, Remote viewing, Precognition, Retrocognition, Psychometry, Telepathy, Out-of-body-experience (OBE), Astral projection and Levitation. Their are many attempts done to utilise these phenomenon for useful purposes. When we correlate these concepts with our indian concepts, we can find similarities.

But a little more detailed elaboration can get achieved in Indian scriptures and spiritual lore. we can relate these phenomenons with asta siddhis but still concepts of siddhis are advanced and indepth compared with these phenomenons .

Indian scriptures and spiritual lore is fully rich with detailed descriptions about these phenomenons. Indian scriptures and spiritual lore gives spiritual dimension to this subject .

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PART II

**EFFECT OF YOGA ON HEART RATE VARIABILITY,
HEART RATE COHERENCE AND PSYCHOKINETIC
POWER IN SCHOOL CHILDREN – A RANDOMIZED
CONTROL TRIAL**

ABSTRACT

Aim: To assess the autonomic balance and psychokinetic power in students undergoing a residential yoga based personality development camp.

Methods: 100 students (13-17 years) who signed the informed consent were selected from 289 students who registered for a personality development camp in the campus called *prashanthikutiram* in Bangalore.

Design: In this stratified randomized control study, 100 students were randomly assigned to two groups after stratifying for gender. The assessments were done on 2nd (pre) and 10th (post) day of the camp. All variables were recorded during (5 mins) the practice of 'thinking of a positive thought' sitting comfortably in a chair (with recording for 5 minutes before and 5 mins. after the session).

Intervention: The intervention for the yoga group included *asanas*, *pranayamas*, meditation and lectures. The control group practiced physical exercise based personality development techniques.

Assessments: Heart rate variability(HRV), Heart rate, Heart rate coherence(HRC) recorded using freezer framer that depicts low, medium and high values of heart rhythm variability power density spectrum and Psychokinetic power by noting mean values and the number of times a flow of Random numbers generated by a Random number generator (REG) soft wear was influenced during the session.

Results: HRV: There was increase in LF and decrease in HF during the positive thinking session ($p=0.009$); the LF/HF ratio increased marginally ($P=0.06$) after the session in yoga group on last day.

HRC: On day 10, in yoga group, the values for the Low component decreased marginally ($p=0.06$) during the session and decreased ($p=0.001$) after the session. High component of HRC increased ($p=0.039$) after the session.

Heart rate: HR decreased ($p<0.005$) in both groups (day2-day10); Effect sizes were higher in yoga group.

REG: There was a significant influence of yoga on REG after the session in yoga group on tenth day ($p=0.025$).

Conclusions: The integrated yoga program is effective in improving autonomic stability and psychokinetic ability after ten days of yoga in school children of 13 to 17 years.

Key words:

Students, yoga camp, heart rate variability, heart rate coherence, heart rate, psychokinetic.

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CHAPTER 1

INTRODUCTION

Yoga is an ancient science and a way of life, which includes the practice of specific postures, regulated breathing and meditation. Yoga aims at total personality development by working at physical, mental, emotional, intellectual and spiritual level. In yoga all the faculties- physical, mental, emotional, 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.

Yoga is a conscious process for gaining mastery over the mind and thereby unfold the innate dormant personality that expresses as progressively healthier quality of life at physical, mental, emotional, intellectual and spiritual levels Such growth brings the divine qualities like love, affection, selflessness, service attitude etc. yoga as a science of holistic living featured by peace and poise, health and happiness, energy conservation and efficiency is being recognized by larger and larger sections of the society. (1).

1.1 Benefits of yoga

Several researchers have shown the beneficial effects of integrated module of yoga on different aspects of personality in adults and children. In a similar camp setting for children, physical strength improved as shown by increased hand grip strength after pranayama (2, 3) , motor speed measured by finger tapping speed (4) and static motor performance (5) .Better cognitive functions after yoga was shown by improved visual perceptual sensitivity (6) and memory (both special and verbal) (7). The relative efficacy of different modules of yoga designed for improving different cognitive functions in children was demonstrated, through a stratified three arm randomized control design which showed improvement in logical memory (8), associative memory (9) intelligence (10, 11) and creativity (12, 13).

Yogic scriptures refer to techniques of yoga to unfold the dormant potentials of the mind that may manifest as paranormal phenomena (14, 15).In scientific circles, the initial

investigations on psychokinesis (PK) were carried out by using statistical probability tests to assess the power of PT (by gifted persons called psychics) to change the frequency of heads or tails during tossing of coins. With growing interest, researchers at Princeton University developed a soft wear that generates random events which is depicted as a sequence of random events on the computer screen (16). If this random event line shifts above or below 2 standard deviations it is noted as significant influence.

Significant change in REG values was noticed after a session of intent compared to the before values while evaluating influence of intent on REG (17). Studies have shown that intention of the operator was the influencing factor on REG and was totally independent of the distance of the operator from the REG device (17, 18). It has also been shown that REG values are highly influenced under mass emotional expressions (19), and environments with mega events (20). It was observed that working of modern high speed electronic devices can be influenced by intent of the observer (21)

The ability of yoga practices in developing PK have also been investigated which showed improvement in adults during and after devotional sessions (22) and chanting of Gāytrī Mantra (23).

1.2 How does yoga work?

1.2.1 ANS balance and mechanism of yoga

It has been stated that the benefits of yoga are due to the sympathetic alertful rest that occurs during yoga practices of different types. Autonomic changes during meditation shows reduction in heart rate and oxygen consumption (24) and there is a relaxing effect on the sympathetic nervous system after pranayama practice (25). A research done on community home girl's shows significant reduction in heart rate and breath rate after following yoga training programme(26).

1.2.2. Concept of Integrated Approach of Yoga (IAY) for personality development

Concept of body according to yoga is described in *Taitariya upaniṣada*. According to this text human being have five different layers of the personality which are interlinked with each other for functioning of entire personality.

- i) The first body layer is called *Annamaya Kośa* (solid physical body). It is visible to our eyes, and is made up of a combination of hydrogen, oxygen, carbon, nitrogen, calcium, potassium etc.
- ii) The life energy *Prāṇa* that makes each and every cell carry out its functions is *Prāṇamaya Kośa* (vital energy body). The right dose of *Prāṇa* is supplied to all cells to maintain health.
- iii) The mind which carries out the functions of perception, memory and emotions is called *Manomaya Kośa* (mind body or astral body).
- iv) The inner mind that controls and guides the *Manomaya Kośa* is the fourth aspect of our personality, and is called *Vijñānamaya Kośa* (knowledge body). This is the judge who decides what is right and wrong based on life's experiences so that one can live a life of contentment, bliss and happiness.
- v) In the fifth, which is the most subtle body, the person is in perfect health at physical, mental, emotional, social and spiritual levels because of total inner mastery over the functioning of each one of the other four *Kośas*. This body is called *Ānandamaya kośa* (bliss body). Illness and diseases result if there is lack of mastery.

Swami Vivekananda said “Each soul is potentially divine. The goal of human being is to manifest that divinity within either by work, worship, psyche and self control and to achieve that goal (Mokṣa).”

Concept of personality development.

In *Ānandamaya Kośa* a man is healthiest with perfect harmony and balance of all his faculties that manifests as a perfect human being. At *Vijñānamaya Kośa* there are movements, but are channeled in the right direction. As such, it is in the *Manomaya Kośa* level where the imbalances start. Likes and dislikes have come to play at this level. They start governing our actions; often they are in the right direction. Going against the right knowledge causes imbalances, which amplify themselves and result in mental limitations called *Ādhis*. Prompted by the perpetual growth of desires, these mental imbalances concealed in us begin to manifest themselves externally and manifests as behavioral limitations (emotional instability). Gradually they percolate into the physical frame. Preponderance of *Ajñāna* (ignorance about one's real state of bliss) leads one to perform wrong actions such as eating of unwholesome food, living in unhealthy dwellings, doing things at untimely hours, association with wicked evil thoughts, etc. These breed greater and greater limitation of personality called *Ādhi*.

The *Ādhi* are two fold: *Sāmānya* (ordinary) and *Sāra* (essential). The former includes the disturbances incidental to the body while the latter is responsible for the cycle of birth and death which men are subjected to. When the mind is agitated during our interactions with the world at large, the physical body also follows its wake. These agitations cause violent fluctuations in the flow of *Prāṇa* in the *nāḍīs*. The *Prāṇa* flows in wrong paths flying from one to another without rhythm and harmony. The *nāḍīs* in this condition, maintain stability and steadiness, but quiver. The imbalance caused by stress is in the form of excessive speed in the *Manomaya Kośa*. These disturbances can only be picked up as altered nostrils dominance. After a few more years this imbalance results in disturbed immune and autonomic functions at the *Annamaya kośa* which may result in all physical manifestation of stress. When dealt by suitable techniques and congenial atmosphere, *Ādhis* of the essential type (*Sara*) which causes the limitations that reflect as a limited personality only be

destroyed by the realization of the casual states of minds and a corresponding ability to live in *Vijñānamaya Kośa* and *ānandamaya kośa*. In that state, one touches the source of creativity and happiness which enables an exponential growth of a limited human being to super human levels. Thus yoga is a conscious process to raise man from animal level to human level, from human level to super human level and further to reach divine level.(27).

Concept of stress and personality development

Stress is a non specific conventional and phylogenetic based response pattern, the primary function of which is to prepare the body for physical activity such as flight or fight. Eustress and Distress are the two categories in which stress is distinguished. Eustress is healthy essential stress produced for example joy, any kind of positive impulse, sports, and hobbies. Distress is stress which is overloaded, and has to be controlled negative emotions such as Anxiety, fear, tension; depression and frustration are under this category (28).

When a person appraises an event as stressful, the body undergoes a number of changes that heighten physiological and emotional arousal. First, the *sympathetic division* of the autonomic nervous system is activated. The sympathetic division prepares the body for action by directing the adrenal glands to secrete the hormones epinephrine (adrenaline) and norepinephrine (noradrenaline). In response, the heart begins to beat more rapidly, muscle tension increases, blood pressure rises, and blood flow is diverted from the internal organs and skin to the brain and muscles. Breathing speeds up, the pupils dilate, and perspiration increases. This reaction is sometimes called the *fight-or-flight response* because it energizes the body to either confront or flee from a threat.

1.3 ANS and heart

Heart apart from being our pumping station of blood, is a primary generator of rhythmic patterns in human body and possesses an extensive communication system with the brain. Heart plays particularly an important role in the generation of emotions. With every beat heart transmits complex pattern of neurological, hormonal and

electromagnetic information to the brain and have profound effects on the way the brain process the information. The heart communicates with the brain in four different ways: neurologically (the nervous system) biochemically (hormones and neurochemicals produced within the heart), mechanically (the pulse wave flowing through the blood stream) and electromagnetically (electrical signals generated when the heart contracts). Feelings of frustration and anxiety cause the heart rhythms to become disordered and irregular. When the internal flexibility of the heart is lost, it's a sign that the person is under high stress and also that he is at a greater risk for cardiovascular and other potentially serious health problems.

1.4 Heart Rate Variability

Heart rate variability (HRV) is an autonomic variable which is a measure of natural rise and fall of heart rate in response to breathing, blood pressure, hormones, stress and even emotions. Heart rate variability is a simple non-invasive measurement for investigating autonomic influence on cardio-vascular-system (CVS).

HRV is an essential indicator of the state of heart/brain interaction. The interval between the two heart beats is never the same, it always varies. Even when you are at rest, your heart is constantly changing because our heart is actually speeding up and slowing down with every beat. It is our autonomic nervous system that regulates our heart rate. Heart's ability to speed up and slow down efficiently keeps us flexible and healthy.

HRV refers to the beat-to-beat alterations in heart rate. In another words, the change in the difference between two consecutive beats is called as HRV. Under resting conditions, the ECG of healthy individuals exhibits periodic variation in R-R intervals. This rhythmic phenomenon, known as respiratory sinus arrhythmia (RSA), fluctuates with the phase of respiration—cardio-acceleration during inspiration, and cardio-deceleration during expiration.

The Heart rate variability (HRV) gives valuable information about the Autonomic status. (29) Generally sympathetic system stimulates the activities to provide the normal response to stress, activity or injury. The rhythmicity of heart is influenced by the natural mechanism; respiratory sinus arrhythmia (RSA). The rhythm of heart is primarily under the control of Vagus nerve, which inhibits heart rate and force of contraction. During inhalation, the Vagus nerve activity is impeded and heart rate begins to increase. While exhaling the pattern is reversed. The degree of fluctuation in heart rate is also controlled significantly by regular impulses from the baro-receptors (pressure sensors) in Aorta and carotid arteries. The sympathetic and parasympathetic components of autonomic nervous system not only control the heart rate but also many other visceral functions like peristaltic movements, secretion by different glands etc. (30)

Although cardiac automaticity is intrinsic to various pacemaker tissues, heart rate and rhythm are largely under the control of the autonomic nervous system. Reduced HRV has thus been used as a marker of reduced vagal activity. Therefore, HRV is an important predictor of adverse cardiac events. Interestingly, reduced HRV has been observed in patients with panic-like anxiety.

1.5 Heart Rhythm Coherence

1.5.1 What is coherence?

Coherence means logical connectedness, internal order or harmony among the components of a system. Coherence means clarity of thought and emotional balance; the quality of being orderly, consistent and intelligible (eg. a coherent argument). Coherence also means synchronization between two or more systems, such as hearts rhythm, respiration and blood pressure rhythms. Coherence is also used to describe how ordered a wave or a rhythm is. A more coherent wave or rhythm is like a stable sine wave. Positive feelings (coherent emotions) cause body's systems to become more coherent. Coherent heart rhythms mean that the two branches (sympathetic and parasympathetic) of the autonomic nervous system are working together in a more harmonious manner (31).

1.5.2 What is cardiac coherence?

Cardiac coherence is the state reached when the heart has a coherent pattern for a period of time. It is mode of cardiac function in which hearts rhythmic and electrical output is highly ordered. It represents an efficient, optimal state of functioning in which the major systems of the body- nervous, cardiovascular, immune and hormonal are synchronized with each other. Heart plays an important role in generation of emotions. As a critical nodal point in many interacting systems-- physiological, cognitive and emotional. The heart is uniquely positioned as a powerful entry point into the communication network that connects the body, mind, emotions and spirit (32).

Cardiac coherence is although a natural state that occur spontaneously while people are feeling genuine positive emotion and during sleep. But the sustained periods are generally rare. During cardiac coherence the heart rhythm generally becomes less irregular and sine wave like. Emotions of high quality produce more ordered and coherent heart rhythms. The rhythm indicates that the two branches of nervous system i.e., sympathetic and parasympathetic are in synchronization. When we are stressed up the heart rhythm pattern becomes chaotic i.e. incoherent rhythm. When a system is coherent, virtually no energy is wasted, because of the internal synchronization among the parts. In organizations, increased coherence enables the emergence of new levels of creativity, cooperation, productivity and quality at all levels (33).

The Institute of Heart Math (IHM) have shown that techniques which combine intentional heart focus with the generation of sustained positive feelings leads to beneficial mode of physiological functioning and termed it as psycho-physiological coherence. Correlates of psycho-physiological coherence include a sine wave like pattern in the heart rhythms, increased heart brain synchronization and entrainment between hearts rhythmic patterns, respiration, blood pressure rhythms and other physiological systems. During the states of psycho-physiological coherence, our inner system functions with higher degree of synchronization, efficiency and harmony which correlates with increased with increased emotional stability, quality of emotional experience, health and cognitive performance. As people practice coherence building techniques, they can

readily see and experience the changes in their heart rhythm patterns, which generally become less irregular, smoother, and more sine wave-like as the individual enters the coherent mode. This process enables individuals to easily develop an association between a shift to a more healthful and beneficial physiological mode and the positive internal feeling experience that induces such a shift. Heart rhythm coherence supports and facilitates a wide variety of therapy, both conventional and complementary. Freeze Framer can be used to see the effects of different techniques such as meditation, breathing and other approaches to stress reduction. This Freeze Framer is employed in cardiac rehabilitation programmed to help patients reduce stress and increase cardiovascular efficiency. Its been successfully used in diverse settings by mental health professionals, physicians, educators, athletic coaches and individuals interested in advancing their personal development of improving their well being.

1.6 Psychokinetic Power (PK)

Yogic scriptures refer to techniques of yoga to unfold the dormant potentials of the mind that may manifest as paranormal phenomena. In scientific circles, the initial investigations on psychokinesis (PK) were carried out by using statistical probability tests to assess the power of PT (by gifted persons called psychics) to change the frequency of heads or tails during tossing of coins. With growing interest, researchers at Princeton University developed a soft wear that generates random events which is depicted as a sequence of random events on the computer screen. If this random event line shifts above or below 2 standard deviations it is noted as significant influence.

Random event generator is a device that is connected to computer to generate random event numbers which are converted to a plot .It measures the extent to which our state of consciousness can influence the process of random event generator in REG. It measures our psychokinetic power.

At Princeton University Dr.Jahn and associates published their first findings in a series of research papers in their reports and journal of scientific explorations (19).

The REG experiments have confirmed distinct possibilities of psychokinesis phenomenon (20).

In their experiments on human interactions Robert J and Dunne B demonstrated that the distribution of impulses generated by random event generator (REG) can be anomalously marginally shifted from either locally or at a distant by active mental intention (21)

It was hypothesised (by Blasband) that a REG set up in a therapy office 10 feet distant from patient would be anomalously affected during those moments when the patients would express emotions compared to those times when patients would be emotionally neutral(20)

1.7 Need for the present study

Although there are studies which have shown the effect of yoga on autonomic status and psychokinetic power in adults, these measures have not been studied in children during and after the practices of yoga and positive thinking. Hence the present study was designed to evaluate the autonomic changes and psychokinetic power through a randomized control design in children.

CHAPTER 2

AIMS AND OBJECTIVES

2.1 Research Questions:

1. Can yoga improve the autonomic balance in students within 9 days in a summer camp?
2. Can yoga improve the psychokinetic power in students within 9 days in a summer camp?

2.2 Aims:

1. To assess the efficacy of Integrated Yoga Module and Physical exercise on autonomic variables.
2. To assess influence of yoga on psychokinetic power in school children

2.3 Objectives:

1. To conduct a randomized control study in a personality development camp for children to compare the efficacy of yoga with physical exercise based personality development programs.
2. To measure the changes in heart rate variability and heart rate after the integrated yoga program in the camp.
3. To measure the changes in heart rate coherence after the integrated yoga program in the camp.
4. To measure the changes in psychokinetic ability after the integrated yoga program in the camp.

2.4 Hypothesis:

1. Yoga can improve autonomic balance better than physical exercise by increasing the LF/HF ratio of the HRV spectrum.
2. Yoga improves coherence by decreasing the “low scores” and increasing the “high scores” of HRC
3. Yoga can increase the PK power in children.

2.5 Null Hypothesis:

1. There will be no difference between the effect of yoga and physical exercise on autonomic balance
2. There will be no change in LF/HF ratio after yoga practice.
3. Yoga does not improve coherence of HRC
4. Yoga does not increase the PK power in children.

CHAPTER 3

LITETATURE REVIEW

3.1 Autonomic changes after yoga practices

1. A study on immediate effect of Kapālabhāti and Nāḍīśuddhi on heart rate variability was conducted on normal healthy male volunteers who were familiar with both the techniques. This shows increase in cadiosympathetic activity which brings autonomic balance and relaxing effect on the sympathetic nervous system (34, 27).

2. Studies on autonomic changes during Om mediation and Brahmakumārī *Rājayoga* meditation shows changes in various autonomic variables and significant reduction in heart rate.(26, 35)

3. Studies done on community home girls and Down's syndrome children's has shown higher resting heart rate compared to control group (28, 36).

4. Studies conducted on autonomic variables in CABG patients undergoing Yogic relaxation techniques shows significant improvement in heart rate variability (37, 38 , 39)

3.2 General studies on Heart Rhythm Coherence

1. A study conducted on heart rhythm coherence by Mc Craty R et al. shows that the emotional self-management techniques designed to eliminated negative thought loops and to promote sustained emotional states have been found to increase the heart rhythm coherence (40)

2. A study conducted on heart rhythm coherence by Tiller, W et al. by using Mental and emotional self-management techniques have shown the following results in heart rhythm coherence. The three unique conditions of autonomic nervous system order were clearly discriminated in the data- Normal heart function.

- Entertainment mode and

- Internal coherence mode(41)

3. A study conducted by Oza R on immediate effect of yogic relaxation technique on heart rhythm coherence shows yogic relaxation technique can improve ordered and coherent heart rhythm and also improves autonomic stability(42).

3.3 General studies on random event generator:

Vivekananda yoga research foundation has undertaken several research projects in measuring consciousness field using REG and demonstrated significant changes after yoga practices. In a recent research project undertaken by Vivekananda yoga research foundation on measuring consciousness field using REG from August 2001 to September 2003. In this study the individual trials suggested that there was a significant change in the REG values after a session of intent compared to the before values. There was a significant increase in the REG values following a session where subjects used their intent to influence the REG ($p < 0.01$, two tailed , paired t test)(17).

The effect of gāyatrī mantra chanting on 30 healthy volunteers between ages 18 and 25 years in invoking the capacity to influence a random event generator. There was a significant increase in the REG values recorded during the gāyatrī mantra chanting compared to its baselines. There was also a significant increase in the REG values of the gāyatrī mantra chanting compared to random thinking session in the during phase . However the pre post showed no significant difference in both gayatri mantra chanting and random thinking session. (23)

Another experiment investigated the effect of emotional culturing session (ECS) in changing the capacity to influence REG in normal females in comparison to Random thinking . The investigation brought out the fact that the number of trial in which the subjects influenced REG (mean > 101.00) during the ECS Session is significantly higher than that in the Random thinking session. This study was done in which the subjects did not have any intent to influence the REG. this would study the effect of the very presence of the subjects doing an activity on the REG (22)

3.3.1 REG and Individual

Studies conducted to evaluate the influence of intent on the REG for each individual separately suggested that there was a significant change in the REG values after a session of intent compare to the before values. There was a significant increase in REG values following a session where subjects are use their intent to influence the REG ($p < .01$, two tailed paired 't'test) (17).

3.3.2 Field REG Studies

Capitalizing on miniaturized electronics, REG device have been brought out of the laboratory for field studies, in which the REG appears to respond to coherence or resonance in groups of people. In a report from the PEAR group ten applications in a variety of settings ranging from business meetings to religious ceremonies show a composite deviation with a probability against chance of 2×10^{-4} . the strongest effect appear when the groups become emotionally or cognitively coherent and share a group identity or resonance , and especially striking cases tend to have some unifying thematic or ceremonial aspect . For example, the most consistent anomalies among the ten applications are found in long series of recordings at ritual gatherings of a religious group Although this is a new area of study, other investigators have done closely related work. For example, the report described how the anomalies behavior of REG devices was correlated with very large scale cultural activities such as the concentration of attention on live TV broadcast, especially major events such as the academe awards (20).

Despite their relatively short history, these studies help to triangulate the evidence that consciousness can directly interact with its environment, and they suggest that bonding or resonance among individuals may create an efficacious group consciousness. They corroborate, as well, the indication that consciousness effects our non local.

However in all reports individual data are lacking through group averages \pm standard deviation are provided. Hence the data cannot be compared (for each individual, for example) across studies of the PEAR group and with studies done elsewhere. Since the effect size is extremely small, group averages often mask changes which may be seen in a single (or may be in a few) individuals.

3.4 Studies on Yoga and Stress

1. Woolery A. et al. examined the effects of a short term Iyengar yoga course on mood in mildly depressed patients on 28 volunteers by Beck depression inventory state, Trait Anxiety Inventory, profile of mood states, morning Cortisol level. Changes were observed in acute moods, with the subjects reporting decreased levels of negative mood and fatigue following yoga classes, and there was a trend for higher morning Cortisol levels in yoga group compared to the controls. (43)

2. A study on yoga based isometric relaxation (IRT) versus supine rest on oxygen consumption, breath rate and volume and autonomic measures by Vempati RP, et al., showed a significant decrease in breath rate after IRT. The results suggest possibilities for IRT in reducing some physiological signs of anxiety. (44)

CHAPTER 4

METHODOLOGY

4.1 Subjects

The subjects were selected from Personality Development Camp (PDC) conducted by Swami Vivekananda Yoga Anusandhana Samsthana (SVYASA).

4.1.1 Effect Size: Effect Size is taken from study done by Rita Oza

$$\begin{aligned}
 & \text{Mean Change in yoga} - \text{Mean Change in Control} \\
 \text{Effect size} = & \frac{\text{Change in SD in yoga} - \text{change in SD in control}}{\text{Change in SD in yoga} - \text{change in SD in control}} \\
 & \frac{(-4.2) - (0.9)}{(-7.11) - (0.1)} \\
 & = \frac{-3.3}{-7.21} \\
 & = 0.4576
 \end{aligned}$$

For the 0.45 effect size $\alpha=0.05, \beta=0.20$ sample size comes between 64 and 100

We have taken 100 as sample size.

4.1.2 Source: A total of 100 subjects from age range 13-17 years were selected from a Personality Development Camp were randomly allocated into a yoga group and a control group of size 50 each.

4.2 Design

100 subjects selected from Personality Development Camp were randomly allocated into two groups i.e., yoga (n=50) and control group (n=50). The pre-assessment was done on day 1 of the 10 day Personality Development Camp in residential settings.

They were followed for 9 days with their respective intervention. On 10th day the post-data assessment was done on the two groups.

The assessment on the 2nd and the 10th day consisted of three phases-

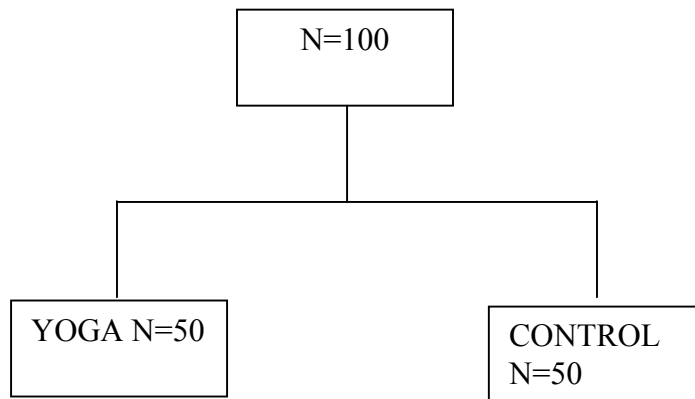
1. Pre-basal recordings for 2 minutes.
2. Recording DURING the guided thought processes- such as positive thoughts – where in the subject is instructed to think about a thought which they think is positive for 5 minutes.

Subjects were instructed to think positively in these 5 minutes session; these positive thoughts are framed in such a way that they will be moral, makes them feel happy and satisfied. For example encouraging themselves for good results, to become a good citizen and ideal child for the parents. Cultivating helping nature, and serving attitude for others .

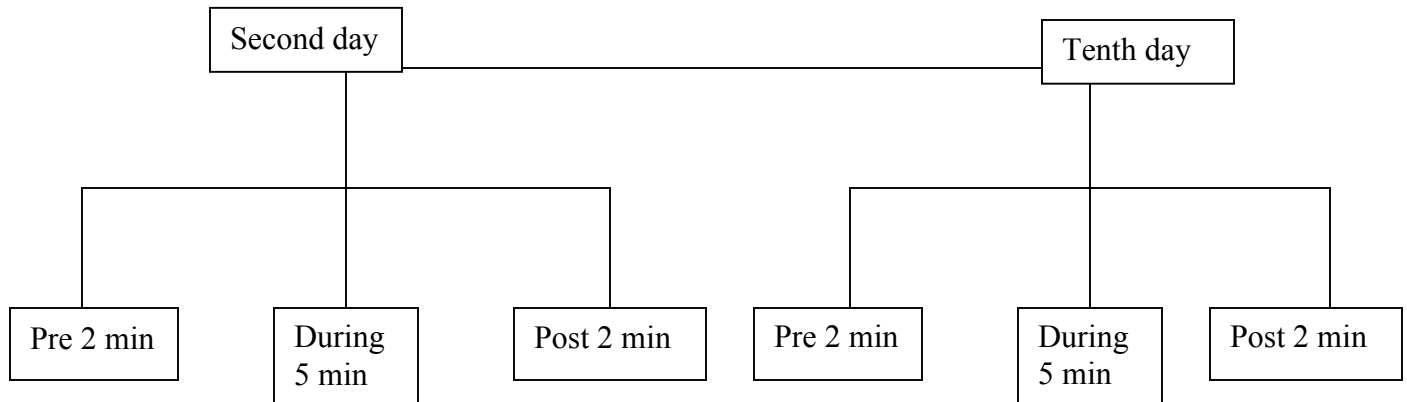
3. Post-recordings were done immediately after the 5 minutes intervention of POSITIVE THOUGHT, for 2 minutes.

All the three parameters i.e., HRC, HRV and REG were done in similar manner as stated above in supine position.

4.2.1 Randomized control study



Pre	During	Post
2 minutes	5 minutes (Positive Thinking)	2 minutes



4.2.2 Inclusion Criteria

- Age range 13-17
- Good Health
- Those who are participated in Personality Development Camp.

4.2.3 Exclusion Criteria

- Physical Disabilities.

4.3 Assessment

- The electrocardiogram (EKG) was acquired using Ag / Ag Cl adhesive pre-gelled electrodes (Bio Protech Inc., Korea) and a standard limb lead I configuration. The EKG was recorded using an ambulatory EKG system (Recorders and Medicare System ECG 101, Chandigarh, India).
- Heart Rhythm Coherence, using the Freeze-Framer version 2.0. Interactive learning with heart rhythm monitor, manufactured by Heart Math, California, U.S.A. which measures as low, medium and high heart rate coherence.
- Field of consciousness will be assessed by using REG unit- Mindsong, Inc. Research MicroREG s/n0128, US patent 5,830,064 which is supplied by a company, Mindsong. Inc. This device is connected to a computer which will be placed few meters away from the subject.

4.4 Equipments used:

4.4.1 HEART RATE VARIABILITY

The electrocardiogram was recorded using standard bipolar limb lead I configuration and an AC amplifier with 1.5 Hz high pass filter and 75 Hz low pass filter setting (Medicaid, Chandigarh, India). The ECG was digitized using a 12 bit analog-to-digital converter (ADC) at a sampling rate of 1500 Hz and stored for off-line analysis. The R waves were detected to obtain a point event series of successive R-R intervals, from which the beat to beat heart rate series was computed. The data recorded were visually inspected off-line and only noise free data were included for analysis. The mean values were removed from the heart rate series to obtain the HRV series. The HRV power spectrum was obtained using fast Fourier transform analysis (FFT). The energy in HRV series of the following specific frequency bands was studied, viz, the very low frequency component (0.0-0.05 Hz), low frequency component (0.05-0.15 Hz), and high frequency component (0.15-0.50 Hz). The low frequency and high frequency values were expressed as normalized units

4.4.2 HEART RATE COHERENCE

Freeze Framer

The Freeze Framer, developed by Doc Childre, is a heart rhythm feedback tool for observing the state of synchronization of the autonomic nervous system. It is a simple, interactive software program that displays the heart rhythms and shows how stress may be affecting the body. It objectively monitors the heart rhythm and confirms the coherence mode through visual feed back. The Freeze Framer is used for training to achieve better coherence reflected as balance of the autonomic nervous system, emotions and mind. In addition to the display of the heart rhythm in real time, the coherence or entrainment level is displayed as a cumulative score (31). The Freeze Framer analyzes the heart rhythm patterns and calculates a coherence (referred to as “enterinment” in version1.0) ratio for each session. The coherence level is fed back to the user as an accumulated score. It is a useful tool where stress and increasing emotional stability are critical. Research in heart math has demonstrated that Freeze Framer is particularly

sensitive to changes in the emotional state and that the positive and negative emotions can be readily distinguished by the changes in the heart rhythm patterns. When stressed, the client's heart rhythm has an irregular, jagged, incoherent pattern. When the client shifts to a more positive emotional state, the heart rhythm pattern changes to a smoother, wave-like, coherent pattern.(32)

The pulse rate is recorded and computed by using a finger pulse plethysmograph. A small LED (light emitting diode) shines light into the skin of the finger and a photo-sensor records the changes in the reflected light as each pulse travels through the finger. Heart rate variance is computed after Fast Furrier Transformation of the beat to beat intervals. The power in the different frequency spectra is plotted to obtain heart rate variability spectral analysis plots. . HRC is then displayed in the coherence bar for low, medium and high frequency bands. The display on the 'low' bar shows the values for Low frequency (0.05-0.15 Hz.) band and the display on the 'high' bar depicts the values for the high frequency (0.15-0.50 Hz) band of the power spectral density of the heart rate variability. The medium scores represent the values of Very low frequency (VLF) (0.00-0.05 Hz). Although we have used this as a pre post assessment measure, this technology is being used widely to transform stress and anxiety into free energy for personal and professional effectiveness as a biofeedback instrument.

4.4.3 REG

a) Description of REG unit

A typical Micro Electric REG comprises of an analog section based on a solid diode, a Johnson noise source or a field effect transmitter (FET) with output processed through multi stage amplification and clipping circuit. Components are selected to produce a white noise spectrum that is flat within db over a range from 500to30,000hz. Such analog portions of REG system are very sensitive to variations of design and construction sophistication shielding from environmental field.

The analog signal is compared with DC reference level, yielding a digital (CMOS or TLT logic) output that unambiguously defines analog inputs as binary, above and below the reference voltage . This digital signal is periodically sampled by a an edge

triggered flip flop , which locks in a bit of 1or2 unit the next clocking period . These device typically have an adjustable sampling rate (for example 1000 per seconds) the sampling process yields a continuous sequence of bits which is further proceed to mitigate residual biases . the sequence of bits then is shifted in to an 8 bit shift register the content of which is transferred at 18 millisecond to a UART chip for asynchronous transmission as a data byte. These bytes are transmitted to the serial port of computer at 9600 baud , where they are read and converted to REG data by dedicated software.

The digital and analog circuits of the REG are electrically isolated from each other and they are active asynchronously. A separate external power has been used to minimize external electromagnetic field interactions within the device. Further, although the REGs are protected by design against most internal and external sources of electro magnetic interference, mu-metal or other shielding around the sensitive early stages f analog circuit.

b) How does it work?

The question as to whether our will or intent or the very presence can break the random number generation process of REG is being tackled in this technique. If the curves goes on fluctuating within parabola, this is an indication that the changes are all non significant ($p > 0.05$). If the will or intent moves the curve above or below the parabola it is an indication of a distinct capacity of psycho kinesis.

c) What does it measures?

It measures the extent to which our state of consciousness can influence the process of random event generation in REG. And hence it measures our psychokinetic power. If the mean value is < 101.00 , it means that the subjects have no significant influence on REG. when the mean value is > 101.00 , the subjects have highly significant influence on REG indicating a capacity of psychokinesis.

There are two things counted in REG namely INTENT and No INTENT.

d) What is intent?

Intent is a conscious application of our will to influence REG. Three types of intents are

Used in REG studies they are High, LOW and NEUTRAL.

HIGH: To move up the curve in a positive direction to maximize the value i.e., to move the curve above the parabola.

LOW: To move down the curve in negative direction i.e., to move the curve below the parabola.

NEUTRAL: To keep the curve along the central line.

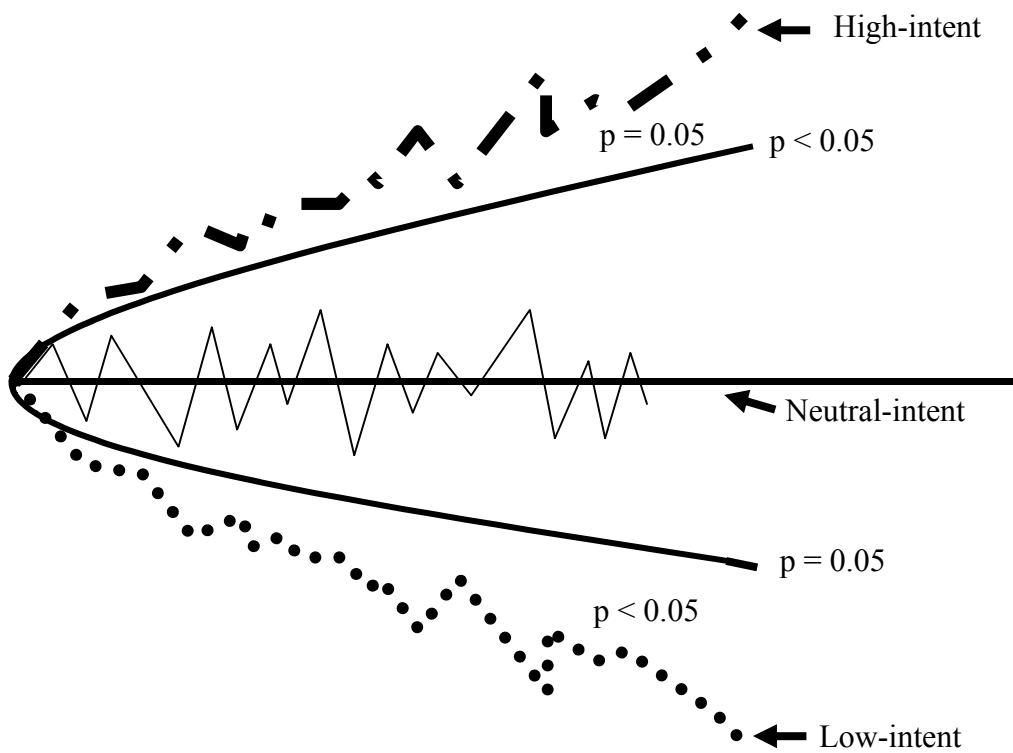


Fig 1. The curve beyond the parabola shows high intent, the curve on the central line shows neutral and the curve below the parabola shows low intent.

e) What is no intent?

No intent is when there is no conscious application). There have been studies in which the subject didn't have any intent to influence REG. This would study the effect of the very presence of the subjects doing an activity on the REG. It is well known that some people by their very presence can bring calming effect on others and vice versa.

4.5 Intervention

Several projects have been carried out by SVYASA on dexterity, behavior, intelligence using Integrated Yoga Module in children (3,11) Keeping with these studies at SVYASA and inputs from other yoga institutions, specific yoga module for total personality development of children of different age groups were developed and used in this study. Physical exercise program for the control group consisted of non yogic physical exercise based personality development activities Care was taken to match the hour to hour program of the daily routine between the experimental and control groups while preparing the modules for the two groups.

The table shows the list of the practices used for the two groups

No.	Yoga group	Control group
1.	Shithilikarana vyayama: (1 hour) <ul style="list-style-type: none">• Standing Hasta āyāma śvasanam (Hands in and out breathing) Hasta vistāra śvasanam (Hands stretch breathing) Gulpha vistāra śvasanam (Ankle stretch breathing) <ul style="list-style-type: none">• Sitting Vyāghra śvasanam <ul style="list-style-type: none">• Prone Bhujangasana śvasanam Shalabhasana śvasanam <ul style="list-style-type: none">• Supine Setu bandha śvasanam (Bridge posture breathing)	Exercises (1 hour) <ul style="list-style-type: none">• Standing Forward backward bending breathing practice Side bending breathing practice Twisting breathing practice Sitting Dog breathing Rabbit breathing Prone Dolphine stretch breathing Straight leg raising breathing

2	<i>Suryanamaskara</i> (Sun salutation): (30 minutes)	Brisk walk (30 minutes)
3	<u><i>Asanas two session (1 hour AM and PM)</i></u> <ul style="list-style-type: none"> • Standing <i>Ardhakati chakrasana</i> <i>Ardhachakrasana</i> <i>Padahastasana</i> • Sitting <i>Ustrasana</i> <i>Ardha matsyendrasana</i> <i>Paschimottanasana</i> • Prone <i>Bhujangasana</i> <i>Shalabhasana</i> <i>Dhanurasna</i> • Supine <i>Halasana</i> <i>Chakrasana</i> <i>Sarvangasana</i> <i>Matsyasana</i> <i>Shavasana</i> 	<u><i>Physical exercises two session (1 hour AM and PM)</i></u> <ul style="list-style-type: none"> • Standing Jogging Jumping Twisting Forward back ward bending Side bending Alternate toe touching • Sitting Spinal stretch Alternate toe touching in sitting position • Prone Alternate forward backward spinal stretch • supine Cycling Straight leg raising Spinal twist
4	Pranayama (40 mins)	Creativity, Craft work (40 mins)
5	Singing (1 hour) Bhajans devotional chantings	Singing (1 hour) Patriotic and moral songs
6	Kriyas (cleansing techniques) <i>Kapalabhati and Trataka</i> (30 min) (Yogic eye practises)	Video show (30 min)
7	<i>Om</i> Meditation: (15 minutes)	Supine rest (15 minutes)
8	Lectures on (1 hour) Basis of Integrated Approach of Yoga ,	Lectures on (1 hour) Importance of exercise, sports ,

	mind and its facets, yogic diet, concepts and management of emotion	environment,
9	Yogic games (1 hour)	Indoor and out door games (1 hour)

Full details of the daily routine is shown in Appendix 3

4.6 Data Analysis

Data was analyzed using the statistical package of social status (SPSS Version 10.0). The conditions required for Repeated Measures ANOVA was satisfied. RM-ANOVA was done for all the tests (including calculation of the marginal means of comparison of the Pre-Post data for the two groups). As the data were normally distributed, parametric tests were used.

The hypothesis for this was that there would be a significant difference in the last days data, after checking for differences in the baseline data.

Step 1: The baseline values for Yoga and Control group were checked for normal distribution by using Shapiro-Wilk test.

Step 2: The comparisons between the baseline values was done using Independent samples t-test.

Step 3: Between groups analysis of the data was done for the last day's data.

CHAPTER 5

RESULTS

Appendix I shows the study profile. Out of 100 students were recruited, there were 50 in yoga and control group. Although all students completed the study successfully the number available for final analysis was 46 in each group because of the artifacts in the HRV data. The baseline data on all variables were normally distributed ($p > 0.05$, Shapiro-Wilk test). The results are tabulated as following.

5.1 HRV variables

Table 1. Changes in LF, HF, LF/HF in normalized units in Yoga and control group with 95% confident factor of 10th day.

Variable			Yoga				Control			
			1 st day	10 th day	95% CI on 10 th day		1 st day	10 th day	95% CI on 10 th day	
					Lower	Upper			Lower	Upper
HRV	LF	Pre	38.62 ± 21.45	36.81 ± 18.55	- 11.94	- 1.41 ^a	42.08 ± 20.10	44.53 ± 19.03	-6.03	3.57 ^a
		During	43.45 ± 18.88	43.48 ± 16.04 [*]	-5.99	6.71 ^b	46.53 ± 16.73	45.76 ± 18.96	-0.96	10.40 ^b
		Post	44.13 ± 17.94	43.12 ± 20.77	- 13.35	0.71 ^c	44.92 ± 18.06	41.04 ± 19.88	-2.40	9.38 ^c
	HF	Pre	61.38 ± 21.45	63.19 ± 18.55	1.42	11.96 ^a	57.92 ± 20.10	55.47 ± 19.03	-3.57	6.03 ^a
		During	56.55 ± 18.88	56.50 ± 16.05 [*]	-6.73	5.98 ^b	53.48 ± 16.75	54.24 ± 18.96	- 10.40	0.96 ^b
		Post	55.64 ± 18.04	56.88 ± 20.77	-0.71	13.35 ^c	55.10 ± 18.07	58.96 ± 19.88	-9.38	2.40 ^c
	LF/HF	Pre	2.96 ± 13.76	0.88 ± 1.32	-0.46	0.17 ^a	1.11 ± 1.38	1.18 ± 1.34	-0.29	0.26 ^a
		During	1.86 ± 6.24	1.03 ± 1.07	-0.45	0.12 ^b	1.09 ± 0.81	1.20 ± 1.20	-0.21	0.53 ^b
		Post	1.20 ± 1.69	1.20 ± 1.40 ^s	-0.65	0.02 ^c	1.04 ± 0.77	1.04 ± 1.16	-0.28	0.57 ^c

* $p < 0.05$ significance in last day between Pre with During.

^s $p < 0.05$ significance in last day between Pre with Post.

CI=Confidence Interval for difference.

^a = CI, Pre with During

^b = CI, During with Post, ^c = CI, Pre with Post.

LF: There was a significant increase in LF during the PT session in yoga group ($p=0.009$) on tenth day. The values increase from 36.81 ± 18.55 to 43.48 ± 16.04 with an effect size of 0.47. There was no significant difference between groups.

HF: There was significant decrease in HF during PT session in yoga group ($p=0.009$) on tenth day. The values decreased from 63.19 ± 18.55 to 56.50 ± 16.05 with an effect size of 0.47. There was no significant difference between groups.

LF/HF: There was a significant increase in LF/HF ratio after the PT session in yoga group ($p=0.06$) on tenth day. The values increase from 0.88 ± 1.32 to 1.20 ± 1.40 with an effect size of 0.35. There was no significant difference between groups.

5.2 HRC Variable

Table 2. Changes in HRC variable in yoga and control group with 95% confident interval for 10th day.

Variable		Yoga				Control					
		1 st day	10 th day	95% CI on 10 th day		1 st day	10 th day	95% CI on 10 th day			
				Lower	Upper			Lower	Upper		
HRC	LOW	Pre	77.28 ± 23.14	74.13 ± 22.81	-6.46	4.98 ^a	71.18 ± 26.54	86.50 ± 107.67	-	25.35	52.26 ^a
		During	81.10 ± 13.91	74.87 ± 16.70	0.02	5.20 ^b	74.13 ± 19.31	73.05 ± 22.14	-2.86		2.26 ^b
		Post	79.86 ± 11.76	72.26 ± 16.56 ^{*s}	-5.15	8.89 ^c	74.14 ± 18.41	73.35 ± 19.55	-	25.68	51.98 ^c
	MEDIUM	Pre	20.20 ± 20.58	23.47 ± 18.09	-4.48	6.05 ^a	26.92 ± 24.19	22.47 ± 21.22	-4.36		3.71 ^a
		During	17.64 ± 12.27	22.69 ± 13.87	-4.25	-0.10 ^b	23.12 ± 15.29	22.80 ± 16.37	-2.45		1.95 ^b
		Post	21.13 ± 17.76	24.86 ± 14.22 ^s	-7.33	4.54 ^c	22.84 ± 12.98	23.04 ± 14.48	-5.57		4.42 ^c
	HIGH	Pre	2.16 ± 7.67	2.54 ± 10.54	-1.70	2.02 ^a	2.02 ± 6.19	6.02 ± 18.64	-1.14		5.28 ^a
		During	1.41 ± 3.30	2.39 ± 6.23	-1.85	0.84 ^b	2.60 ± 7.53	3.95 ± 12.96	-0.51		1.16 ^b
		Post	1.34 ± 2.35	2.89 ± 4.49 [*]	-3.31	2.62 ^c	3.03 ± 9.27	3.63 ± 13.20	-1.44		6.22 ^c

* $p<0.05$ significance between first day and last day

^s $p<0.05$ significance between During and Post

CI=Confidence Interval for difference.

^a = CI, Pre with During, ^b= CI, During with Post, ^c= CI, Pre with Post.

LOW coherence: There was a significant decrease in LOW scores after the PT session in yoga group ($p=0.047$) on tenth day. The values decrease from 74.87 ± 16.70 to 72.26 ± 16.56 with an effect size of 0.37. There was no significant difference between groups. There was a significant decrease in Low scores after the PT session (0.011) on tenth day compared to first day in yoga group. The value decreases from 79.86 ± 11.76 to 72.26 ± 16.56 with an effect size of 0.39. There was no significant difference between groups.

MEDIUM coherence: There was a significant increase in MEDIUM scores after the PT session in yoga group ($p=0.037$) on tenth day . The values increase from 22.69 ± 13.87 to 24.86 ± 14.22 with an effect size of 0.38. There was no significant difference between groups.

HIGH coherence: There was a significant increase in HIGH scores after the PT session in yoga group ($p=0.039$) on tenth day compare to second day. The values increase from 1.34 ± 2.35 to 2.89 ± 4.49 with an effect size of 0.31. There was no significant difference between groups.

5.3 HR

Table 3. Changes in HR variable in yoga and control group with 95% confident interval for 10th day.

Variable		Yoga				Control			
		1 st day	10 th day	95% CI on 10 th day		1 st day	10 th day	95% CI on 10 th day	
				Lower	Upper			Lower	Upper
HR	Pre	83.12 ± 14.35	74.15 ± 11.26**	-0.66	2.22 ^a	78.91 ± 12.13	74.36 ± 10.44*	-0.76	2.39 ^a
	During	84.50 ± 12.98	73.37 ± 10.74**	-2.01	1.15 ^b	80.09 ± 11.76	73.55 ± 10.33**	-1.39	1.09 ^b
	Post	83.32 ± 12.05	73.80 ± 10.90**	-1.48	2.17 ^c	79.34 ± 11.33	73.70 ± 10.45**	-0.65	1.99 ^c

* $p < 0.05$ significance between first day and last day

** $p < 0.001$ significance between first day and last day

CI=Confidence Interval for difference.

^a = CI, Pre with During , ^b= CI, During with Post , ^c= CI, Pre with Post.

The heart rate in the yoga group in all the time duration i.e., pre, during and post were highly significant ($p=0.001$) and in control group the pre_HR was significantly less ($p=0.005$) and remaining both during_HR and post_HR are significant ($p=0.001$). HR decreased ($p<0.005$) on 10th day in both groups and the effect size was higher after yoga.

5.4 REG

Table 4. Changes in REG variable in yoga and control group with 95% confident interval for 10th day.

Variable		Yoga				Control			
		1 st day	10 th day	95% CI		1 st day	10 th day	95% CI	
				Lower	Upper			Lower	Upper
REG	Pre	99.97 ± 0.45	100.00 ± 0.51	-0.18	0.24 ^a	99.93 ± 0.44	99.03 ± 6.68	-3.43	1.47 ^a
	During	99.94 ± 0.36	100.01 ± 0.31	-0.12	0.09 ^b	100.03 ± 0.34	100.01 ± 0.35	-0.74	1.71 ^b
	Post	99.96 ± 0.29	100.12 ± 0.45*	-0.09	0.12 ^c	99.96 ± 0.60	99.52 ± 3.35	-1.71	0.74 ^c

* $P<0.05$ significance between first day and last day.

CI=Confidence Interval for difference.

^a = CI, Pre with During

^b= CI, During with Post

^c= CI, Pre with Post.

There was a significant increase in REG values after the PT session in yoga group ($p=0.025$) on tenth day . The values increase from 99.96 ± 0.29 to 100.12 ± 0.45 with an effect size of 0.29. There was no significant difference between groups.

Number of times the REG value shifted beyond the parabola.

Table 6. Yoga group

	Yoga		
	Pre	During	Post
1 st day	14	28	11
10th day	20	35	20
% change	42.85	25	81.8

Table 7. Control group

	Control		
	Pre	During	Post
1st day	12	25	16
10th day	11	29	13
% change	-8.33	16	-18.7

5.5 Correlation

On the last day, a significant correlation is seen between high coherence score and Heart Rate Variability. However, the control group also shows similar significantly high correlations on the last day.

For the yoga group the Random Event Generator score during the intervention on the first day shows significant correlation with the high coherence score of Heart Rate Coherence ($p=0.007$). However, in the control group Random Event Generator shows equivalent significant results during intervention on the last day with low and medium coherence scores of Heart Rate Coherence ($p=0.020$) ($p=0.013$).

The study indicates that integrated yoga program for children is effective in improving their heart rate coherence, heart rate variability and also there is an expansion of consciousness in terms of random event generator and even the heart rate is decreased through which a child can get a good health.

CHAPTER 6

DISCUSSION

In this randomized control study on 100 students assigned to yoga and physical exercise based personality development programs in a residential summer camp, assessments were done before, during and after a session of positive thinking (PT) on 2nd and 10th day of the camp. There was significant decrease in HR in both groups. On 10th day, in yoga group there was a significant increase in LF and decrease in HF during the PT session ($p=0.009$), with a marginally significant ($p=0.06$) increase in LF/HF after the PT session. The mean values for REG increased after the PT session on tenth day in yoga group.

The low frequency band (0.05-0.15 Hz) of the HRV spectrum is known to correspond to sympathetic activity, especially when expressed in normalized as opposed to absolute units (29). The efferent vagal activity is a major contributor to the high frequency band (0.15-0.50 Hz). The low frequency/high frequency ratio is correlated with the sympathovagal balance (45). Hence it appears that the ten days of intensive yoga practices in these students has increased the sympathetic and decreased the parasympathetic reactivity to a mental task of PT and also the autonomic balance (increased LF/HF ratio). A study by Hamada et al, (46) showed increased LF and decreased HF while performing a mental task. Yoga practices increased the LF/HF ratio irrespective of the method of practice indicating the stabilizing effect of yoga (47, 27). Thus the integrated yoga practices seems to improve not only the balance but also the autonomic efficiency with better reactivity to a mental task in students of 13 to 17 years of age. The relaxation and calmness of mind which is the goal of any yoga practice as pointed out by the sages who developed these practices, seems to be the contributing factor for these changes observed (14, 15, 48).

A significant decrease in low coherence and significant increase in medium and high coherences of HRC after PT session on the tenth day in yoga group (with no

change in control group) point to the beneficial effects of yoga in improving synchronized autonomic system.

Similar observations were seen in another study by Oza R on 40 adults in a randomized control design which showed increased medium and high coherence and decreased low coherence during and after a 20 minutes session of yogic guided relaxation technique (42)

The observation of synchronized autonomic system as demonstrated by increased medium and high scores of HRC after the yogic relaxation technique seems to validate objectively with the observation made by Hattan et al, who demonstrated increased calm scores after foot massage and guided relaxation technique in adults (49)

Emotional self management techniques like “cut thru” and “heart lock in” have been found to increase heart rhythm coherence, a study conducted on 45 healthy adults, designed to eliminate negative thought loops and promote sustained positive emotional status on heart rhythm coherence (40). These may point that yogic relaxation technique may facilitate the maintenance of physiological efficiency and highly regenerative inner state.

Values above 100 and below 99 on the REG device, considered as indicators of PK power of the individual to change the random events, increased when individuals tried to influence with intent (17) and also without intent (22). The possibility of yoga to improve the PK power was observed in earlier studies, when senior yoga practitioners performed the experiments with intent (17). Significant influence on the REG values were observed during group devotional practices (22) when the device was placed in the hall in a concealed place. In a self as control study, the mean number of times the REG value shifted above and below the parabola (with the device placed near the individuals), were significantly higher during the session of chanting gāyatrī mantra with their eyes closed in a meditative mood as compared to a control session of random thinking (23). The present study has pointed to similar improvement within ten days of practice in

students with no earlier experience of yoga .Thus it appears that yoga has the ability to improve not only the known cognitive functions as observed in several studies(2-8), but it may also unfold many of the paranormal capabilities in children . This may have immense applications for achieving better personality and efficiency in students. Scriptures mention that subtle practices of yoga such as Chanting of mantras (gāyatrī mantra in particular)and devotional meditation invoke these dormant powers by silencing the superficial waves of incessant flow of thoughts in the mind and stabilizing in higher states of consciousness(50).

Thus the present study has shown that the Integrated Approach of Yoga is effective in improving the autonomic stability and psychokinetic power. More studies are necessary to replicate these observations.

CHAPTER 8

SUMMARY AND CONCLUSION

- The randomized control study was aimed to determine the effect of IAYM (Integrated Approach of Yoga Module) on autonomic variables and psychological status by assessing heart rhythm coherence, heart rate variability and the possibilities of influencing the REG on 100 subjects undergoing PDC (Personality Development Camp) in Prashanti Kuteeram.
- In this study, school students (n=100, age range 13-17) were randomly assigned to two groups namely yoga and control.
- The yoga group had IAYM as intervention and the control group had physical exercise and other non yogic activities as their intervention.
- The assessment was taken on the 2nd and the 10th day of the camp.

CONCLUSIONS

- The study indicates that Integrated Approach of Yoga for children is effective in improving the autonomic stability and psychokinetic power.

CHAPTER 9

LIMITATIONS OF THE STUDY AND SUGGESTIONS FOR FUTURE STUDY

9.1 Limitations of the study.

- Previous exposure to yoga or physical exercise if any was not eliminated.
- 10 days of intervention is not enough to show change in autonomic and psychological variables.
- The students were of small age (13-17)

9.2 Suggestions for Future Study.

- The duration of intervention can be increased for more than 10 days.
- The duration of the mental task can be increased so that more significant results may be achieved.
- We can select the student of age range 18 – 20.

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