

Part I

Concept of Mind and Mental Speed according to *Bhagavad Gītā*

Part II

Promoting Speed of Response in University Students through Yoga

Dissertation Submitted by

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Under the Guidance of

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Towards the partial fulfillment of

Master of Science in Yoga and Education

[M.Sc. (Yoga and Education)]



To

SVYASA

Swami Vivekananda Yoga Anusandhana Samsthana

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DECLARATION

I hereby declare that the work presented in this dissertation was conducted by me at Swami Vivekananda Yoga Anusandhana Samsthana (SVYASA), Bangalore, under the guidance of Dr H R Nagendra and Tikhe Sham Ganpat. I also declare that this work entitled

Part I:

Concept of Mind and Mental Speed according to *Bhagavad Gītā*

Part II:

Promoting Speed of Response in University Students through Yoga

has not previously formed the basis of any degree, diploma, membership or similar title.

Place: Prashanti Kutiram, Bangalore

Pavana Bhat

Date: January 2012

CERTIFICATE

This is to certify that this dissertation containing two parts- Part-I entitled **Concept of Mind and Mental Speed according to *Bhagavad Gītā*** and Part- II entitled **Promoting Speed of Response in University Students through Yoga** submitted by Pavana Bhat in partial fulfillment of the degree of Master of Science (Yoga and Education) is a work carried out by her under our guidance and supervision. This work has not been submitted anywhere else nor has formed the basis of the award of any other degree.

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Pavana Bhat

INTERNATIONAL TRANSLITERATION CODES

Standard International Transliteration Code
(used to transliterate Sanskrit words in the text)

अ	=	a	ड	=	ḍa
आ	=	ā	ढ	=	ḍha
इ	=	i	ण	=	ṇa
ई	=	ī	त	=	ta
उ	=	u	थ	=	tha
ऊ	=	ū	द	=	da
ऋ	=	r̥	ध	=	dha
ए	=	e	न	=	na
ऐ	=	ai	प	=	pa
ओ	=	o	फ	=	pha
औ	=	au, ou	ब	=	ba
अं	=	m	भ	=	bha
अः	=	ḥ	म	=	ma
क	=	ka	य	=	ya
ख	=	kha	र	=	ra
ग	=	ga	ल	=	la
घ	=	gha	व	=	va
ङ	=	ṅa	श	=	śa
च	=	ca	ष	=	ṣa
छ	=	cha	स	=	sa
ज	=	ja	ह	=	ha
झ	=	jha	क्ष	=	kṣa
ञ	=	ña	त्र	=	tra
ट	=	ṭa	ज्ञ	=	jña
ठ	=	ṭha			

PART 1
CONCEPT OF MIND AND MENTAL
SPEED ACCORDING TO
BHAGAVADGĪTĀ

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CHAPTER 1
INTRODUCTION

INTRODUCTION

Manas, or mind is defined as a conglomeration of thoughts which respond to the input from the sense organs. The mind is our mental and emotional storehouse, which is governed by likes and dislikes, and which directs our actions ^[1]. The mind is an internal instrument (*antaḥkaraṇa*) and has four functional aspects: *manas* (perception), *buddhi* (intellect), *citta* (memory) and *ahaikāra* (ego, or I-sense) ^[2]

The concept of mind is understood in many different ways by many different traditions and animism to traditional and organized religious views, as well as secular and materialist philosophies. Most agree that minds are constituted by conscious experience and intelligent thought. Common attributes of mind include perception, reason, imagination, memory, emotion, attention, and a capacity for communication. A rich set of unconscious processes are also included in many modern characterizations of mind ^[3]

Yogic tradition has described the mind as being both pure and impure. The impure mind is bound by, or subject to, desire and the need for security in life. It is propelled by ambitions; it is motivated by *Ahaikāra*, ego, and it is through this impure mind that we experience pain and pleasure. *Yogic* tradition says that the impure mind is an ignorant mind because it is not conscious of what is real and what is unreal, and what is true and what is false. It cannot differentiate between right and wrong and simply moves by desire in order to satisfy itself. In contrast, the pure mind is free from bondage of every kind of desire and ambition. This pure mind is aware of the totality of experience and not just one aspect of it. The aim of yoga is to take one from the impure aspect of mind to towards the pure aspect, from a state of scattered desire to a state of balanced desire, where the desire becomes positive, constructive and self-

elevating, where the desire does not limit us to the external environment only, but also encompasses the inner dimension. One must go from the impure to pure and awaken the faculties of the pure mind in order to attain the goals of Yoga ⁽⁴⁾.

CHAPTER 2
AIM & OBJECTIVES

AIM & OBJECTIVES

2.1 Aim

The aim of this study is to assess the concept of mind and mental speed, according to *Bhagavad Gita* & other spiritual lore.

2.2 Objective

- a) Understanding the concept of mind from ancient Indian scriptures and Bhagvad Gita.

- b) Correlating mind, mental speed, controlling of the mind of an individual with the concept mentioned in ancient classical texts for taking necessary measure to lead a successful and peaceful life.

CHAPTER 3

CONCEPT OF MIND ACCORDING DIFFERENT

SPIRITUAL LORES

CONCEPT OF MIND ACCORDING DIFFERENT SPIRITUAL LORES

Philosophy of Mind

Philosophy of mind is a branch of philosophy that studies the nature of the mind, mental events, mental functions, mental properties, consciousness and their relationship to the physical body, particularly the brain. The mind-body problem, i.e. the relationship of the mind to the body, is commonly seen as the central issue in philosophy of mind, although there are other issues concerning the nature of the mind that do not involve its relation to the physical body.^[6]

Dualism and monism are the two major schools of thought that attempt to resolve the mind-body problem. Dualism can be traced back to Plato, Aristotle and the Sankhya and Yoga schools of Hindu philosophy, but it was most precisely formulated by René Descartes in the 17th century. Substance Dualists argue that the mind is an independently existing substance, whereas Property Dualists maintain that the mind is a group of independent properties that emerge from and cannot be reduced to the brain, but that it is not a distinct substance.^[9]

Descriptions of Mind:

Mind is not a gross object; it is neither visible nor tangible. Its existence cannot be seen, its magnitude cannot be measured, and it does not require a space in which to exist. The mind is nothing but a collection of habits and desires (*saàskāras*), and feelings and ideas that arise from contact with different objects. These desires, ideas and feelings are constantly changing; old impressions are leaving the storehouse and new ones are replacing them. Therefore, the mind is constantly changing and evolving through experience, in search of variety and new sensations to avoid monotony. It is said to have three states, active (*rajas*),

passive (*tamas*) and neutral (*sattva*), in addition to three levels of awareness, conscious (*jāgrat*), subconscious (*swapna*), and unconscious (*suñupté*)⁽⁵⁾.

According to Śrī Ādi Śaṅkarācārya, the ten organs (five organs of action, and five organs of perception: ear, organ of touch, eye, tongue, nose) are called the outer instruments as they receive knowledge about outside objects and respond to the world. The mind (called the inner instrument) receives sense perceptions, cognizes them based on previous experience and commands the senses to respond. The mind cannot contact the world directly, it has to go through the senses, and likewise the senses cannot function without the prompting of the mind. Hence, there is a close relationship between them and they function in co-ordination. Each sense organ perceives only its particular sense object, but the mind receives information from all of them. It understands sound, touch, form, taste and smell. It also feels emotions and thinks thoughts. The inner instrument is a continuous flow of thought modifications, and is classified into four according to the different functions it performs⁽¹¹⁾.

The mind (*manas*): thoughts in a state of volition constitute the mind, and this state of vacillation continues until a decision is made. Emotions also constitute the mind.

The intellect (*buddhi*): thoughts in a state of decision constitute the intellect, which is the discerning and discriminating aspect of the mind. Reasoning, observation, and conclusion are functions of the *buddhi*.

The ego (*ahaṅkāra*): is the sense of individuality or the notion of doership.

The memory (citta): The function of reflection and recollection is the *citta*. All experiences are stored as impressions and can be recollected. It is based on this information alone that we can think.

According to Taittirīya Upaniṣad

Manomaya Kośa

यतो वाचो निवर्तन्ते । अप्राप्य मनसा सह । आनन्दं ब्रह्मणो विद्वान् । न बिभेति
कदाचनेति ॥

yato vāco nivartante | aprāpya manasā saha | ānandaṁ brahmaṇo vidvān | na bibheti
kadācaneti ||

Whence all speech turn back with the mind without reaching, he who knows the bliss of Brahman fears not at any time. This mind is the embodied soul of the former. Of the prāṇamaya, this one, namely, the manomaya, is the self, having the prāṇamaya for his body

The *manomaya kośa*, the mental body, or sheath of mind, fills the entire *prāṇamaya kośa* (1). It performs many functions simultaneously and holds together the two grosser *kośas*, *annamaya* and *prāṇamaya*, together as an integrated whole. It acts as a messenger between each body, conveying the experiences and sensations of the outer world to the intellectual body, and influences of the causal and intellectual bodies to the gross body (2). The mind has various functions such as perception (*manas*), memory (*citta*) and ego (*ahaikāra*). The mind is defined as a conglomeration of thoughts and is the holding tank, so to speak, of mental and emotional impressions (5)

According to the Vedas

In *Yajurveda* the mind has been conceptualized as the inner flame of knowledge. It describes that which perceives knowledge is mind, and that all our sensory organs function under

control of the mind. In *Artharvana Veda* the mind has been called as the sixth sense, which is made active within us by the Supreme Consciousness ^[15]

According to Bṛhadāraṇyakopaniṣat 1-5-3

कामः संकल्पो विचिकित्सा श्रद्धाऽश्रद्धा धृतिरधृतिर्होर्धीर्भी-रित्येतत्सर्वं मन एव ।

kāmaḥ saṅkalpo vicikitsā śraddhā'śraddhā dhṛtiradhṛtirhīrdhīrbhī -rityetatsarvaṁ mana eva |

Desire, resolve, doubt, faith, want of faith, steadiness, unsteadiness, shame, intelligence and fear- all these are but the mind. They are all forms of the mind, or the internal organ (16).

According to Kaṭhcopaniṣad 1-3-3

आत्मानं रथिनं विद्धि शरीरं रथमेव तु ।

बुद्धिं तु सारथिं विद्धि मनः प्रग्रहमेव च ॥

ātmānaṁ rathinaṁ viddhi śarīraṁ rathameva tu |
buddhiṁ tu sārathiṁ viddhi manaḥ pragrahameva ca ||

Consider the embodied soul as the master of the chariot, the body as the chariot, the intellect as the charioteer, and the mind as the reins (12).

A fine analogy is introduced here to explain the relationship between the individual self, the mind, the intellect, and the body. The self is apparently doing nothing, but its presence is enough to make the body, the mind, and the intellect work. None of these are independent. They work according to the wishes of the self (12).

According to Tattva-Bodhaḥ :

एतेषां पञ्चतत्त्वानां समष्टिसात्त्विकांशात्
मनोबुद्ध्यहंकार चित्तान्तः करणानि संभूतानि ।

संकल्पविकल्पात्मकं मनः निश्चयात्मिका बुद्धिः ।

अहंकर्ता अहंकारः । चिन्तनकर्तृ चित्तम् ।

eteṣāṃ pañcatattvānāṃ samaṣṭisāttvikāṃśāt

manobuddhyahaṅkāra cittāntaḥ karaṇāni sambhūtāni |

saṅkalpavikalpātmakaṃ manaḥ niścayātmikā buddhiḥ |

ahaṅkartā ahaṅkāraḥ | cintanakartṛ cittam |

From the total sāttvic aspect of these five elements the inner instrument of the mind, intellect, ego and memory are formed. The mind is of the nature of indecision. The intellect is the nature of decision. The ego is of the nature of the notion of doership. Memory is of thinking or recollection (8).

According to Pātañjali Yoga Sūtras 1-2

योगश्चित्त वृत्ति निरोधः ॥

To block the patterns of consciousness is Yoga (13).

Mind, or *citta*, is derived from the basic idea of *chit*, which means to see, to be conscious of, to be aware. Hence *citta* means individual consciousness, which includes the conscious state of mind, the subconscious state of mind and also the unconscious state of mind. The totality of these three states of individual mind is symbolized by the expression *citta*. These three states of pure consciousness should be understood as the *citta* referred to in this *sūtra*.

Vṛtti means a circle. When you throw a stone into a pond, the movements of the water spread outward in the form of circles. In the same manner, the consciousness has its circular patterns. Therefore, the attitudes of the *citta*, the modes of mind, are called *citta vṛtti* (13).

According to Pātañjali Yoga Sūtras 1-6

प्रमाणविपर्ययविकल्पनिद्रास्मृतयः ॥

pramāṇaviparyayavikalpanidrāsmṛtayaḥ ||

The fivefold modifications of mind are right knowledge, wrong knowledge, fancy, sleep and memory (13).

The modifications of the mind are ten in all; five of these are painful and five are not painful. All that you see hear and experience, all that the *vṛttis* do through the mind and the senses, is classified into these five groups, namely, right knowledge, wrong knowledge, imagination, sleep and memory. These five modifications constitute consciousness of mind. They form the three dimensions of individual consciousness. These constitute the mental factory of man. Every mental state is included in these five modification, such as dreaming, waking, looking, talking, touching, beating, crying, feeling, emotion, action, sentiment; in fact everything is included in these five.

According to Yoga Vāsiṣṭha

यत् अर्थप्रतिभानं तत् मन इत्यभिधीयते ।

नास्त्यस्य मनसो रूपं संकल्पात् तत् न भिद्यते ॥

अविद्या संसृतिः चित्तं बन्धोऽज्ञानं मनः तमः ।

इति संकल्पजालस्य नामान्येतानि राघव ॥

yat arthapratibhānaṁ tat mana ityabhidhīyate |
nāstyasya manaso rūpaṁ saṅkalpāt tat na bhidyate ||
avidyā saṁsṛtiḥ cittaṁ bandho'jñānaṁ manaḥ tamaḥ |
iti saṅkalpajālasya nāmānyetāni rāghava ||

The universe which verily is seen all round is made of mind .the one which is the understanding of the objects is called the mind. There is no form for this mind. It is not separated from thought (.or imagination)

Nescience, stream of worldly life, thinking substance, bondage, ignorance, mind, dark ness, these are the names of the web thoughts. When the web of the thoughts dropped one's own

natural state is left behind. When the great dissolution is accomplished and the state of non existence is reached at the beginning of the creation of the entire visible universe, only stillness remains.

According to Haṭha Yoga Pradīpikā

ज्ञेयं सर्वं प्रतीतं च ज्ञानं च मन उच्यते ।
ज्ञानं ज्ञेयं समं नष्टं नान्यः पन्था द्वितीयकः ॥
मनोदृश्यमिदं सर्वं यत्किञ्चित्सचराचरम् ।
मनसो ह्युन्मनीभावाद् द्वैतं नैवोपलभ्यते ॥
ज्ञेयवस्तुपरित्यागाद्विलयं याति मानसम् ।
मनसो विलये जाते कैवल्यमवशिष्यत

jñeyam sarvam pratitam ca jñanam ca mana ucyate |
jñanam jñeyam samam naṣṭam nānyaḥ panthā dvitīyakaḥ ||
manodṛśyamidaṁ sarvam yatkiñcitsacarācaram |
manaso hyunmanībhāvād dvaitam naivopalabhyate ||
jñeyavastuparityāgādvilayaṁ yāti mānasam |
manaso vilaye jāte kaivalyamavaśiṣyata ||

All that known, all that is known and the knowledge is called mind. When the knower and that which is known are lost together, there is no dual or second way. All that is in the world animate and inanimate, is the appearance of mind. When the three states of knower, knowing and known are merging as one experience that is one-pointedness of mind, which becomes the state of cosmic or universal consciousness.

According to Buddhism:

Understanding the functioning of our mind forms the basis of Buddhist philosophy and practice; as the first verse of the *Dhammapada* (quotations from the Buddha) states:

"All things are preceded by the mind, led by the mind, created by the mind."

Similarly, in the Abidharma (the earliest attempt at a systematic representation of Buddhist philosophy and psychology), the world is regarded as a phenomena originating in the mind.

Mind is defined in Buddhism as a non-physical phenomenon which perceives, thinks, recognises, experiences and reacts to the environment. The mind is described as having two main aspects: clarity and knowing; meaning that the mind is clear, formless and allows for objects to arise in it, and that the mind is knowing, awareness, a consciousness which can engage with objects. The two main types of mind are explained as the conceptual and the non-conceptual. The conceptual is the "normal" mind aspect we use to survive in daily life, but is ultimately mistaken about the way in which reality exists. The non-conceptual type of mind is also called the Buddha nature, rigpa (Tib.), fundamental pure nature of mind which realises emptiness.

CHAPTER 4

BHAGAVADGĪTĀ

AND MENTAL SPEED

BHAGAVADGĪTĀ

AND MENTAL SPEED

The *Bhagavad Gītā* is an ancient *Saṁskṛita* text comprising 701 verses of the *Mahābhārata* (*Bhīṣma Parva* chapters 23 – 40). The verses, using the range and style of *Saṁskṛita* meter (*chandas*) with similes and metaphors, are very poetic; hence the title, which translates to "the Song of the Divine One", of *Bhagavān* in the form of Kṛṣṇa. It is revered as sacred by the majority of Hindu traditions as *Gītōpaniṣat*, implying it to be an 'Upaniṣat'. While technically it is considered a *Smṛiti* text, it has singularly achieved a status comparable to that of *śruti*, or revealed knowledge. In general speech it is commonly referred to as The Gītā.

The main doctrines of the *Gītā* are *Karmayoga*, the *Yoga* of selfless action performed with inner detachment from its results; *Jñānayoga*, the *Yoga* of knowledge and discrimination between the lower nature of man and his soul, which is identical with the supreme self; and *Bhakti yoga*, the *Yoga* of devotion to a particular God—in this case, Kṛṣṇa. The *Bhagavad Gītā* deals with a practical problem of life, namely, how a man could discharge his duties as a member of an imperfect order and at the same time realise his highest spiritual destiny.¹⁰

Though it is not exactly clear when the *Bhagavad Gītā* was composed, the majority of historians assume a date between 500 and 50 BCE. The traditional date reflecting the beliefs of many devotional Hindus places the text in the 4th millennium BC.

According to the Bhagavad Gītā 6-34

चञ्चलं हि मनः कृष्ण प्रमाथि बलवद्दृढम् ।

तस्याहं निग्रहं मन्ये वायोरिव सुदुष्करम् ॥

cañcalam hi manaḥ kṛṣṇa pramāthi balavadṛḍham |

tasyāham nigrahaṁ manye vāyooriva suduṣkaram ||

O Kṛṣṇa! Verily, the mind is fickle, turbulent, powerful and unyielding. To control it, I think, is as difficult as controlling the wind itself.

The mind is so strong and obstinate that it sometimes overcomes the intelligence, although mind is supposed to be subservient to the intelligence. For a man in the practical world who has to fight so many opposing elements, it is certainly very difficult to control the mind. Artificially, one may establish a mental equilibrium toward both friend and enemy, but ultimately no worldly man can do so, for this is more difficult than controlling the raging wind. ^[18]

Intelligence is supposed to direct the mind, but the mind is so strong and obstinate that it often overcomes even one's own intelligence. Such a strong mind is supposed to be controlled by the practice of yoga, but such practice is never practical for a worldly person like Arjuna. And what can we say of modern man? The simile used here is appropriate: one cannot capture the blowing wind. And it is even more difficult to capture the turbulent mind. The easiest way to control the mind, as suggested by Lord Caitanya, is chanting "Hare Kṛṣṇa," the great mantra for deliverance, in all humility.

Uncontrolled speed of mind is lack of peace of mind. In case of a man who is not able to control his senses there is no peace. In this connection the whole process of stress origin, development, aggravation and repercussions are presented in *Gētā* in a dramatic narration.

ध्यायतो विषयान् पुंसः सङ्गस्तेषूपजायते ।

सङ्गात् सञ्जायते कामः कामात् क्रोधोऽभिजायते ॥ २ . ६२ ॥

*Dhyāyato viṣayān puṁsaḥ saṅgasteṣūpajāyate |
Saṅgāt sañjāyate kāmaḥ kāmāt krodho 'bhijāyate || Gītā : 2. 62 ||*

क्रोधाद्भवति संमोहः संमोहात् स्मृतिविभ्रमः ।

स्मृतिभ्रंशाद् बुद्धिनाशो बुद्धिनाशात् प्रणश्यति ॥ गीता : २ . ६३ ॥

*Krodhādbhavati sammohaḥ sammohāt smṛtīvibhramaḥ |
Smṛtibhrāṁśād buddhināśo buddhināśāt praṇaśyati || Gītā : 2 . 63 ||*

When a man repeatedly thinks about objects, attachment for them arises; from attachment desire is born; from desire (strong likes & dislikes), arises anger (greed, lust, fear, possessiveness etc.); from anger comes delusion; from delusion loss of memory; from loss of memory, the destruction of discrimination; from destruction of discrimination, he perishes.

So when mind is not under our control it will lead to the distraction of a person.

The mind uncontrolled is one's worst enemy causing great sorrow and bondage. So, one must control one's mind.

इन्द्रियाणां हि चरताम् यन्मनोऽनुविधीयते ।

तदस्य हरति प्रज्ञाम् वायुर्नावमिवाम्भसिज्ज2.67||

"For the mind, which follows in the wake of the wandering senses, carries away his discrimination as the wind carries away a boat on the waters."

As a ship with sails up and its helmsman dead would be completely at the mercy of the fitful storms and reckless waves, and cannot reach any definite harbour, but would get destroyed by the very tossing's of the waves, so too, life gets capsized and the individual drowned by the uncertain buffets of passionate sense-storms. Therefore, the senses are to be controlled if man is to live a better and more purposeful life, designed and planned for enduring success. ||4.1||

Effects of Mind on Various Actions Based on *Guṇa*:

The mind or consciousness in general, is naturally the domain of *satva*. Consciousness is *satva* in saṁskṛta. Unlike the mind is calm and clear, we cannot perceive anything properly. *Satva* creates clarity, through which we perceive the truth of things, and gives light, concentration, and devotion. *Rajas* and *tamas* are factors of mental disharmony, causing agitation and delusion. They result in wrong and misperception.

From *Rajas* comes the false idea of the external world as real in itself, which causes us to seek happiness outside ourselves and lose track of our inner peace. *Rajas* create desire, distortion, turbulence, and emotional upset. It predominates in the sensory aspect of the mind because the senses are even moving and seeking various objects. As long as we remain immersed in the pursuit of sensory enjoyment, we fall under the instability of *Rajas*. From *tamas* comes the ignorance that veils our true nature and weakens our power of perception. Through it arise the idea of an ego or separate self, by which we feel ourselves to be alone and isolated. *Tamas* prevails in consciousness identified with the physical body which is dull and limited. As long our identity and sense of wellbeing is primarily physical, we remain in the dark realm of *tamas*.

That elusive happiness which originates and ends in selfdelusion, indolence, heedlessness, stemming from over-sleep, slothfulness, and miscomprehension that is dedeclared to be *tamasika*. The evil *tamasic* propensities are fed by the opiate of unnecessary sleep, and by physical idleness and mental aimlessness.

satva is the balance of *rajas* and *tamas*, combining the energy of *rajas* with the stability of *tamas*. By increasing *satva*, one gains peace and harmony and returns to primordial nature and pure spirit in which is liberation. However, attachment to *satva*, such as clinging to virtue, can bind the mind. For this reason we must strive to develop pure *satva*, which is its detached form, or *satva* not clinging to its own qualities. Pure *satva* does not condemn *rajas* and *tamas*, but understands their place in harmony, which is as outer factors of life and body whose proper place is apart from our true nature.

CHAPTER 5

MASTERY OVER THE MIND

MASTERY OVER THE MIND

Control of mind

By practice and by renunciation.

असंशयं महाबाहो मनो दुर्निग्रहं चलम् ।

अभ्यासेन तु कौन्तेय वैराग्येण च गृह्यते॥6.35॥

"Undoubtedly, O mighty-armed, the mind is difficult to control and is restless; but, by practice, O Son of Kunti, and by dispassion it is restrained."

Krishna admits that the mind is turbulent, strong, unyielding, and restless and that it is very difficult to control, and therefore, the goal of perfect and enduring tranquillity cannot be easily achieved. In the second line of this stanza, again, the eternal missionary in Krishna very carefully weighs his words and uses the most appropriate terms to soothe the mind of Arjuna. 'it can be brought under control, is an assertion which comes only as the last word in the entire stanza. Through practice and renunciation the mind can be brought under reins in the beginning, and ultimately to a perfect halt-- this is the confident, reassuring declaration of the Lord in the gītā

Renunciation has been already described earlier as sanyasa, which was defined as renunciation of (a) all clinging attachments to the objects of the world, and (b) lingering expectations of the fruits of action. These two are the main causes for the agitation of thoughts which again thickens the flood of the thought flow and makes the mind uncontrollable. As Sankara describes it, 'practice') is 'constant' repetition of the same idea regarding one and the same objectof-thought. This consistency of thought during steady meditation generally gets diverted and dissipated because of the frequent explosive eruptions of desires. Whipped by new desires that are rising at every moment, the thoughts wander into

dissimilar channels of activities, upsetting the inner equilibrium and thereby shattering the true vitality of the inner personality.

Thus viewed, practice strengthens renunciation, and detachment deepens meditation. Hand in hand, each strengthening the other, the progress is maintained. In spiritual textbooks the arrangement of words is to be carefully noted, for, in all cases, the words are arranged in a descending order of importance. To every seeker the question comes at one time or the other: whether he should wait for the spirit of detachment to voluntarily arrive in his mind, or he should start his practice. The majority wait in vain for the accidental moment of *vairāgya* before they start their *abhyāsa*. The *Geeta*, in this stanza, clearly declares that such an expectation is as ridiculous as waiting for the harvest of crops for which we never sowed the seeds!

From the moment we are trying to become aware of our own lives, we are in the realm of 'practice'. As a result of this, the detachment that comes to us automatically is the true and the enduring 'detachment'. All else is a sham show of stupid self-denial which cramps a human soul and distorts and perverts his intelligence into an ugly figure riddled with its own hysterical ravings and bleeding with its own psychological ulcers. *Vairāgya* born out of practice alone is the charter for free spiritual growth: of your own accord never renounce anything. Let your attachments with things, of their own accord; drop off as a result of your intellectual growth into the higher planes of better understanding and truer estimation of things and beings, happenings and behaviours, occurrences and incidents around you in life. When, through right 'practice', enduring 'detachment' has come rushing in full gush into our inner lives, then the mind comes under our control because it has no more any world of

pluralistic objects to roam in, and the only world where it has a free access is the world of equanimity and same-ness. ||4.2||

Concentration of Mind

One can gain single pointedness by dropping all one's agitation-causing desires and then, with an extra strength in one's mind, withdraw one's attention to the Self.

शनैः शनैरुपरमेत् बुद्ध्या धृतिगृहीतया ।

आत्मसंस्थं मनः कृत्वा न किञ्चिदपि चिन्तयेत्||6.25||

"Abandoning without reserve all desires born of sankalpa, and completely restraining the whole group of senses by the mind from all sides, Little by little, let him attain quietude by his intellect, held firm; having made the mind established in the self, let him not think of anything."

In these two brilliant stanzas the subtle art of meditation has been explained. The sacred secret as to how to bring the mind to a single pointedness and, thereafter, what we should do with that mind in concentration and how we should approach the Truth and ultimately realise It in an act of deliberate and conscious becoming--are all exhaustively indicated in these two significant stanzas.

Renouncing 'all' desires 'fully' by the mind, control all the sense-organs from their entire world of sense-objects. Herein every word demands commentary since every phrase leaves a hint which is so important in ultimately assuring for the seeker a complete success. It is not only sufficient that all desires are renounced, but each desire must be totally eradicated. 'Renunciation of desires' is advised here with a very necessary and important qualification; but, unfortunately, the un-intelligent had been ignoring in Hinduism this significant qualification, and had thus perverted our sacred religion to act and behave as though it

recommended a life of indolence with neither any ambition to achieve nor any desire to accomplish. The term born of sankalpais a very significant term, qualifying the desires that are to be renounced totally and fully. The term '*sankpalpa*' had been already explained earlier with reference to which we can easily understand that it is the renunciation of such agitation-breeding desires that is meant here.

When once this renunciation of the disturbing desires has been accomplished, the individual's mind gains strength and stamina to assert itself, at first to make the wild horses of the sense-organs more tame and work under greater control, and, soon, it comes to restrain all the sense-organs from all the sense-objects, from all sides.

It is scientifically very true that our mind is not able to control our sense-organs, for it has been rendered weak and thoroughly impotent due to the permanent agitations caused by its own false desires. Once the mind gets strong as a result of its conquest over the desires, it discovers in itself all the strength and capacity to control the *sense organs*. From all sides. This process of quietening the mind can never be accomplished in a hasty action, or by any imagination, or by any strange and mysterious method..

No doubt, when the sense-organs have stopped their mad onrush among their respective objects, a certain amount of mental quietude is gained. The methods of intensifying this inner peace have been indicated in this stanza.

The mind that is thus brought to a relative quietude is next to be controlled by the subtler personality layer in the mediator, which is his intellect. Just as the sense-organs were controlled and restrained by the mind, the mind is now treated by the discriminating intellect

and brought under complete restraint. Mind cannot be restrained except by fixing it to the exclusive contemplation of one idea. Mind, we have noticed, is but 'A THOUGHT FLOW' and, as such, the constant thought of the Nature of the Self is the exercise by which the mind is restrained by the intellect. A mind that has merged in the steady contemplation of the Self becomes, as it were, still, and a divine quietude comes to pervade its very substance. This is, as it were, the last lap of the journey to which deliberate and conscious action can take any seeker.

Krishna's exhaustive theory, which can be practised by any sincere devotee, concludes in these two stanzas with a warning as to what the seeker should avoid at this moment of inward silence and peace. The Lord here does not instruct the seeker on what he should positively do. The Divine Flute-player says: let him not think of anything, when he has reached this state of inward inner peace.

After the 'halt-moment' there is nothing more for the seeker to act and achieve. All that he has to do is to avoid starting any new line of imagination. 'undisturbed by any new thought wave, let him maintain the inner silence and come to live it more deeply, is all the instruction that the technique of meditation gives to the meditator. 'Knock, and thou shall enter', is the promise: the 'knocking' is done, and to the Supreme Presence thou shall enter..ere long (*ACIRAT*).[12]

No two simple-looking stanzas anywhere in the spiritual literature of the world, including the books in Hinduism, can claim to have given such an exhaustive amount of useful instructions to a seeker as these two stanzas in the Geeta. Even in the entire bulk of Divine Song itself,

there is no other similar couple of stanzas which can stand a favourable comparison with this perfect pair. ||4.3|

Meditation and Bhagvad Geeta

शुचौ देशे प्रतिष्ठाप्य स्थिरमासनमात्मनः ।

नात्युच्छ्रितं नातिनीचम् चैलाजिनकुशोत्तरम् ॥ ६ ॥११.

समं कायशिरोग्रीवम्धारयन्नचलं स्थिरः ।

संप्रेक्ष्य नासिकाग्रं स्वमूदिशश्चानवलोकयन् ॥ ६ ॥१३

At a clean spot which is neither too high nor too low, a seat should be made with Kusha grass spread over with a skin and a cloth. Firmly seated on it the yogi should practice spiritual communion with mind concentrated and with the working of the imaginative faculty and the senses under control for self purification.

Holding the body head and neck erect, motionless and firm gazing at the tip of the nose and not round about ,fearless ,serene , restrained in mind and established in the vow of continence he should sit in spiritual communion with Me(Supreme soul) .

Here the meditator is asked to sit steady(Sthiram).Without the moving the physical body at short intervals and without swinging the body either forward or backward or sideways the seeker is asked to get firmly established on his seat, because physical movement immensely contributes to the shattering of mental concentration and inner equipoise. Single pointed ness is the very potent nature of the mind gets stunned by its own silence, confused and even mad when it gets stimulated by either inner force of its own surging imaginations or the outward pull exerted by the hallucinations of the sense organs. If these two avenues of dissipation are blocked instantaneously the mind becomes by its own nature.

Equanimity of Mind

योगस्थः कुरु कर्माणि सङ्गं त्यक्त्वा धनञ्जय ।

सिद्धयसिद्धयोः समो भूत्वा समत्वं योग उच्यते. 2.48

Engage yourself in action with steadfast in Yoga. Abandon attachments. And be unperturbed in success and failure. This unperturbed sameness in all conditions is Yoga.

Here evenness of mind is called as Yoga. Evenness of the mind is the tranquility of mental composure, enfacing all pairs of opposites. The term yoga indicates especial condition of the mind in which it comes a neutral equilibrium an all the ebb and flows of life s tides .This is also related with delusory ego centre. When we analyze the stuff of which the ego is made we can easily find that it is a bundle Memories of past and expectations of the future, which is one of another components of mind. Therefore Krishna says act established in equanimity, abandoning the attachment. Though Yoga it is possible to work with equipoise in all situations.

Stable in wisdom

प्रजहाति यदा कामान्सर्वान्पार्थ मनोगतान् ।

आत्मन्येवात्मना तुष्टः स्थितप्रज्ञस्तदोच्यते. 2.55.

When all desires of the heart have been abandoned, and the Spirit finds joyous satisfaction in It self (with out dependence of any external factor) then is spoken of as person of steady wisdom.

Here Lord Krishna considers a man of wisdom who has completely cast away all desires from his mind. He is the one who is having the Mental condition of the perfect. When mind is contaminated by ignorance becomes the breed ground for desires and he who has relieved

himself of this ignorance through Right –knowledge gained in perception naturally, becomes desire less.

Whose mind is not agitated in adversity, who is free from desire and who is devoid of attachments, fear and anger such a person called a sage of steady wisdom.

One who is stable being whose heart is undisturbed in sorrow or in joy unattached, fearless, is described as Stable Minded –Muni. He will be having mastery in all of these(1) attachment, Raga (2) fear, Bhaya (3) anger (Krodha).

But the self control man, moving among objects, with his sense under restraint and free from both attraction and repulsion, attains peace. He who is with perfect self control goes through life among the infinite number of sense objects, each impinging upon him and trying to bind him with his charm and approaches them with neither love or nor hatred, comes to enjoy peace. By running away from the sense objects in the outer world, but essentially upon the mind's agitations for procuring the desirable objects or for getting rid of the undesirable objects?

An individual who lives in self control will no longer lend his own life's dynamism to an object to persecute him through his own sentimental aversion to, or love for that object. When a mind is in these two aspects to live in self control and to move among the sense objects, with neither an attachment for nor an aversion to them the disturbances and agitations in the mind caused by the sense enchantments are immediately brought under control. This condition of mind is called tranquillity or peace of Mind.

Adi Shankara says that a man of steady wisdom is not distressed by calamities

- (a) Such as those that may arise from the disorders of the body *adhyātmika*
- (b) Those arising from external objections, such as tigers etc called *ādhibhautika*

(c) those arising from unseen causes such as the cosmic forces causing rains, storms, etc. Fire *ādhidaivika* increases when the fuel is added. But the fire of the desire in a perfect one does not increase when more pleasures are attained. Such a person is called a man of steady knowledge, a silent, serene sage who is having control over mind.

When, like the tortoise which withdraws its limbs from all sides, he withdraws his sense objects, then his wisdom becomes steady. In the theory of perception in Vedanta, the Mind, bearing the consciousness, goes out through the sense organs to the sense objects, and there it takes, as it were, the shape of sense objects and so comes to gain the knowledge of the objects perceived.

प्रसादे सर्वदुःखानाम्हानिरस्योपजायते ।

प्रसन्नचेतसो ह्याशु बुद्धिः पर्यवतिष्ठते ॥ २ ॥६५ ॥

Krishna advised Arjuna about why we should develop and maintain tranquility of the mind. In tranquility all sorrows are destroyed. This sentence is commented upon as a definition of happiness. A peaceful mind is significant of happiness. Peace is happiness. The least agitated mind is proof against all sorrows inasmuch as sorrow is nothing but a state of agitation of the mind.

The mind is considered as pure which he feels in itself the as the least disturbance, because of the ineffectiveness least sense disturbances. One who has learnt to live in self control and has trained himself to live among the sense objects with the spirit of the least attachments or aversions for them has the least disturbance, because of the ineffectiveness of the sense objects upon him. His mind automatically becomes more and more calm and tranquil and is considered as pure for the purpose of the spiritual life.

He who restrains the organs of actions but continues to breed in his mind over the objects of sensual desire (enjoyed through them) such a deluded person is called hypocrite.

But he who, controlling all sense organs (by the power of his will) and becoming non attached, lives life of a communion through dedicated action, such a person excels.

To sit back retired is not the way to reach anywhere, much less the state of perfection. The truth of this statement is very well supported by modern textbooks of psychology. To dissipate ourselves with the immoral or criminal thoughts is more harmful than to physically indulge in them. The mind had tendency to repeat in its own thoughts. When a single thought is repeated on and off, it creates in the mind a deepening impression and afterwards all thoughts arising in the mind have become fixed, all external of that individual become coloured by this characteristic tendency. A mind that constantly meditates on sensual and ere long we discover that the individual is helplessly egged on to act in the external world, as he had tragically planned for himself in his mind.

The mind is fed and sustained nurtured and nourished by the five organs of perception, with stimuli drawn from the outer world of sense objects. The mind is in us, as it were, flows through the sense organs, and when it comes in contact with their respective objects, the sense organs perceive them. If the mind is not co operating with the sense organs perception is impossible, even though the objects may be within the field of the organs. For example when we are deeply attentive and fully interested in reading a book, we do not hear even when somebody calls us at our elbow.

The prescription contained in this stanza asks a seeker to control the sense organs by the mind. This can be effectively achieved only when the mind is given a brighter and diviner

field to roam about in it. To control the impetuosity of the mind with sheer will. This control of sense organs by the mind is only the negative aspect of the entire technique of right living. Ordinarily we spend our lot of energies in the field of sense objects. When the sense organs thus controlled, we are conserving a large quantity of energy and unless this gathered energy is immediately given a more profitable field of activity, it is sure to break the bunds and flood the inner world and perhaps, sweep away the entire personality equilibrium.

CHAPTER 6

SUMMARY AND CONCLUSIONS

SUMMARY AND CONCLUSIONS

When steadiness of mind is achieved and works in conjunction with the intellect, the power of discrimination between what is right and what is wrong is enhanced. Yoga teaches self-analysis, as the sure method of modification of the mind. The subject matter of Yoga is modification and control of the fluctuation of the mind. Indian psychology is thus not only a positive science, but also a normative science, leading to the understanding as well as control of mind.

Mind has the ability to direct and focus the power of mind to create specific outcomes in life.

When the mind is focused, directed and working toward a specific goal you begin to tap into the power of the mind. This kind of mind power works in conjunction with the subconscious mind. The mind can directly impact the subconscious mind with thoughts and repeated phrases. This is the real power of the mind. It has the ability to interact with the subconscious mind.

The wanderings of the mind may be due to many reasons: the memory of the past, the near presence of some tempting objects, the association of ideas, some attachment or aversion or, may be, even the very spiritual aspiration of the seeker. Lord Krishna's instruction here is very categorical and all-embracing. He says: 'whatever be the reason because of which the restless and the unsteady mind wanders away', the seeker is not to despair, but should understand that it is the nature of the mind to wander and the very process of meditation is only a technique to stop this wandering.

The Bhagvad Gita explains how one should control over the mind, maintain equanimity. Once the mind is stable it will having the power of controlling it actions, thus the individual having the power to increase his mental speed and to accomplish the work as quick as possible. The response speed to a given condition will enhance by maintaing calmness and serenity of mind.

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PART II

PROMOTING SPEED OF RESPONSE IN UNIVERSITY STUDENTS THROUGH YOGA

ABSTRACT

Background

Speed of response (SR) is a composite measure, which requires rapid processing of information. In any given modality even at low level of stimulus complexity, SR requires coordination of different areas of the brain. Yoga plays a major role in the development of SR in students for their academic excellence.

Objective

The objective is to assess SR in students undergoing Integrated Yoga Module (IYM).

Materials and Methods

Sixty one IYM students with 28.03 ± 9.38 years of mean age participated in this study. The Digit Symbol Substitution Test (DSST) data was collected before and after the IYM.

Statistical Analysis

Means, standard deviations, Kolmogorov-Smirnov test, and Wilcoxon signed rank test were used for analyzing the data with the help of SPSS 16.

Results

The data analysis of DSST scores showed significant decrease ($P < 0.001$) in total time taken for the test and non-significant decrease ($P = 0.051$) in error scores.

Conclusion

The present study suggests that IYM can result in improvement of SR among students, thus paving the way for their academic excellence.

Key Words

Academic excellence, speed of response, university students, Integrated Yoga Module

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1. INTRODUCTION

Speed of response (SR) is a composite measure, which requires rapid processing of information. In any given modality, even at low level of stimulus complexity, SR requires coordination of different areas of the brain. Yoga plays a major role in the development of SR in students for their academic excellence.

Speed of response (SR) is the important aspect of mind and intelligence. It is the speed at which the mind selects appropriate movements to effectively deal with the perceived stimulus. Beneficial effects of yoga was reported for: feeling of well-being, sense of calmness and relaxation in activity, improved sleep, less emotional reactivity, increased inner directedness (self-awareness), and improved self-care^[1] Improved performance of yoga on sustained attention, information processing speed, speed of response, and performance in coordination of different areas of the brain have also been found on a variety of psychological tests, such as IQ, ^[2] Tower of London Test, ^{[1],[3]} Baddley Tests of Verbal and Spatial Memory, ^{[4],[5]} Six Letter Cancellation Test (SLCT), ^[6] and so on. In any given modality, even at low level of stimulus complexity, information processing speed requires coordination of different areas of the brain. The DSST is a measure of attention, perceptual speed, motor speed, visual scanning and memory ^[7] which is useful in documenting the efficiency of yoga in improving motor processes and the rate of information processing. Previous report on yoga on DSST revealed that yoga improves sustained attention, information processing speed, speed of response, and performance in coordination of different areas of the brain. ^[8] Although the literature indicates that yoga has beneficial effects on several aspects of human functioning, studies have not specifically investigated the effects of yoga on SR. Hence, this study was conducted to examine the efficacy of IYM in a residential setup on SR in students

for their academic excellence. In this study we have used the Digit Symbol Substitution Test (DSST) which measures SR. Since the DSST involves rapid processing of information and which is a composite measure, it was hypothesized that IYM would enhance performance on the test.

2. LITERATURE SURVEY

1. Study on speed of response on meditation:

Long-term Vihangam Yoga meditation and scores on tests of attention: Although the literature indicates that meditation has beneficial effects on several aspects of human functioning, few studies have specifically investigated the effects of meditation on various domains of attention. This study was conducted to examine the differences in various domains of attention between long-term concentrative meditators versus matched controls. 15 practitioners of Vihangam Yoga (> 10 yr. experience) were enrolled in the study. Controls matched on age, sex, and years of education were recruited. Both groups were administered the Stroop, Trail-Making, and Digit Symbol Substitution tests as well as the Digit Forward and Digit Backward tests. The group of Vihangam Yogis had significantly better mean performance on all tests of attention. Long-term Vihangam Yoga meditation improves attention span, response speed, attention alternation ability, and performance in interference tests.^[8]

2. Study on Yoga

Yoga training and motor speed based on a finger tapping task: A finger tapping task was used to assess motor speed (MS) of both hands in 53 adults and, 152 children before and after yoga training and in 38 adults of a non-yoga (control) group. All subjects were right hand dominant. The 30 second tapping speed (TS) test was considered as three time intervals, i.e. 0-10 second

(TS1), 10-20 seconds (TS2) and 20- 30 seconds (TS3). There was a significant (Student's t-test) increase in all three TS values following 10 days of yoga in children and 30 days of yoga in adults. However for both groups at baseline and final assessments, TS2 and TS3 were

significantly lower than TS1. Hence the TS were increased after yoga training during the first 10 seconds of the test but not during the next 20 seconds. These results suggest an increase in motor speed for repetitive finger movements following yoga training, but not in strength or endurance, as the increase was not sustained over 30 sec^[22]

3. Studies on response in murine skeletal muscle

Autophagy is a process for the degradation system of cytoplasmic components, which may help maintain intracellular quality control of cell survival and turnover under normal conditions. The present study investigated the changes of autophagy-related proteins including microtubule-associated protein 1b light chain 3 (LC3), Beclin-1, Atg7 (autophagy-related gene 7), conjugation form of Atg12 to Atg5, lysosome-associated membrane protein (LAMP2a), and muscle-specific RING finger protein-1 (MURF-1) protein level in gastrocnemius muscle after a single bout of treadmill exercise. Mice exercised on a treadmill for 50 min at a speed of 12.3 m/min with a slope of 5°. To identify factors related to this decrease, autophagosome component proteins were examined in murine gastrocnemius muscle. This study is the first to demonstrate autophagic related protein expression after a single bout of treadmill exercise and our results suggest that a single bout of treadmill exercise attenuates the autophagic response in murine skeletal muscle.^[20]

4. Speed of response to a physical exercise

The study was done to investigate the possible influence of psychological variables on cardiorespiratory responses and perceived exertion of patients with Panic Disorder (PD) during a submaximal exercise test.

Ten outpatients with PD and 10 matched healthy subjects walked up on a treadmill slope at a speed of 4 km/h in order to reach 65% of their maximum heart rate. Cardiorespiratory variables were continuously recorded. Before the exercise, the state and trait anxiety (State-Trait Anxiety Inventory scores), fear of physical sensations (Body Sensation Questionnaire scores), and fear of autonomic arousal (Anxiety Sensitivity Index scores) were assessed; during the exercise, levels of anxiety (VAS-A) and exertion (Borg Scale CR 10) were measured.

Compared to controls, patients reached earlier the target HR and the ventilatory threshold, showed lower oxygen consumption, higher HR and lower within-subject standard deviations of HR (a measure of cardiac variability). Exertion was also higher, and there was a significant correlation between breathing frequency, tidal volume and HR. No significant associations were found between cardio respiratory response, perceived exertion, and psychological variables in patients with PD.^[21]

5. Study on School Children using the letter-cancellation task

The study was done to establish the norms for the letter-cancellation task-a psychomotor performance task. Eight hundred nineteen school students were selected in the present study in an age range between nine and 16 years ($M = 12.14$; $SD = 1.78$ years). Subjects were assessed once for the cancellation task. Both age and sex influenced performance on the SLCT; therefore, correction scores were obtained on the basis of these factors. The availability of Indian normative data for the SLCT will allow wider application of this test in clinical practice.^[24]

3. AIM AND OBJECTIVES

3.1 AIM

The aim of this study is to assess efficacy of yoga on speed of response.

3.2 OBJECTIVES

1. The objective was to assess the changes in DSST in university students undergoing IYM.
2. To check the gender effect.

3.3 HYPOTHESIS

1. The time taken to complete the test will decrease
2. Total number of error score will reduce

3.4 NULL HYPOTHESIS

1. The time taken to complete the test will not change or it will increase
2. Total number of error score will not change or it will increase

4. METHODOLOGY

4.1.1 Subjects

Sixty one IYM students (28 males and 33 females) with 28.05 ± 9.41 years of mean age participated in this study. [Table 1]

4.1.2 Source

Subjects for the present study were selected from Swami Vivekananda Yoga Anusandhana Samsthana (S-VYASA) University, Bangalore undergoing 21 days IYM.

4.1.3 Inclusion criteria

1. Age range 18 and 69 years
2. Both male and females

4.1.4 Exclusion criteria

1. Students with serious medical conditions
2. Students taking medication
3. Using any other wellness strategy
4. Students using psychiatric drugs, alcohol, or tobacco in any form
5. Illiterate subjects
6. Females during menstrual cycle and advanced stage of pregnancy

4.2 Design

A single group pre-post study **PRE** \Rightarrow **21 DAYS IYM** \Rightarrow **POST**

4.3 Assessment Tool

The DSST test consists of a sheet in which numbers 1-9 are randomly arranged in 4 rows of 25 squares each. The subject substitutes each number with a symbol using a number-symbol key given on the top of the page. Practice was given for the first ten squares after which the test commences. Demonstration for substitution was given for the first three digits by the examiner. The time taken to complete the test forms the score. Errors made were also noted down.^{[9][19]} The DSST was conducted for each individual separately.

4.3 Intervention

All the subjects participated in the IYM which is based on Integrated Approach of Yoga Therapy. [Table 2] The IYM was selected from the integrated set of yoga practices used in earlier studies on the effects of yoga for positive health.^{[10],[11]} This integrated approach is developed based on ancient Yoga texts^[12] to bring about a total development at physical, mental, emotional, social and spiritual levels.^[13]

The techniques include physical practices (*Kriyas* , *Asanas* , a healthy yoga diet), breathing practices with body movements and *Pranayama*, meditation, devotional sessions, lectures on yoga, stress management and lifestyle change through notional corrections for blissful awareness under all circumstances (action in relaxation). Yoga was taught by qualified yoga teachers.

4.4 Assessment

In this study, we have used DSST which is developed by Wechsler D. The DSST has acceptable psychometric properties, good internal consistency, reliability and valid on broad populations in Indian society; hence it is used in this study. [9]

5. DATA COLLECTION AND ANALYSIS

Data were collected separately by each individual. The DSST data was collected before (pre) and after (post) the 21 days IYM by researchers not involved in intervention or selection of candidates guided by a psychologists.

Analysis was done for both male and female separately.[**Table4**] Statistical analysis was done with the help of Statistical Package for Social Sciences [SPSS]-16. The Kolmogorov-Smirnov Test showed that the data were not normally distributed. We used the Wilcoxon Signed Ranks Test to compare means of the data collected before (pre) and after (post) the IYM. [**Table 3**]

6. RESULTS AND DISCUSSION

The DSST involves rapid processing of information. In any given modality, even at low level of stimulus complexity, information processing speed requires coordination of different areas of the brain. Cognitive performance and processing speed of response showed a improved significance among older adults. ^[24]

In this study, the data analysis of DSST scores showed significant decrease ($P < 0.001$) in total time taken for the test and non-significant decrease ($P = 0.051$) in error scores. In both males and females the total time taken showed significant decrease ($P < 0.001$) and it was non-significant decrease in error scores in both males ($P = 0.172$) and in females ($P = 0.160$) respectively.

This study revealed a significant decrease in time taken thus showing improvement in speed of response both in male and females. But when it comes to errors made the decrease in errors were non-significant in both males and females.

Earlier studies on meditation proved that meditation will improve the response speed ^[8]. It involves the ability to automatically and fluently perform relatively easy or over-learned cognitive tasks, especially when high mental efficiency is required. ^[25]

The present study shows the mechanism of how yoga may reduce total time taken and errors made in DSST and how it may increase SR may be understood by three cardinal principles of yoga: relax the body, slow down the breath and calm down the mind. ^{[13],[14],[15],[16],[17]}.

Recent research on yoga has shown a positive relationship between SR and academic excellence.^[18] The present study is consistent with these findings, indicating that a systematic practice of IYM can result in better academic excellence through improving SR assessed by DSST in university student.

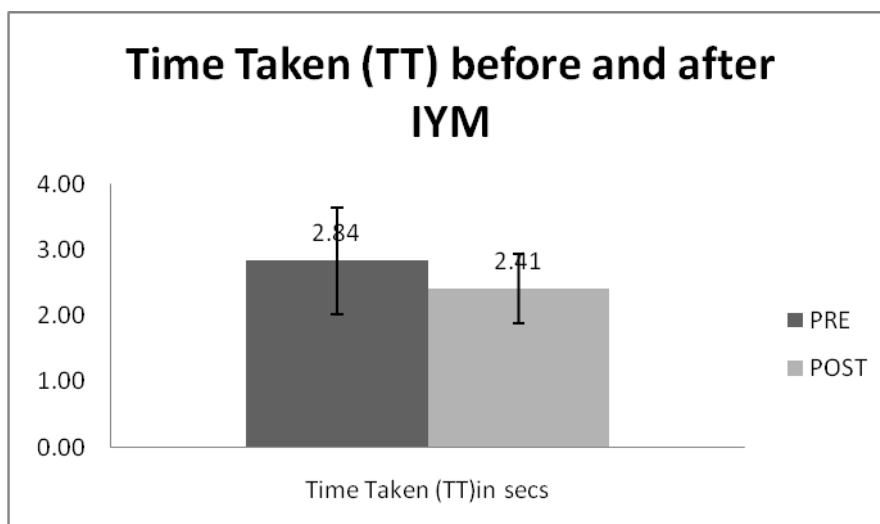
CONCLUSION

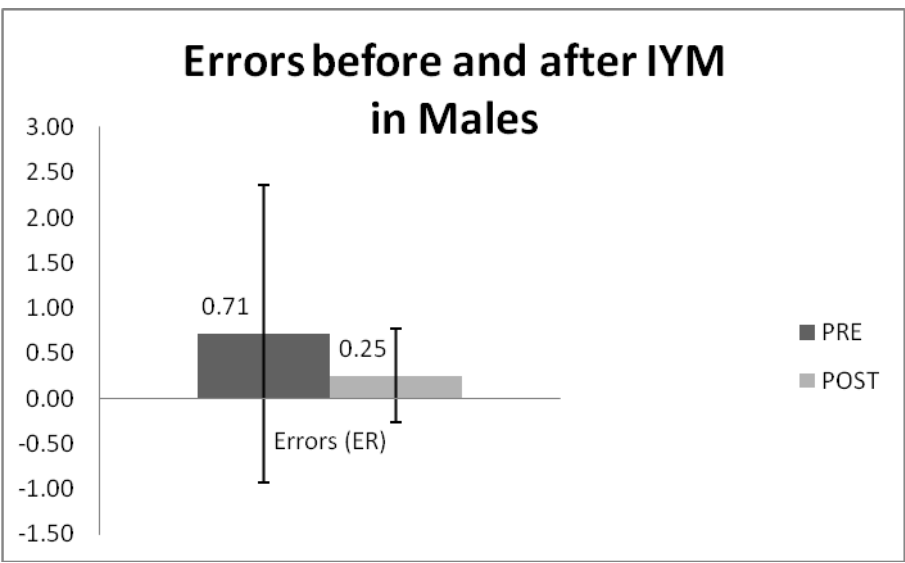
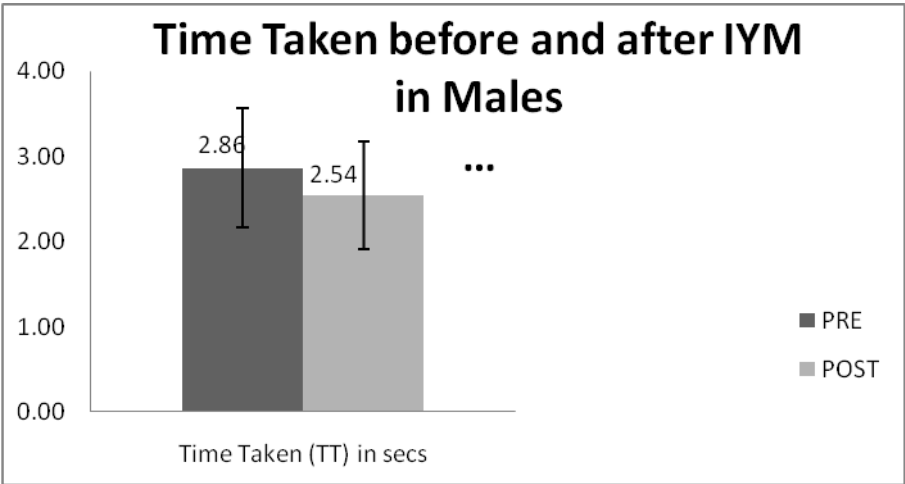
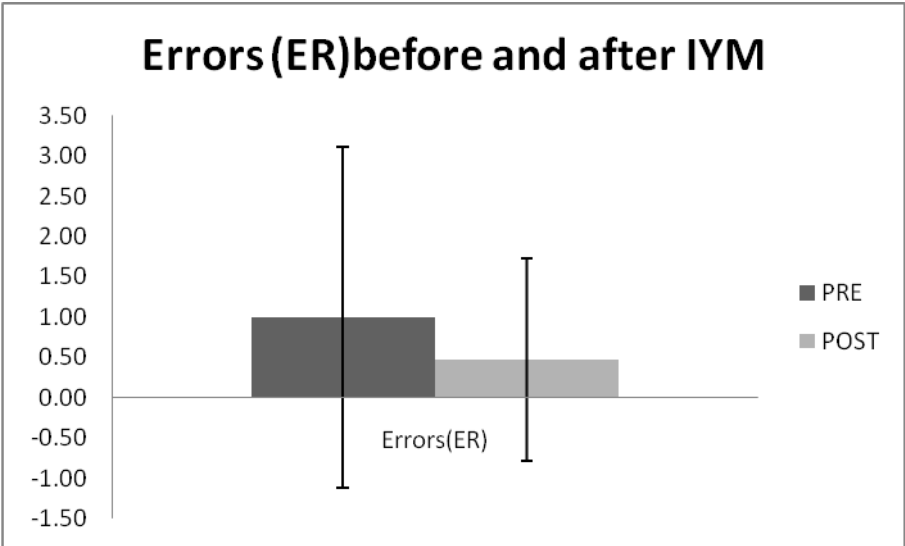
The present study indicates that a systematic practice of Integrated Yoga Module can result in better academic excellence by improving Speed of Response which is assessed by Digit Symbol Substitution Test, in university students.

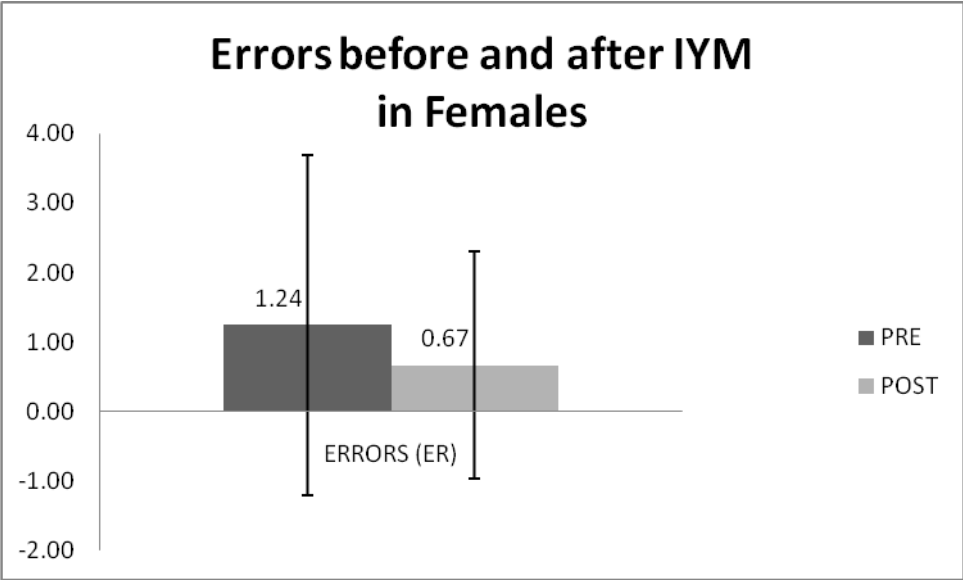
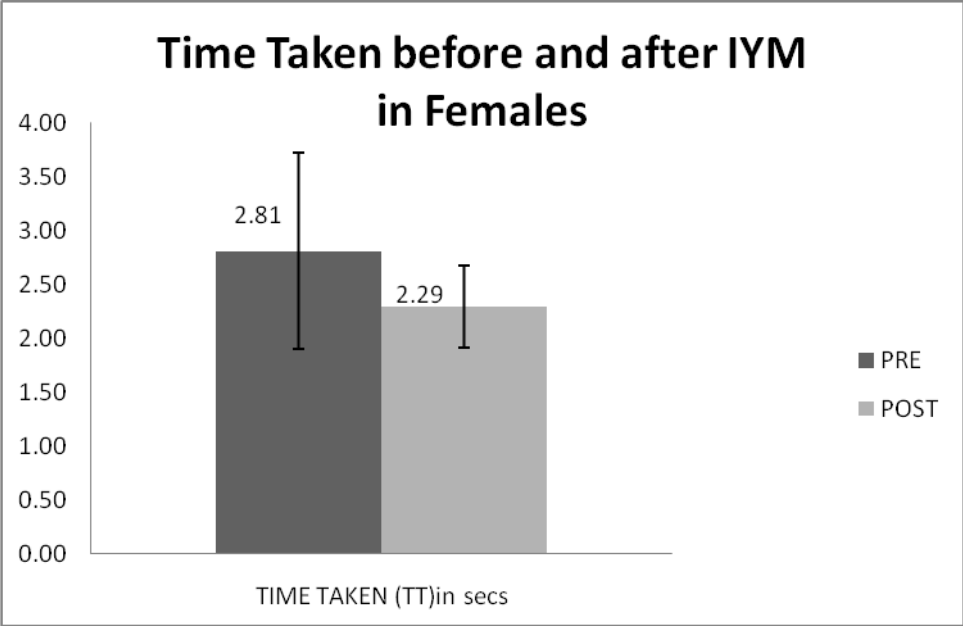
Table 4 Data Analysis

	DSST	Mean± Standard Deviation		%change P	
		Pre	Post		
Male	TT	2.86±0.70	2.54±0.63	↓11.19	*0.001
	ER	0.71±1.65	0.25±0.52	↓64.72	0.172
Female	TT	2.81±0.91	2.29±0.38	↓18.51	*0.000
	ER	1.24±2.45	0.67±1.63	↓45.97	0.160
Total	TT	2.84±0.82	2.41±0.53	↓17.80	*0.001
	ER	1.00±2.12	0.48±1.26	↓52.00	0.051

*Significant at 0.001 level







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APPENDIX

Assessment Questionnaire:

Neuropsychology Unit, NIMHANS- Bangalore
Neuropsychological Assessment

Name:	Sex:	Education:	Date:
P. No:			Age:
1	2	3	4
5	6	7	8
9	10	11	12
—	L	□	L
		U	O
			^
			x
			=

2	1	3	7	2	4	8	1	5	4	2	1	3	2	1	4	2	3	5	2	3	1	4	6	3

1	5	4	2	7	6	3	5	7	2	8	5	4	6	3	7	2	8	1	9	5	8	4	7	3

6	2	5	1	9	2	8	3	7	4	6	5	9	4	8	3	7	2	6	1	5	4	6	3	7

9	2	8	1	7	9	4	6	5	5	9	7	1	8	5	2	9	4	8	6	3	7	9	8	6

ERRORS :

Time Taken :

Table 1 Details of subjects

Subjects	n	Age range (in years)	Age (mean \pm standard deviation)
Males	28	18-54	29.0 \pm 09.33
Females	33	18- 69	27.24 \pm 9.54
Total	61	18-69	28.05 \pm 9.41

Table 2 Schedule of the IYM

Time	Activity	Time	Activity
05.00 AM	Ablution	03.00 PM	Lecture session 2
05.30 AM	Prayer (Prathasmaran)	04.00 PM.	Cyclic Meditation
06.00 AM	Asana / special yoga technique	05.00 PM	Tuning to nature
07.15 AM	Friendship meet (Maitri Milan)- Gita Sloka chanting and discourse (Satsanga)	06.00 PM	Devotional session (Bhajan)
08.00 AM	Breakfast	06.45 PM	Lecture Session 3/ Trataka
09.30 AM	Karma Yoga	07.30 PM	Dinner
10.30 AM	Lecture Session 1	08.30 PM	Happy assembly (yoga game session)/cultural program
11.30 AM	Milk or Ayurvedic Tea (Malt)	09.15 PM	Group discussion/self practice
12.05 PM	Special yoga techniques	10.00 PM	Lights off
01.00 PM	Lunch and rest		

Table 4 Data Analysis

	DSST Mean± Standard Deviation		%change	P	
		Pre			Post
Male	TT	2.86±0.70	2.54±0.63	↓11.19	*0.001
	ER	0.71±1.65	0.25±0.52	↓64.72	0.172
Female	TT	2.81±0.91	2.29±0.38	↓18.51	*0.000
	ER	1.24±2.45	0.67±1.63	↓45.97	0.160
Total	TT	2.84±0.82	2.41±0.53	↓17.80	*0.001
	ER	1.00±2.12	0.48±1.26	↓52.00	0.051

***Significant at 0.001 level**

TESTS AND ANALYSIS

Tests of Normality

	1=male; 2=female	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
TT_PRE	1	.182	28	.018	.769	28	.000
	2	.233	33	.000	.788	33	.000
TT_POST	1	.183	28	.017	.849	28	.001
	2	.129	33	.181	.950	33	.130
ER_PRE	1	.453	28	.000	.512	28	.000
	2	.306	33	.000	.546	33	.000
ER_POST	1	.471	28	.000	.537	28	.000
	2	.342	33	.000	.433	33	.000

a. Lilliefors Significance Correction

Test Statistics^b

1=male; 2=female		TT_POST - TT_PRE	ER_POST - ER_PRE
1	Z	-3.304 ^a	-1.364 ^a
	Asymp. Sig. (2-tailed)	.001	.172
2	Z	-4.531 ^a	-1.406 ^a
	Asymp. Sig. (2-tailed)	.000	.160

a. Based on positive ranks.

b. Wilcoxon Signed Ranks Test

RAW DATA

Reg.No	NAME	GENDER	AGE	TIME TAKEN		ERRORS	
				TT_PRE	TT_POST	ER_PRE	ER_POST
1	Mr.PRAMOD.M	Male	30	2.47	2.85	3	0
2	Mr.ANNADANAYYA	Male	24	5.18	4.58	2	2
3	Mr.VISHNUKUMAR.G	Male	18	2.78	2.48	0	0
4	Mr.SELVAGANAPATHY	Male	18	2.92	2.57	0	0
5	Mr.NIMMAGADDA SIMHADRI	Male	51	2.9	2.57	0	0
6	Mr.RAJANISH GOVIND	Male	29	3.05	2.17	3	0
7	Mr.B.K.SUDHARSHAN	Male	28	2.28	1.95	0	0
8	Mr.RANJAY KUMAR	Male	24	3.35	3.08	0	0
9	Mr.AJAY BIJALWAN	Male	23	2.73	2.23	0	0
10	Mr.SOMASHEKAR.D.S	Male	25	2.37	1.95	0	0
11	Mr.MAHESH .K.N	Male	24	2.65	2.08	0	0
12	Mr.HARIDEV.S	Male	25	2.8	2.75	7	1
13	Mr.BASIL.P.JOHNSON	Male	21	2.47	2.35	0	0
14	Mr.CHEVULWAR VEERANNA	Male	20	2.17	1.73	0	0
15	Mr.DHANANJAY KUMAR JAIN	Male	31	3.17	3.72	0	0
16	Mr.PAWAN SINGH BHATI	Male	24	2.63	2.63	0	0
17	Mr.G.KOTI REDDY	Male	36	2.81	2.65	0	0
18	Mr.V PRABHAKAR	Male	54	3.27	2.5	0	0
19	Mr.LEE JUNG HWAM	Male	43	2.28	2.17	0	0
20	Mr.VISHWANATHA.D	Male	26	2.32	2.08	0	0
21	Mr.GAUTAM .N	Male	18	2.13	2.42	0	0
22	Mr.LATEESH.H	Male	30	4.8	3.47	4	0
23	Mr.MASAHIRO.M	Male	48	2.43	2.17	1	1
24	Mr.JISHNU.M	Male	26	3.23	3.5	0	1
25	Dr.MANJUNATH.K	Male	31	3.25	2.2	0	0
26	Mr.J.JESH.C	Male	30	2.72	2.08	0	1
27	Mr.MAKARAND	Male	30	2.57	2.23	0	0
28	Mr.ARUN DAMERA	Male	25	2.47	2.05	0	1
29	Mrs.GITANJALI BHORASKAR	Female	31	2.73	2.47	0	0
30	Ms.VANASHREE J KARKAL	Female	23	2.65	2.2	0	0
31	Ms.SONG JISONG	Female	25	2.2	2.08	1	0
32	Ms.MASELLA HEGAN	Female	19	1.54	1.42	2	0
33	Ms.SARASWATHI.H	Female	20	2.23	1.9	1	0
34	Ms.NAGASRAVANI AKULA	Female	24	3.05	2.65	1	0
35	Ms.POOJA SHARMA	Female	26	2.22	2	0	0
36	Mrs.SAMANT AMITA.P	Female	36	6.47	2.22	3	1
37	Ms.NITHYA.K	Female	18	2.28	2.07	2	1
38	Ms.LATA M KANTHI	Female	34	2.8	2.53	11	0
39	Ms.AMBILI SUDHAKARAN	Female	23	2.57	2.17	0	2
40	Ms.VIDYAM RANGA RAVALI	Female	19	3.45	3.25	1	9
41	Mrs.RESHMA MULANI	Female	35	2.65	2.27	0	0
42	Mrs.VASUDHA	Female	69	2.5	2.67	0	1
43	Ms.ROHINI R MATAPATI	Female	21	3.05	2.18	3	0
44	Ms.RITU SHARMA	Female	25	2.43	2.28	0	0
45	Ms.TRIPATI JANGIR	Female	20	3.03	2.33	0	2

46	Ms.LI YUN LI	Female	27	1.88	1.42	9	2
47	Ms.DONG QING	Female	23	2.16	2.15	1	0
48	Ms.FU FENG QIN	Female	42	2.28	2.15	0	0
49	Ms.SHREE HARSHINI	Female	23	3.92	2.57	0	0
50	Ms.RUSHIKA	Female	23	3.08	2.08	1	0
51	Ms.LAUREN	Female	24	2.03	2.33	1	0
52	Ms.TANYA	Female	27	2.65	2.22	2	1
53	Ms.MADINA	Female	36	2.85	2.57	0	1
54	Dr.VILAXANA JOSHI	Female	25	2.77	2.75	0	0
55	MrsPREMA	Female	26	2.6	2.17	0	0
56	Ms.DEEPIKA	Female	22	3.06	3.05	0	0
57	Ms.P MAMATHA	Female	25	4.68	2.58	0	1
58	Ms.N MOONIKA	Female	25	3.92	2.57	2	0
59	Ms.SHARVARI	Female	19	2.3	2.17	0	1
60	Ms.LOVELEEN KAUR	Female	36	2.03	1.9	0	0
61	Ms.CHRISTINA	Female	28	2.73	2.33	0	0