IMMEDIATE EFECT OF YOGA PRACTICE DONE BY EYES CLOSED, EYES OPEN AND BASELINE CONDITION ON REACTION TIME ON MALE YOGA PRACTITIONER

TOWARDS

Partial fulfilment of Master degree in Yoga Therapy (M. Sc. YT)

SUBMITTED BY

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Under the Guidance of

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CERTIFICATE

This is to certify that **N.SUBHASHRI** who has got MSc registration with start from August 01, 2017 by Swami **Vivekananda Yoga Anusandhana Samsthana, deemed University**, has successfully completed the required training in acquiring the relevant background knowledge in Yoga Therapy and has completed the M.Sc. course of 2 years to submit this research project entitled **"IMMEDIATE EFFECT OF YOGA PRACTICE DONE BY EYES CLOSED, EYES OPEN AND BASELINE CONDITION ON REACTION TIME ON MALE YOGA PRACTITIONER"** as per the regulations of the University.

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DECLARATION

I hereby declare that the subjected study was conducted by me at **Swami Vivekananda Yoga Anusandhana Samsthana (S-VYASA),** Bangalore, under the guidance of Dr. VIKAS RAWAT (Ph.D.) and co-guide Dr. RAJESH S.K. (Ph.D.) S-VYASA University Bangalore.

I also declare that the subject matter of my dissertation entitled **"IMMEDIATE EFFECT OF YOGA PRACTICE DONE BY EYES CLOSE, EYES OPEN AND BASELINE CONDITION ON REACTION TIME ON MALE YOGA PRACTITIONER"** has not previously formed the basis of the award of any degree, diploma, associate-ship, fellowship or similar titles.

DATE: N.SUBHASHRI

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ACKNOWLEDGEMENT

A successful study requires guidance of who is expertise in that field. Firstly I would like to express my gratitude to the divine power, person sand all surroundings which guided and supported directly and indirectly throughout the tenure of the study.

I am extremely thankful to **Swami Vivekananda Yoga Anusandhana Samsthana (SVYASA)** for offering me the opportunity for preparing and completing the study and allowing to utilizing resources.

I am with whole heartedly thankful to my research guide **Dr. VIKAS RAWAT (Ph.D.)** and co-guide **Dr. RAJESH S.K. (Ph.D.)** for their precious guidance while preparing the research. Their guidance has proved to be highly used and without them the study might not have been possible.

I am also thankful to **Dr. JUDU ILLAVARASU** for making me to work independently and G.**PADMASRI** who supported with various aspects of this research.

I am also thankful to dear classmates MSCYT2017, MSCYT2018 and MSCYC2017 batch and BSCYT2016 and BSCYC2016 batch for their co-operation, patience and support.

I would like to take this opportunity to extend our warm thoughts to my family and friends and whosoever helped me with their inspiration and support in making this research a wonderful learning experience.

DATE: N.SUBHASHRI

PLACE: Bangalore

STANDARD INTERNATIONAL TRANSLITERATION CODEUSED TO TRANSLITERATE SANSKRIT WORDS

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

ABSTRACT

IMMEDIATE EFFECT OF YOGA PRACTICE DONE BY EYES CLOSE, EYES OPEN AND BASELINE CONDITION ON REACTION TIME ON MALE SUBECTS

OBJECTIVES: To compare the effect of eyes closed with eyes open and baseline on reaction time with Male yoga practitioners.

METHODS: Thirty Male Undergraduate and Postgraduate students with age range 18 – 45 years from University SWAMI VIVEKANANDA YOGA ANSANDHANA SAMSTHANA, Bangalore, and Karnataka. Participants were students who are pursuing BSC and MSC Degree. We excluded participants who were not regular practitioners of Yoga. Participants were given a set o Asana practice and followed by a computer based test: Flanker test.

RESULT: That there was a significant change in RT from baseline to open eyes condition and baseline to close eyes condition. Yoga is very effective in reducing the reaction time.

CONCLUSION: All the three condition were compared in all five noise condition and three spacing condition and the result was found that reaction time is more for the baseline condition and open eyes condition than closed eyes for all the conditions. Hence, reaction time significantly decreases when yoga is practiced with closed eyes in male.

KEY WORDS: Flanker test, Eyes open, Eyes close, Reaction time.

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CHAPTER 1

INTRODUCTION

1.1 CONCEPET OF EYES OPEN AND CLOSE

During the practice with eyes open and close the visual engine and attention framework were discovered actuated when the eyes were open. The visual somatosensory, vestibular and sound-related frameworks were initiated when the eyes were close. These information propose that there are two unique conditions of mental movement An " interceptive" state described by creative ability and multisensory action(with eyes close) and an "Exteroceptive" state described by consideration and visual engine movement(with eyes open) (Marx et al., 2004).

Anatomical distribution of visual areas. The occipital and inferior temporal were arguer with eyes open at rest condition as compact to the eyes closed. The activation of centre thalamus of the visual pathway was more prominent with eyes closed than with eyes open at rest condition (Raichle & Raichle, 2001).

It is well known that alpha action in the EEG is prevailing in normal individuals during an eyes closed resting condition and is smothered with visual incitement. Resulting studies noted diminished alpha movement that was generally articulated in posterior region when people with eyes open (Fleming, 2008).

The measure of education can reflect different passionate stated the flickering rate diminishes when an individual is mindful to objects in the condition and gaze provides an signal to manage discussion(Kendon, 1967).

Muscle coordination designs at the thigh (a higher vastus ateralis and a lower semitendinosus commitment) varied between the two groups just amid simpler twofold appendage parallel standing undertaking on firm and forth ground, with eyes close and open. This adjustment in the thigh muscles actuation design has been found amid comparative position assignment in patients hamehillia (Kurz et al., 2011).

Body's development and its situation in space in connection its surrounding are distinguished normally by a few methods, Vision, somatosensory sensation (profound, subcutaneous receptors,

joints and muscles and vestibular) which are then deciphered by the central nervous system. Every last one on the shocking framework transfer explicit data about the body's situation in space in this way every framework goes about as an autonomous data place for the central nervous system.

Vision in charge of the head's position and development in connection to the encompassing article. By means different directional head development the separation between items, head and eyes are noticeable with the vision framework. Data obtained by means of vision is essential for balance(Marianelli, Berthoz, & Bennequin, 2014).

Resting and meditation both involve sitting with eyes closed condition don't considerably influence heart rate. The frontal lobes receives afferent from all the mind zone and send efferent's to similar structure in all around characterized criticism circles, i.e., cortiso-striata, cortico-thaamic, and cortico-pontine circuits.(Elson, Hauri, & Cunis, 1977).

The time interval elapsing from the beginning of the reaction agonist muscle compression to the mechanical reaction and a littler part is additionally because of a superior effectiveness of the fringe sensorial procedures (i.e., signal detection) (Davranche, Burle, Audiffren, & Hasbroucq, 2005)

Moderate exercises decrease reaction precision for incongruent preliminaries and diminished effectiveness of the neuroelectric framework amid an Eriksen flanker test (Pontifex & Hillman, 2007)

1.2 CONCEPT OF FLANKER TASK

The Flanker task was designed in the early 1970s by Eriksen and Eriksen. A response inhibition test used to suppress responses that are improper in a specific setting.

In this You will see Five Letters appear above the fixation cross, You must respond to the either which is direct above the fixation cross. In this participants see an objective stimuli within a group of other stimuli flanking it on either side and should press a button for the objective; regularly the flankers are equivalent to the objective(congruent) but on less frequent events, the flankers are unique (incongruent).

The basic effect is that when you need to react to stimuli "flanked" by immaterial improvement, the irrelevant stimuli can at present influence your reaction. There is a likeness between different ideal models in which this kind of impedance from a irrelevant stimuli or stimuli feature occurs.

1.3 CONCEPT OF REACTION TIME ACCORDING TO YOGA

The time interval between the utilization of an stimuli and the emergence of appropriate intentional reaction by a subject is called Reaction time (RT)(Hanji & Venkatesh, 2014).

It is a procedure of dealing with the mind, as characterized by Patanjali. Stress has been involved as one of the real reason for fundamental hypertension. Yoga works on each cell of the body. Yoga impacts body just as controls the worry in the person. A index of the processing ability of central nervous system is referred to as reaction time (RT). It has been proclaimed that human performance including central neural processing is improved by yoga training (Sonwane & Mishra, 2016).

It is ordinarily called as mind-body treatment and it has regularly been asserted that it can upgrade one's capacity to concentrate, improve the intellectual capacities, response time decline the pressure and increment and improve the organ framework's quality and the suppleness of the sensory system. It has been accounted for the yoga preparing improves the human execution, which incorporates the central nervous system (Rajajeyakumar, Bhattacharjee, Amudharaj, Madanmohan, & Balachander, 2014). It is particularly intriguing to find that a lot of changes connected with the dynamic contemplation state were noted in the frontal lobe.This zone is included with the focus of attention (Büssing, Michalsen, Khalsa, Telles, & Sherman, 2012).

The Central target stimulus is given at the same time two distracter stimuli (flanker). Response time execution is normal answered to be better when pertinent and immaterial data compare to a similar reaction(Consistent preliminary) than when they are mapped to various reaction (incongruent preliminary). The RT protracting observed during inconsistent preliminaries is credited to the conflicts between the activation of the incorrect response(mapped to the flanker) and the activation of the correct reaction (mapped to the target), which delays the reaction execution(impedance impact)(Eriksen & Eriksen, 1974)

METHOD FOR INFORMATION FLOW WITHIN AN ORGANISM:

STIMULI ⟶	RECEPTOR ⟶	INTEGRATOR⟶	EFFECTORS ⟶	RESPONSE

MORE SPECIFICALLY, INFORMATION IN VERTEBRAE FLOWS IN THIS WAY:

STIMULI ⟶	SENSORY NEURON ⟶	SPINAL CORD OR BRAIN ⟶	MOTOR NEURON ⟶	RESPONSE

Sensory neuron convert and boost into an electro-mechanical signal, which stream the sensory neuron, at the point through a neuron of the focal sensory system, and after that through the length of the entire neuron. For most part motor neuron will make the muscle contrast or an organ to mystery a substance. Reaction time includes jus the receptor, the spinal cord and the effectors are quicker than those which includes processing of brain. Response which travels to and through, and form spinal cord are frequently called spinal reflexes (Kosinski, 2013)

Today Reaction time measures are utilized essentially for two purposes:

A. To think about the idea of mental procedures furthermore, their hidden structures, by estimating the time to play out a certain procedures or some segments.

To contemplate the response procedure in that capacity, by efficiently controlling the qualities of boost and reaction and the subject's arrangements for the assignment (Niemi& Näätänen, 1981)

Just a couple of studies have examined the impact of intense exercise on higher psychological capacities while working out, and right no results are fairly obscure. For example, (Pesce, Capranica, Tessitore, & Figura, 2011)and (Pesce, Tessitore, Casella, Pirritano, & Capranica, 2007)revealed better reaction time detailed response time exhibition and sub maximal practice on

discriminative errands requiring attention introduction and subjective adaptability. On the other hand, (Pontifex & Hillman, 2007)found that moderate high-impact practice decreased reaction time (RT) precision for incongruent preliminaries and diminished proficiency of the neurological framework using an Eriksen flanker task. The creators inferred that the attention exertion required amid exercise may prompt wasteful assignment of neural assets, which prompts more unfortunate obstruction control on the errands. During the Eriksen flanker task (B. A. Eriksen & Eriksen, 1974)a focal target boost is given at the same time to distracters boost (flanker) and member is told to react as indicted by the object disregarding the flanker. Response time (RT) execution is typically answered to be better hen applicable and unimportant data to a similar reaction (harmonious trial) than when they are mapped to various reactions (incongruent trail).
Past researches looking at the impact of activity on the flanker task has tended to show in general no noteworthy impact on RT (Hillman, Snook, & Jerome, 2003). In spite of the fact that(Kamijo, Nishihira, Higashiura, & Kuroiwa, 2007)found a critical abatement in RT following exercise, (Pontifex & Hillman, 2007)indicated increments in the quantity of blunders during exercise at 60% most extreme pulse, presumably incubating a speed precision trade off (Pachella, 1974)Be that as it may, the convention of the past investigation, make it hard to unquestionably show directional speculation for RT in the current think about on the ground that these investigations, tried the impact following the end of activity. Post exercise, the person is in a different condition of psychological excitement than during the exercise**.**(Dias & Armstrong, 2004)which would influence the outcome.

1.4 CONCEPT OF BALANCING ASANA

Balancing pose improves coordination, increment quality and creates develop stability with regular practice: you will be gain strength and stability amid your training and in your everyday life. As individual age, improves balance and stability.

Balancing posses provide emotional and physical benefits. Balancing poses will help more for stress relief and also helps for focus, memory and concentration.

Balancing is not just for the physical poses balancing it also helps in emotional, spiritual balance. Balancing postures also helps to get rid of the cramps in the calf muscles and thigh muscles, helps to gain elasticity to the back muscles and also tones the abdominal organ. It tones the lower

region of the spine and nerves connected with the muscles and it strengthens the knees(Satyananda, 2018).

CHAPTER 2

2. REVIEW OF ANCIENT LITERATURE/SCRIPTURES

"Each soul is potentially divine, the goal of the life is to manifest the divinity within, by controlling nature, external and internal" – Swami Vivekananda.

2.1 DEFINITION OF YOGA ACCORDING TO DIFFERENT TEXTS:

2.1.1 ACCORDING TO PATANJALI:

योगश्चित्तवृत्तिनिरोधः ॥ १.२ ॥

yogaçcittavåttinirodhaù || 1.2||

Yoga is a process of gaining control over the mind

2.1.2 ACCORDING TO YOGA VASISTHA:

मनः प्रशमनोपायः योगः इत्यभिधियते ।३-६-२ ॥

manaù praçamanopäyaù yogaù ityabhidhiäyate|3-6-2||

Yoga is the skilful action to calm down the mind

2.1.3 ACCORDING TO SRI AUROBINDO:

"Yoga is a methodoligical effort towards the self perfection by the development potentialities, which is the individual" – Sri Aurobindo

2.1.4 ACCORDING TO BHAGAVAD GITA

समत्वं योगः उच्यते ।२-४८ ॥

samatvaà yogaù ucyate|2-48||

Yoga is eqiibrium

योगः कर्मसु कौशलम् ।२-५० ॥

yogaù karmasu kauçalam|2-50||

Yoga is skill in action

CONCEPT OF MIND:

2.2 ACCORDING TO UPANISHAD

2.2.1 ACCORDING TO बृहदारण्यकोपनिषत: (1-5-3)

कामः संकल्पो विचिकित्सा श्रद्धाऽश्रद्धाधृतिरधृतिर्ह्रीर्धीर्भीरित्येतत्सर्वं मन एव ।

kAmaH saMkalpo vichikitsA shraddhA.ashraddhA
dhR^itiradhR^itirhrIrdhIrbhIrityetatsarvaM mana eva |

Desire, resolve, doubt, faith, want of faith, steadiness, unsteadiness, shame, intelligence and for all these are but the mind. They are all form of the mind or the integral organ.

2.2.2 ACCORDING TO कठोपनिषद: (1-3-3)

आत्मानं रथितं विद्धि शरीरं रथमेव तु।

बुद्धिं तु सारथिं विद्धि मनः प्रग्रहमेव च ॥ ३।

AtmAnaM rathitaM viddhi sharIraM rathameva tu .
buddhiM tu sArathiM viddhi manaH pragrahameva cha .. 3.

Consider the embodiment soul as the master of the chariot, the body as the chariot, the intellect as the charioteer, and the mind as the reins.

2.2.3 ACCORDING TO तैत्तिरीयोपनिषत: (2-4-1)

यतो वचो निर्वर्तन्ते। अप्राप्य मनसा सह।

आनदं ब्रह्मणो विद्वान्। न बिभेति कदाचनेति ॥२४१

yato vaco nirvartante. apraapya manasaa saha.
aanadaM brahmaNo vidvaan. na bibheti kadaacaneti..

2.2.4 ACCORDING TO केनोपनिषत:

अथाध्यात्मं यद्देतद्गच्छतीव च मनोऽनेन

चैतदुपस्मरत्यभीक्ष्णँ सङ्कल्पः ॥ ५॥

athAdhyAtmaM yaddetad.hgachChatIva cha mano.anena

chaitadupasmaratyabhIkShNa.N sa~NkalpaH .. 5..

Presently here is an instrument on Brahman that identifies to the mind of individual self: the mind comes to, in a manner of speaking, that (Brahman) and by which the aspirant always reflects upon that(Brahman). This is the manner in which he should coordinate his psyche.

2.3 MINDS ACCORDING TO THE TATVA BODHA:

एतेषां पन्चतत्त्वानां समष्टिसात्त्विकांशात्।

मनोबुद्ध्याहन्कर् चित्तान्तः करणानि संभुतानि ॥ १८

eteṣāṁ pancatatttvānāṁ samaṣṭisāttvikāṁśāt।
manobuddhyāhankar cittāntaḥ karaṇāni sambhutāni।। 18

From the total satvik 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 doer ship. Memory is of the thinking one recollection.

2.4 MINDS ACCORDING TO YOGA

2.4.1ACCORDING TO पातञ्जलयोगसूत्राणि:

योगश्चित्तवृत्तिनिरोधः ॥ १.२ ॥

yogaścittavṛttinirodhaḥ ।। 1.2।।

Mind or chitta is derived from the idea of chit, which means to see, to be conscious of, to be aware. Hence, Chitta 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 *chitta*.

2.4.2 ACCORDING TO योगवासिष्ठः

यत् अर्थप्रतिभानं तत् मन इत्यभिधीयते ।

नास्त्यस्य मनसो रुपं संकल्पात् तत् न भिद्यते ॥ ६१६

अविद्या संस्मृतः चित्तं बन्धोऽज्ञानं मनः तमः ।

इति संकल्पजालस्य नामान्येतानि रघव ॥६१७

yat arthapratibhānaṁ tat mana ityabhidhīyate।
nāstyasya manaso rupaṁ saṅkalpāt tat na bhidyate।। 616
avidyā saṁsrtiḥ cittaṁ bandho'jñānaṁ manaḥ tamaḥ।
iti saṅkalpajālasya nāmānyetāni raghava।।617

The universe which is seen all around is made up of mind, one which is the understanding of the objects is called the mind. There is no form of the mind. It is not separated from the thought. Nescience, stream of worldly life, thinking substances, ignorance, mind, darkness, bondages, are name of web thoughts. When the web thought comes, ones on natural thought 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.

2.4.3 ACCORDING TO HATHA YOGA PRADIPIKA:

ज्ञेयं सर्वं प्रतीतं च ज्ञानं च मन उच्यते ।

ज्ञानं ज्ञेयं समं नष्टं नान्यः पन्था द्वितीयकः ॥ ६० ॥

मनो-दृश्यमिदं सर्वं यत्किंचित्स-चराचरम् ।

मनसो ह्युन्मनी-भावाद्द्वैतं नैवोलभ्यते ॥ ६१ ॥

ज्ञेय-वस्तु-परित्यागाद्विलयं याति मानसम् ।

मनसो विलये जाते कैवल्यमवशिष्यते ॥ ६२ ॥

jñeyaṁ sarvaṁ pratītaṁ ca jñānaṁ ca mana ucyate ।
jñānaṁ jñeyaṁ samaṁ naṣṭaṁ nānyaḥ panthā dvitīyakaḥ ।। 60।।
mano-dṛśyamidaṁ sarvaṁ yatkiñcitsa-carācaram ।
manaso hyunmanī-bhāvāddvaitaṁ naivolabhyate ।। 61।।
jñeya-vastu-parityāgādvilayaṁ yāti mānasam ।

manaso vilaye jāte kaivalyamavaśiṣyate || 62||

All that known, all that is known and the knowledge is called mind. When the knower and that which known are lost together, there is no dual or second way. All that is in the world animated and inanimate is the appearance of mind. When these three states of knower, knowing and known are merging as one experience that is one pointednesss of mind, which become the ate od cosmic or universal consciousness.

2.5 MINDS ACCORDING TO BUDDHISM:

Understanding the working of mind forms the beginning of Buddhist thinking and practices: as the initial verse of the DHAMMAPADA states: "all things are proceed by the mind, lead by the mind and shaped by the mind".

Mind is defined in Buddhism as a non-physical phenomenon which perceives thinks, recognizes, experience, and reacts to the environment. The mind is described as having two main aspect in it: clarity and knowing. The two main types of mind are explained as the conceptual and the non-conceptual mind. The conceptual mind is the "normal" mind aspect e use to survive in daily life, but is ultimately mistaken about the way in which reality exist. The non conceptual mind is also called the Buddha nature, rigpa, fundamental pure nature of mind which realizes emptiness

2.6 MENTAL SPEED OF MIND ACCORDING TO श्रीमद्भगवद्गीता:

चञ्चलं हि मनः कृष्ण प्रमाथि बलवद् दृढम्।

तस्याहं निग्रहं मन्ये वायोरिव सुदुष्करम्॥ ६-३४ ॥

cañcalaṁ hi manaḥ kṛṣṇa pramāthi balavad dṛḍham।
tasyāhaṁ nigrahaṁ manye vāyoriva suduṣkaram || 6-34||

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

The mind can sometime overcome the intelligence because it is so strong. For a common man who live in practical world ho has to fight with so many opposing elements, it becomes very difficult to control the mind. Artificially, one may develop a mental balance towards both companion and an enemy but no worldly being can do this because this is more troublesome than controlling the raging wind and one cannot capture the blowing wind. Such powerful mind can be controlled through the practice of yoga. The easiest way to control the mind is suggested by Lord Chaitanya, is by chanting 'hare krsna" the great mantra. Uncontrolled speed of mind is lack of peace of mind. A person who is not able to control his senses there is no peace of mind. Hence, the whole process is aggravated and the stress is originated.

ध्यायतो विषयान्पुंसः सङ्गस्तेषूपजायते ।

सङ्गात्सञ्जायते कामः कामात्क्रोधोऽभिजायते ॥ २-६२ ॥

dhyāyato viṣayānpuṁsaḥ saṅgasteṣūpajāyate ।
saṅgātsañjāyate kāmaḥ kāmātkrodho'bhijāyate ।। 2-62।।

क्रोधाद्भवति सम्मोहः सम्मोहात्स्मृतिविभ्रमः ।

स्मृतिभ्रंशाद् बुद्धिनाशो बुद्धिनाशात्प्रणश्यति ॥ २-६३ ॥

krodhādbhavati sammohaḥ sammohātsmṛtivibhramaḥ ।
smṛtibhraṁśād buddhināśo buddhināśātpraṇaśyati ।। 2-63।।

When a man repeatedly thing about any object or thing, that person develops desire (strong likes and dislikes) for that particular object. Hence, attachment is developed. From desire anger (lust, greed, fear etc) arises, from anger delusion comes, and from this loss of memory happens, the destruction of discriminative power happens, from destruction of discrimination power the man perished. Hence, controlling the speed of mind is very important because it lead to destruction of a person. Uncontrolled mind is one's greatest enemy because it develops great sorrow and bondages.

इन्द्रियाणां हि चरतां यन्मनोऽनुविधीयते ।

तदस्य हरति प्रज्ञां वायुर्नावमिवाम्भसि ॥ २-६७ ॥

indriyāṇāṁ hi caratāṁ yanmano'nuvidhīyate ।
tadasya harati prajñāṁ vāyurnāvamivāmbhasi ।। 2-67।।

"For the mind, which follows in the wake of the wandering sesnes, carries away his discrimiative as the wwind carries away a boat of the waters"

Just as a ship sails without its hailsman at the mercy of fitful stroms and haphazard waves which cannot reach its definite harbour, ut gets destroyed by the tossing of waves, so too, life gets capsized and an individual is drowned by the uncertaoin buffets of passionate sensestromes. Therefore, the sesne are to be controlled if a man is to live a purposful life and better life and to have a successful life.

2.7 CONCEPT OF PRANA ACOORDING TO प्रश्नोपनिषत:

आत्मन एष प्राणो जायते । यथैषा पुरुषे

छायैतस्मिन्नेतदाततं

मनोकृतेनायात्यस्मिञ्शरीरे ॥ ३.३ ॥

ātmana eṣa prāṇo jāyate । yathaiṣā puruṣe
chāyaitasminnetadātataṁ
manokṛtenāyātyasmiñśarīre ।। 3.3।।

prana springs from the atman, that is self. It is like a shadow of the self, in seperable from it. It enters body through the mind.

यथा सम्रादेवाधिकृतान् विनियुङ्क्ते । एतन् ग्रामानोतान्

ग्रामानधितिष्ठस्वेत्येवमेवैष प्राण इतरान् प्राणान् पृथक्

पृथगेव सन्निधत्ते ॥ ३.४ ॥

yathā samrādevādhikṛtān viniyuṅkte । etan grāmānotān
grāmānadhitiṣṭhasvetyevamevaiṣa prāṇa itarān prāṇān pṛthak

pṛthageva sannidhatte || 3.4||

the chief prana allots work to the lower prana, similar to an emperor who aloots duty to his officals.

- Prana- himself reisdes in eyes, ears, mouth and nose, consider the gates of the body
- Apana- it is located in organs of reproductive or excretion
- Samana- it resides in stomach
- Vyana- it flows throughoyt the body
- At the time of death, the udana leads us to the good world by good work, to the bad world by bad work.

The sun is the external prana: It exist as prana in the eye. The earth draws apana downwards. It either exist in the space between the sun and the earth as samana. Air or wind is the vyana.

2.8 CONCENTRATION OF MIND ACCORDIND TO श्रीमद्भगवद्गीता:

शनैः शनैरुपरमेद् बुद्धया धृतिगृहीतया ।

आत्मसंस्थं मनः कृत्वा न किञ्चिदपि चिन्तयेत्॥ ६-२५॥

śanaiḥ śanairuparamed buddhyā dhṛtigṛhītayā ।
ātmasaṁsthaṁ manaḥ kṛtvā na kiñcidapi cintayet || 6-25||

One can gain single pointednesss by dropping all one's agitation causing desires and then, with an extra strength in one's mind withdrawal one's attention to the self. All desires can be fully controlled by the mind, control all the sense organs from their entire world of sense objects. Each desire should be completely eradicated.

2.9 CONCEPT OF ASANA:

2.9.1 ACCORDING TO PATANJALI

स्थिरसुखम् आसनम् ॥ २.४६ ॥

sthirasukham āsanam || 2.46||

The posture should be steady and comfortable. Asana can be mastered by loosening the effort and by meditating on the serpant ananta.

2.9.2 ACCORDING TO HATHA YOGA PRADIPIKA

हठस्य प्रथमाङ्गत्वादासनं पूर्वमुच्यते ।

कुर्यात्तदासनं स्थैर्यमारोग्यं चाङ्ग-लाघवम् ॥ १९ ॥

haṭhasya prathamāṅgatvādāsanaṁ pūrvamucyate ।
kuryāttadāsanaṁ sthairyamārogyaṁ cāṅga-lāghavam || 19||

The first part of hatha yoga explains asana. One can get steadiness of the body and mind, diseaselessnesss and flexibility of the limbs by practicing asana.

2.9.3 ACCORDING TO GHREANDA SAMHITA

आसनानि समस्तानि यावन्तो जीवजन्तवः ।

चतुरशीति लक्षाणि शिवेन कथितानि च ।

तेषाम् मध्ये विशिश्टानि षोडशोनं शतं कृतम्

तेषाम् मध्ये मर्त्यलोके द्वात्रिंशदासनं

āsanāni samastāni yāvanto jīvajantavaḥ।
caturaśīeeti lakṣāṇi śivena kathitāni ca।
teṣām madhye viśiśśṭāni ṣoḍaśoanaṁ śataṁ kṛtam
teṣām madhye martyaloke dvātriṁśadāsanaṁ

The number of asana is same as the number of animal species existing in the world. Lord shiva described eighty four-lakh asana out of which thirty-two asanas should be considered as auspicious in this mortal world.

2.9.4 PADHASTASANA:

(उत्तानासन - Uttānāsana)

This pose was first described in 20th Centaury by Trimalai Krishnamacharya in his book "Yoga makarnda". In the book (Krishnamacharya, 1938). Yoga Makaranda Yoga Saram (The Essence of Yoga) First Part. Trasated by axmi and Nandini Ranganathan expained Padhastasana in 8 forms. According to the author all the addomina probems wi be removed and digestive fire will increase.

BKS Iyenger in the "Light on yoga" (Bilr & Philo, n.d.) Bilr, T., & Philo, Y. (n.d.). *on a*. Explain that this asana helps to increase the digestive uice, Which the liver and speen are activated. Peope suffering from al abdomina probem, such as beching, boating wil be benefited. Sipped spinal can be adusted in this asana.

2.9.5 VRKSASANA: वृक्षासन

वमोरुमूलदेशे च याम्यं पादं निधाय वै।

तिष्ठेतु व्रिक्षवद्भमौ व्रृक्षासनमिदं विदुः॥

vamorumUladeshe ca yaamyaM paadaM nidhaaya vai

tiSThetu vrikSavadbhamau vrkSaasanamidaM viduH..

Pacing the right foor on the left thigh, Stand ike a tree on the ground. This is called Vrksasana (Vasu, n.d.) Vasu, S. C. (n.d.). Gheranda Samhita.

2.9.6 TRIKONASANA: त्रिकोणासन

According to (Krishnamacharya, 1938) this asana should be practiced for minimum of 10 minutes. Proper clean blood will be seen in nerve of the back, hip, arm, and heels.

There will be no pain caused by Vata Roga. If one practices this every day, it will lead to complete and clearing of the bowel and urine from the body.

According to (Bilr & Philo, n.d.) The benefits of this asana are: Tones up the eg and remove the stiffness from the body. It relives the person from back ache and neck sprain, develops the chest and strengthens the ankle joint.

2.9.7 PRIVRITTA TRIKONASANA: परिवृत्त त्रिकोणासन

According to (Bilr & Philo, n.d.) This asana tones up the thighs, calf muscles and hamstrings. It helps the spine and muscle of the back to work properly. Help to expand the chest muscle. It helps to relieve pain from the back, abdominal organs and strengthens the hip muscles.

2.9.8 ADHOMUKHA SHAVASANA: अधोमुखशवासन

According to (Bilr & Philo, n.d.) "Light on yoga" this asana should be practices by one who is exhausted and tired can stay in this posture for long time remove fatigue and tiredness. It helps to bring back the lost energy. This asana is very good for athletes. I t helps to remove stiffness and pain from the heels, shoulder blade.

According to (Krishnamacharya, 1938) a disease such as boating of stomach, bad belching, ajeerna vayu, will be eradicated.

2.9.9 USHTRASANA: उष्ट्रासन

अध्यास्य शेते पदयुग्मव्यस्तं प्रिश्थे निधायापि ध्रितम् कराभ्याम्।
आकुन्च्य सम्यग्ध्युदरास्यगाढं उष्ट्रं च पेथं यतयो वदन्ति ॥

adhyaasya shete padayugmavyastaM prishthe nidhaayaapi dhritam karaabhyaam.
aakunchya samyagdhyudaraasyagaaDhaM, uShTraM cha pethaM yatayo vadanti..

According to explained that the whole spinal cord is stretched back and is toned. This pose can even be done by people suffering from spinal injury and elderly people. People having drooping shoulder and hunched back will have benefit from doing this asana.

CHAPTER 3

3.1 REVIEW OF SCIENTIFIC LITERATURE

S.NO	TITLE	INTERVENTION	SAMPLE	ASSESSMENT TOOL	Result	Conclusion
1.	(N. Gothe, Pontifex, Hillman, & McAuley, 2016)	Three counter balanced Testing session: A yoga exercise, An aerobic, and a baseline.	30 female college students were participated For the study.	The Flanker task, N-Back task.	The Subjective execution of yoga practice demonstrates altogether predominant as contrasted with the aerobic and the baseline condition for both inhibition and working memory task.	The need of this study is to find the effect of other nontraditional modes of exercise such as yoga on cognition an the importance of time elapsed between the cessation of the exercise and the initiation of cognitive assessment in improving task performance.

2.	(Aoki et al., 2012)	N=87 healthy males aged 10-80 years	20 times subject have to step on to once plate(left/right) at the rate of 60 steps per minute.	Stabilometer	Parameter revealed no significant age related difference for all COP sway	>80 years have greater body sway during stepping with closed eyes compared to open eyes.
3.	(Coles & Tomporowski, 2008)	Set of exercises, cycling ride	Eighteen young adults were recruited from under graduate university classes.	Set-shifting task, Free-recall test	Exercise did not facilitate short term memory, working memory it did alter specific of delayed long term memory.	That the exercise – induced arousal may facilitate the consolidation of information into long-term memory.
4.	(Davranche & Audiffren, 2004)	Aerobic power exercise	The 16 Participants 7female and 9male who were experienced players in sports	Visual analogue mood scale, Cycle ergo meter.	Practice impacts could tweak non subjective procedures at a more fringe level than highlight extraction, reaction choice and	The moderate intensity exercise improves cognitive performance and that the low intensity exercise enables participants to

					motor adjustment.	compensate the negative dual task effect.
5.	(Davranche, Audiffren, & Denjean, 2006)	Power exercises	Four females and Seven Male were participated in the study who was experienced players in decisional sports.	Bicycle Ergo meter,	The result suggest that during the exercise the participants were faster without being more variable or less accurate, The effect of exercise on reaction time performance was due to major generalized.	The Impact of activity on intellectual execution was expected to a major generalized improvement of the whole distribution reaction time and despite the fact that the advantage impact was small. It was steady through the whole scope of Response times.
6.	(Johnson, Skromanis, Bruno, Mond, & Honan, 2018)	N=32 males and 32 females from 18-34 years were recruited from the university of Tasmania.	Consumed a beverage having placebo or alcohol calculated to achieve the target of BrAC of 0.080%	Flanker task, cued go/n0 go task, social disinhibition task.	People who have consumed alcohol inhabits negative response to negative social information	Negative alcohol related behavior and promote the social context, abilities, pressure and to prevent alcohol related antisocial behavior
7.	(Malathi & Parulkar, 1989)	Basic yoga practices	83 Normal healthy male subjects were participated in this study	Eight digit display unit Apparatus used	The preparation program most likely influenced both central and peripheral mechanism system as proven by a marked reduction in	Yogasana practices shows to increase the physical fitness and also the reduction in the reaction time. Reaction time gave an target strategy for deciding the

					the reaction time. The preparation in yogasana could have accelerated concentration power of the subject the stimuli to create the reaction in an short time.	advantage of yogic practices.
8.	(Madanmohan et al., 1992)	Selective of yoga postures were given for 12 Weeks	27 Male healthy medical students were participated in the study of age between 18-21 years.	Breath holding time, hand grip strength, maximum expiratory pressure, Reaction time for light and sound.		The act of yoga increments the execution remainder and makes an individual mentally increasingly steady and rationally more equipped.
9.	(Yagi, Coburn, Estes, & Arruda, 1999)	Aerobic exercise	24 healthy (12 Female and 12 Male) of age between 18-21 were participated in this study	Tuntuni F418 recumbent bicycle ergo meter, neuroscan stim system, EEG, EOG, Odd ball task.	RT changes,	The Improvement of cognitive information handling speed amid moderate aerobic exercise, working across genders. It accompanied by decreased attention and increase errors.
10.	(Arcelin, Brisswalter, & Delignieres, 1997)	Physical exercise (Beginning(3-5 min), End(8-10 min))	Twenty two students who were non experts in decisional sports	Cycloergometer Miditronic, Determination test,	It confirms the possibilities of improving cognitive performance during physical exercise.	The cognitive functioning is sensitive to the short term effects of exercise by several intermediary factors.

11.	(Borker & Pednekar, 2003)	Pranayama training were given for 45 minutes for 12 weeks.	One sixty(one thirty Male and One thirty Female) healthy MBBS students age between 19-22 years were participated in the study.	Digital response analyser, physical parameters are measured using normal apparatus.	The set of selected pranayama practices given for short duration also can improve the concentration and sensory motor performance of the individuals.	The regular practice of pranayama practices helps in reduction of visual and audio reaction time by improving the concentration and reduces the normal stress.
12.	(Telles, Singh, Bhardwaj, Kumar, & Balkrishna, 2013)	Yoga group practiced breathing techniques, postures, relaxation and chanting Physical exercise group practiced set of normal exercises.	98 healthy school students of age between 8-13 years were participated in the study.	Euro fit physical fitness test, stroop color task.	Yoga group improved in plate tapping at the same time both the group shows higher interference in the stroop task.	Yoga additionally independently improved physical and emotional well-being. There is a complex neuro-substance changes and adjusted working of mind regions inside the limbic circuits. Parental self-esteem improved in the yoga group.
13.	(N. P. Gothe, Kramer,	8-weeks of Hatha yoga practices	118 older adults were selected randomly and	Attention networking task, Trail making	The 8weeks of Hatha yoga practices helps to improve the	The yoga practices that includes breathing, postures

	&McAuley , 2016)		participated in the study.	test, Pattern comparison test.	visuospatial and perceptual processing.	and relaxation which helps in improving the attention and information processing abilities.
14.	(M. & S., 1999)	Yoga practices for 30 continues days and children received 10days of yoga practices and control group carried with their day to day activities.	91adults(53 received yoga practices, 38 as control group), 152 childrens.	The tapping board.	In adult as well as in children 30 and 10 days of yoga practices increases the initial speed of the tapping which doesn't persist during the last 20 seconds.	Increase in Motor speed for continuous finger movements following yoga training, however not in quality or endurance as the expansion was not supported more than 30 seconds.
15.	(Travis & Wallace, 1999)	Once the heart rate was analysed then subjects are moved to the sound attenuated room for Transcendental meditation with eyes closed.	Twenty(13 Males and 7 Females)Healthy subjects of age ranging between(17-48 years)were participated in the study.	EEG.	The central and autonomic nervous system leading to the fast change in the state that has been maintained throughout the practices of the transcendental meditation.	The rest alert state may be supported by as basal ganglia-corticothalamic limit guideline instrument consequently keeping the lower dimension of cortical volatility.
16.	(Hutt & Redding, 2014)	4weeks eyes closed dynamic balance training.	19 Female pre professional ballet dancers were participated.	Measuring tape (body measurement), DAQ system, and Cramer tape.	The distance reached and time to complete the balance task was shown greater improvement among the experimental group.	This improves the balancing abilities of the dancers and also it proves that eyes closed dancing helps in effective way to stimulate a shift from visual to

						proprioceptive dependency for balancing control.
17.	(Barry, Clarke, Johnstone, & Brown, 2009)	N= 30 children (12 females) were recruited.	EEG were recorded for eyes open eyes closed and resting condition	SCL were recorded as an index of arousal	SCLs were negatively correlated with the mean alpha levels in the eyes closed than in eyes open or baseline condition	The use of mean alpha level as a measure of baseline condition arousal under eyes closed and eye open condition.
18.	(Redick & Engle, 2006)	-	54 Participants of age between 18-35 years who completed the UG has been participated in this study.	Flanker task, OSPAN Task, Attention network test.	low-level attention task, we discovered individual differences in WMC were predictive of execution in circumstance requiring controlled attention.	The experiment was determined in WMC correspond to the difference in three attention functions.

CHAPTER 4

4.1 AIM

- To Evaluate the effect of Yoga practice done with Eyes close , Eyes open and Baseline condition on Reaction time.

4.2 OBJECTIVE

- To assess the reaction time of the subject – Male of adulthood between eyes closed, eyes open and baseline.
- To find the difference between the yoga practice done with eyes closed, eyes open and baseline condition.

4.3 HYPOTHESIS

There may be significant difference between yoga practice done with eyes closed with eyes open and baseline condition on reaction time.

4.4 NULL HYPOTHESIS

- There may not be a significant difference between the yoga practice done with eyes closed with eyes open and baseline condition on reaction time
- Mean of baseline condition = mean of open eyes = mean of closed eyes.

CHAPTER 5

5. METHODOLOGY

5.1 SOURCE OF SUBJECT

Subjects (MALE) Perusing Undergraduate and postgraduate were recruited from SWAMI VIVEKANANDA YOGA ANUSANDANA SAMSTHANA UNIVERSITY, BANGALORE.

5.2 SAMPLE SIZE

30 Male students participated in the study.

5.3 INCLUSION CRITERIA

- Gender – Male
- Students with good health.
- Students who were regular asana practitioners.
- Participants who have a Normal vision.
- Subjects living inside the campus

5.4 EXCLUSION CRITERIA

- Student who are not willing to participant in the study.
- Students suffering from any disease

5.5 INFORMED CONSENT

The informed consent from the college head was obtained on behalf of the students.

5.6 CALCULATION OF SAMPLE SIZE

(N. Gothe, Pontifex, Hillman, Mcauley, & Pontifex, 2013) arrived at the sample size of 28 by G* Power version 3.0.10 with alpha 0.05 and power 0.80.

5.7 DESIGN OF THE STUDY

- A Self as control study

5.8 INTERVENTION:

All students visit the laboratory three separate days for (eyes close, eyes open and baseline). On the first visit to laboratory the student's sign the informed consent. The order of the eyes open and eyes close were counterbalanced across the students to minimize any effects of order or practice. During the baseline session, the students completed the Flanker task. During the eyes open and eyes close visit, a 20 minute movement of seated, standing and supine yoga postures (Table 1) took place for 6 people at a time. The postures includes isometric contraction and relaxation of different muscle groups related to regulated breathing, and it concluded with a meditative deep breathing postures. The students concentrated on performing the asana, regulation of breathing and being aware of their muscle movement and physical postures. Each postures were done twice and was maintained for 1minute each. (N. Gothe et al., 2016).

DESCRIPTION OF ASANA

Table 1

S.NO	ASANA	DURATION
1.	UTTANASANA – STANDING FORWARD BEND	1 MINUTE
2.	VRIKSHASANA- TREE POSE	2 MINUTE
3.	TRIKONASANA- TRIANGLE POSE	2MINUTE
4.	PARIVRTTA TRIKONASANA- REVERSE TRIANGLE POSE	2MINUTE
5.	ADHO MUKHA SHAVASANA- DOWNWARD FACING DOG	1MINUTE
6.	USTRASANA- EASY CAMEL POSE	1 MINUE

7.	SHASHANKASANA- HARE POSE	1 MINUTE
8.	SURYA NAMASKAR- SUN SALUTATION	3 MINUTE
9.	PADMASANA- DEEP BREATHING	4 MINUTE

5.9 ASSESSMENT TOOL:
FLANKER TASK

PROCEDURE:

Flanker task was utilized and the member was asked to press the instructed button with their fingers as fast as possible to the centrally presented target which is ½ degree above the fixation cross and to ignore all the letters that appeared on the visual field. Participants were seated approximately 60 centimetres from the computer screen. The target letters were capital H,K,S and C. Four target letters were divided into three response set. One response set required to press the left key whereas, the other required pressing the right key. The target letter always appeared above the fixation cross in the middle of the screen and it was always flanked by the noise letters.

The five conditions are:

1. Noise identical to target – have same repetition as the target letter
2. Noise same response as target – flanked by the other member of the same response set
3. Noise other target set- flanked by the letter from opposite response set
4. Noise similar to the target- flanked by the letter having similar feature to the target
5. Noise dissimilar to the target- flanked by the noise having dissimilar features to the target set. In Table 2 the different noise condition are explained and in the case H is the target set. (B. A. Eriksen & Eriksen, 1974)

Each student participated in one practice session before beginning of the experiment. 12 Trails were run, each consisting o three bocks o 32 trials, pus one bock of 12 singe letter trials.

A five noise condition has three different visual spacing. The distance between the target and the noise distraction varied from 0.06, 0.15 and 1.0 degree of angel trial.

1. 0.06 degree visual separation (depends on viewing distance and font size)
2. 0.5 degree visual separation (depends on viewing distance and font size)
3. 1 degree visual separation (depends on viewing distance and font size)

In Table 2, the five different noise conditions are explained and in all the case H is the target set.

Table 2

CONDITION	EXAMPLE
1. NOISE SAME AS TARGET	HHHHHHH
2. NOISE RESPONSE COMPATIBLE	KKKHKKK
3. NOISE RESPONSE INCOMPATIBLE	SSSHSSS
4. NOISE SIMILAR TO TARGET	NWZHNWZ
5. NOISE DISSIMILAR TO TARGET	GJQHGJQ

The target letter was flanked by a single letter from the opposite response set (S S H S S S) in incompatible noise. And in the compatible noise the target letter was either flanked by the same etter as the target (H H H H H H) or the other etter in the same response set as the target (K K K H K K K) (B. A. Eriksen & Eriksen, 1974). Performance of the subject not only requires the subject to identiy the target etter but also locate the noise letter. The extra time is required to both identify the target and to locate the target.

CHAPTER 6

6.1 DATA EXTRACTION AND ANALYSIS

The data was analyzed using R studio version 3.4.1 one way RM ANOVA and t-test was used for analysis.

The packages used were:

1. Reshape2

   Title = {Reshaping Data with the {reshape} Package}
   Author = {Hadley Wickham}
   Year = {2007}
   URL = {http://www.jstatsoft.org/v21/i12/}

2. Ez

   Title = {Easy analysis and visualization of factorial experiments}
   Author = {Michael A Lawrence}
   Year = {2011}
   URL = {http://CRAN.R-project.org/package=ez}

3. ApaTables

   Title = {Create American Psychological Association (APA) Style Tables}
   Author = {David Stanley}
   Year = {2018}
   URL = {https://CRAN.R-project.org/package=apaTables}

4. psych

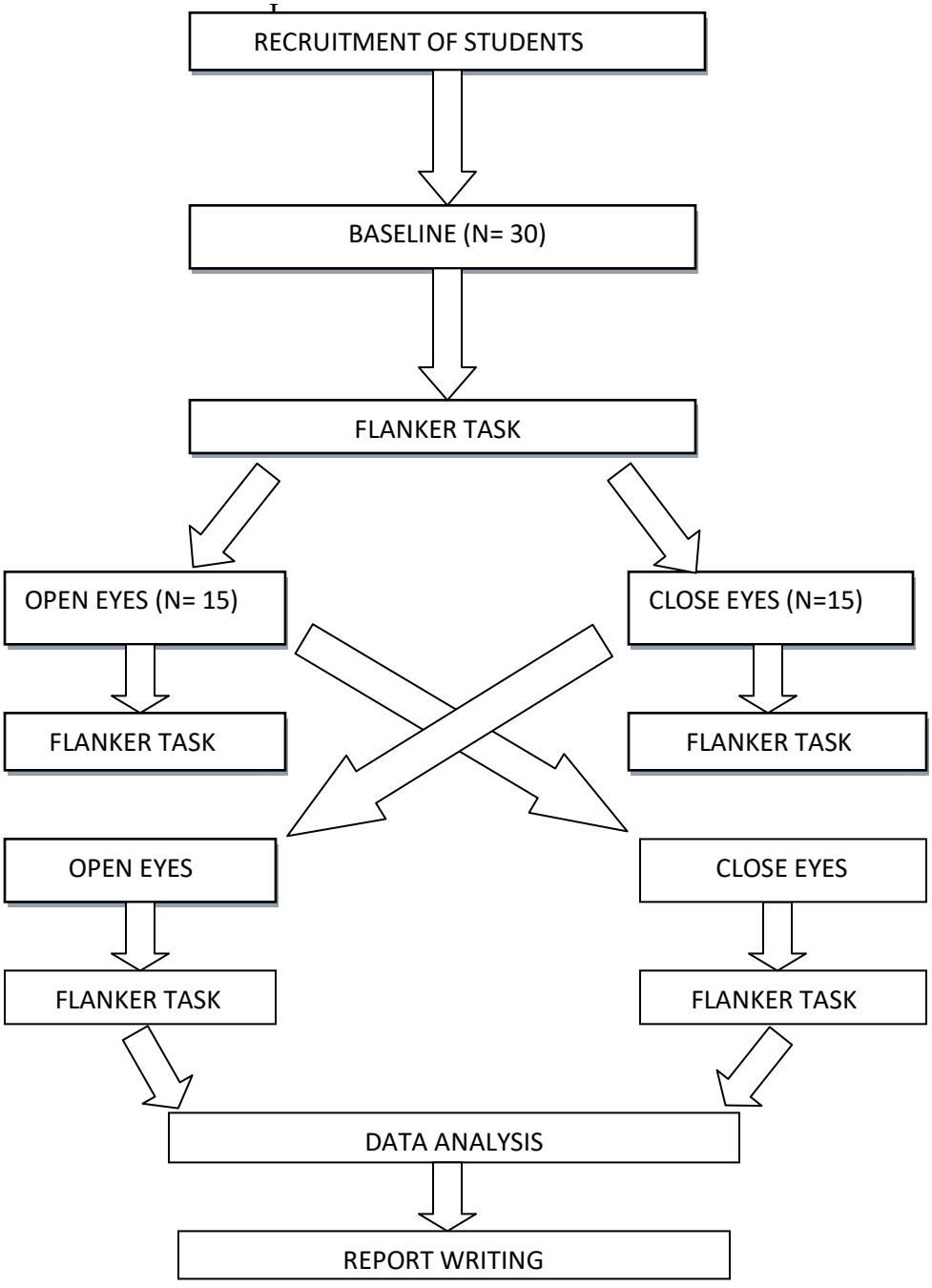
Title = {psych: Procedures for Psychological, Psychometric, and
Personality Research}
Author = {William Revelle}
Year = {2018}
URL = {https://CRAN.R-project.org/package=psych}

Alpha was set at 0.05 eve of significance.

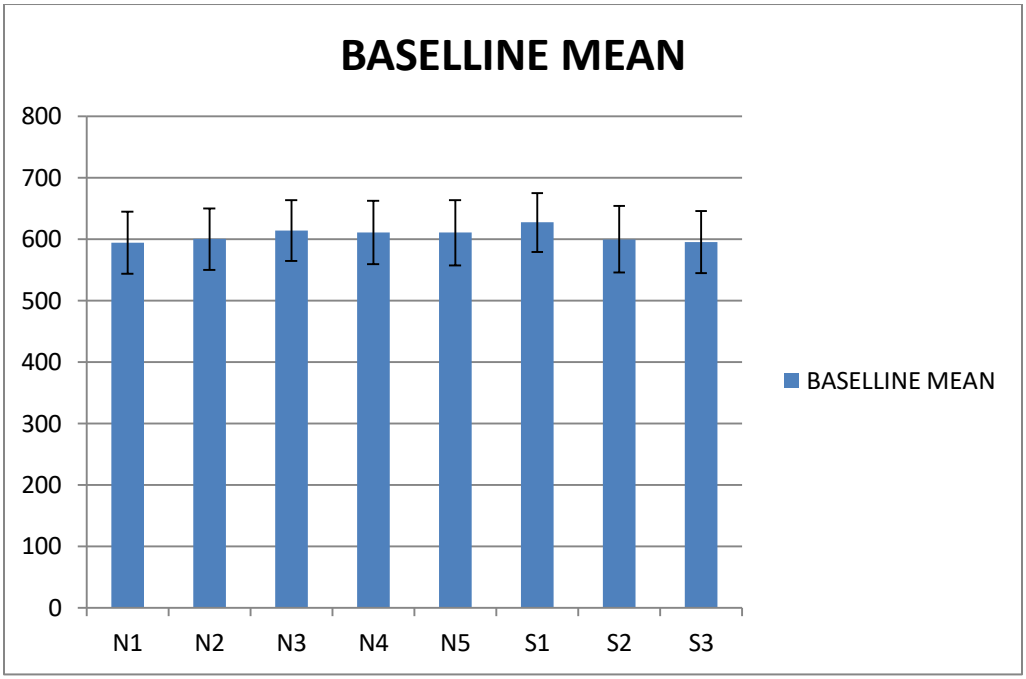
RESULTS

Data collection started from 14th February, 2019 till 14th march, 2019.

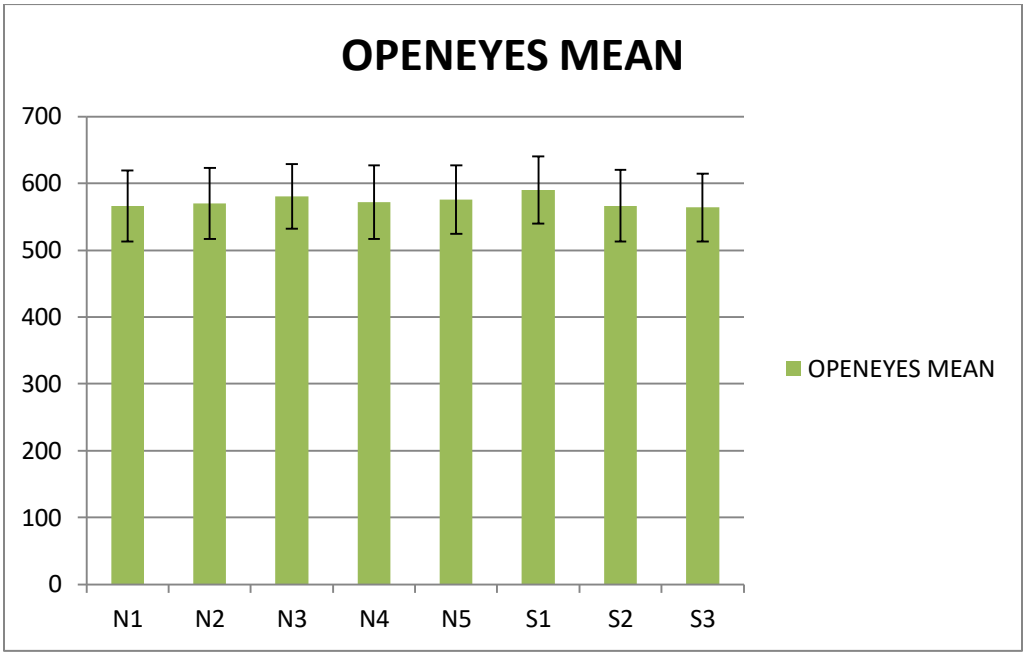
FLOW CHART



BASELLINE		
	MEAN	SD
N1	593.7605	50.5718
N2	600.0259	50.13449
N3	613.4925	49.63022
N4	610.8693	51.82866
N5	610.4001	53.03662
S1	627.3662	47.9297
S2	599.5706	53.97529
S3	594.6336	50.50007



OPENEYES		
	MEAN	SD
N1	566.2232	53.36348
N2	569.805	53.04973
N3	580.6663	48.37893
N4	572.0472	54.69108
N5	575.8566	51.06321
S1	590.1792	50.0838
S2	566.5091	53.37362
S3	563.9158	50.59201



CLOSEEYES		
	MEAN	SD
N1	537.3902	58.40858
N2	550.2155	57.2668
N3	564.1333	57.29493
N4	550.3099	56.99054
N5	555.6581	56.94692
S1	573.719	58.82874
S2	542.4372	55.8588
S3	543.286	57.28654

The Expression mean RT of a five Noise Condition and three Spacing condition were submitted to repeated measure ANOVA's. Significance was set at $p<0.05$ for the analysis. One way

repeated measure ANOVA was run to find any significance change. Effect size was calculated using Partial eta square ($\dot{\eta}^2_{p)}$. All the condition was found statistically significant.

Further to find from where the difference is coming from and to follow it up further, Post Hoc analysis was done on all significant interactions with Bonferroni correction

It was done or three conditions:

1. Baseline and Open eyes
2. Baseline and Close eyes
3. Open eyes and Close eyes

Bonferroni correction was followed and new alpha value was found to be 0.016(p=0.05/3)

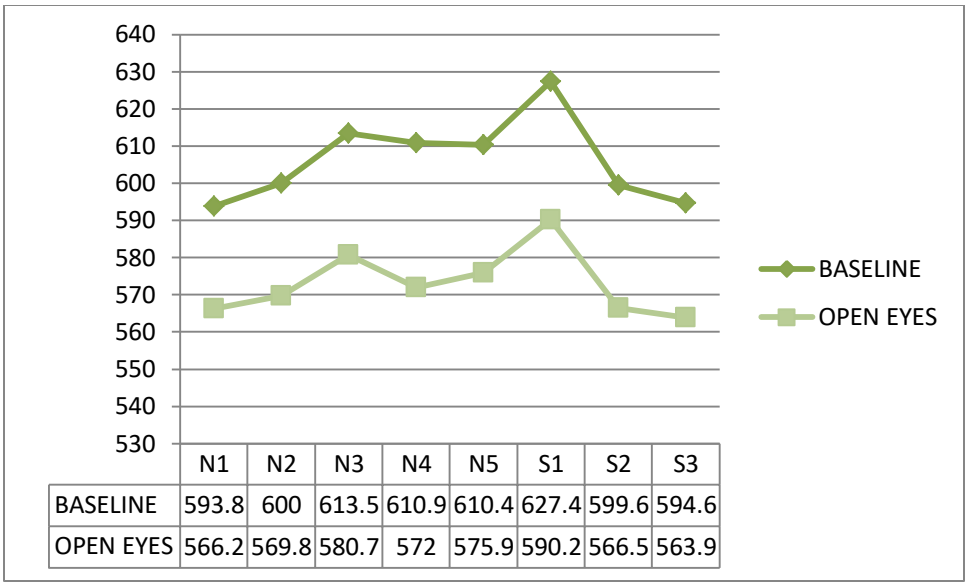
P<0.016 = Reject the null hypothesis

P>0.016 = Fail to Reject the null hypothesis.

BASELINE AND OPENEYES

All noise and spacing condition of baseline was compared with all noise and spacing condition of open eyes and it was found to be statistically significant for all conditions. There was a significant improvement in the mean reaction time with yoga practice done with open eyes than compared to no yoga practice done.

CONDITION	t VALUE	p VALUE	COHEN'S d
N1	3.14	0.004	0.57
N2	3.03	0.005	0.55
N3	3.80	0.001	0.69
N4	4.22	0.001	0.77
N5	3.61	0.001	0.66
S1	3.93	0.001	0.72
S2	3.87	0.001	0.71
S3	2.86	0.002	0.60

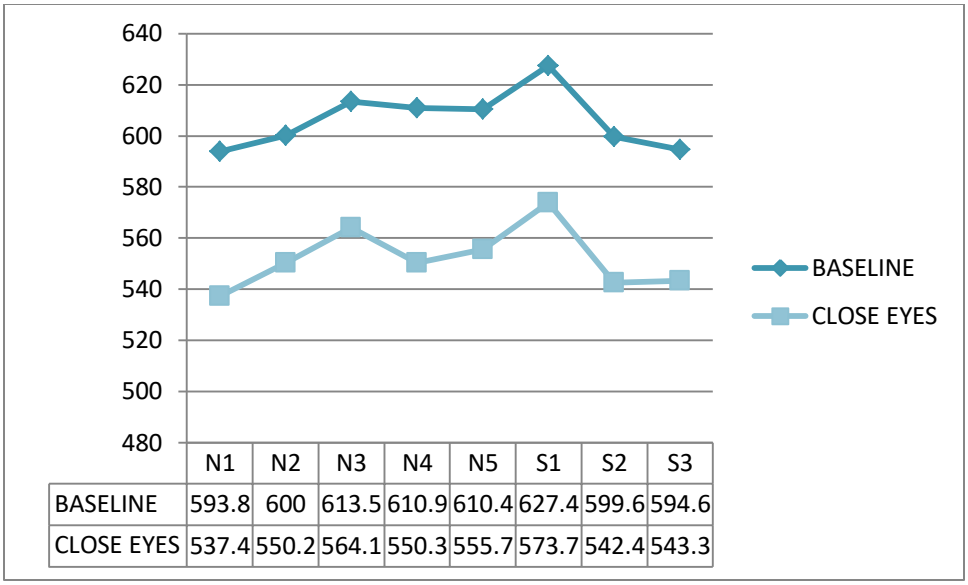


	N1	N2	N3	N4	N5	S1	S2	S3
BASELINE	593.8	600	613.5	610.9	610.4	627.4	599.6	594.6
OPEN EYES	566.2	569.8	580.7	572	575.9	590.2	566.5	563.9

BASELINE AND CLOSE EYES

All 5 noise condition of baseline and spacing of baseline were compared to all five noise condition of close eye and it was found to be statically significant for all conditions. There was improvement in the mean reaction time with yoga practice compared to no yoga practice.

CONDITION	t VALUE	P VALUE	COHEN'S d
N1	6.38	0.001	1.16
N2	4.78	0.001	0.87
N3	5.24	0.001	0.96
N4	6.92	0.001	1.26
N5	5.73	0.001	1.05
S1	5.97	0.001	1.09
S2	6.32	0.001	1.15
S3	5.12	0.001	0.94

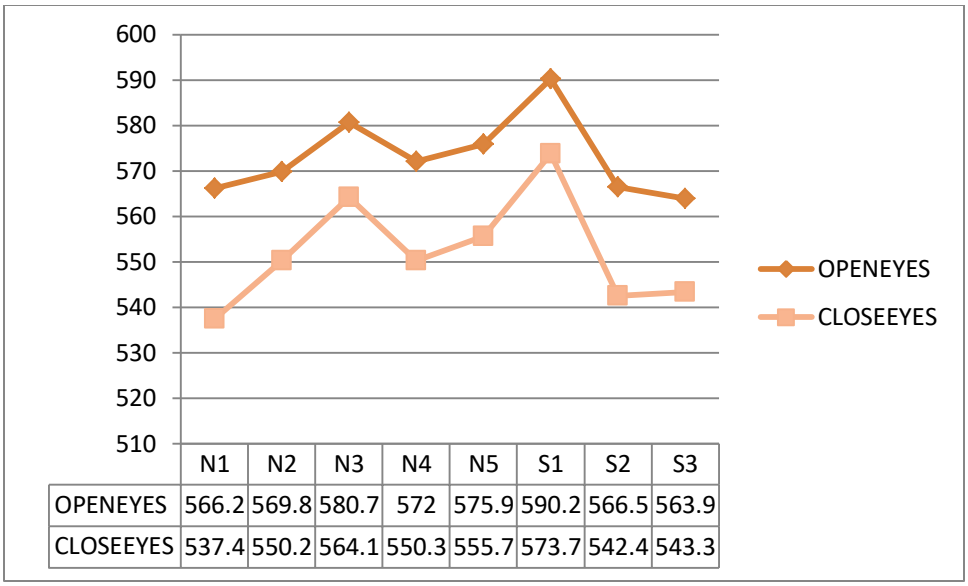


	N1	N2	N3	N4	N5	S1	S2	S3
BASELINE	593.8	600	613.5	610.9	610.4	627.4	599.6	594.6
CLOSE EYES	537.4	550.2	564.1	550.3	555.7	573.7	542.4	543.3

CLOSEEYES AND OPEN EYES

All 5 noise condition and spacing condition of open eyes was compared with all noise conditions and spacing condition of close eyes. Only N2, N3, S1 are Insignificant but the effect size value are quite high. So it is not be statistically significant because of Low sample size

CONDITION	t VALUE	P VALUE	COHEN'S d
N1	3.96	0.001	1.16
N2	2.26	0.032	0.87
N3	2.56	0.016	0.96
N4	3.09	0.004	1.26
N5	2.73	0.011	1.05
S1	2.18	0.037	1.09
S2	3.46	0.002	1.15
S3	2.86	0.008	0.94



	N1	N2	N3	N4	N5	S1	S2	S3
OPENEYES	566.2	569.8	580.7	572	575.9	590.2	566.5	563.9
CLOSEEYES	537.4	550.2	564.1	550.3	555.7	573.7	542.4	543.3

NOISEIDENTICATO THE TARGET (N1):

Response time will be shortest when the target is flanked with the noise letter same as the target letter. When the eyes closed, eyes open and baseline condition are compared for the condition N1. The result **Figure 1** shows that the Eyes close shows the least reaction time with mean and SD (537.3902 ± 58.40858).

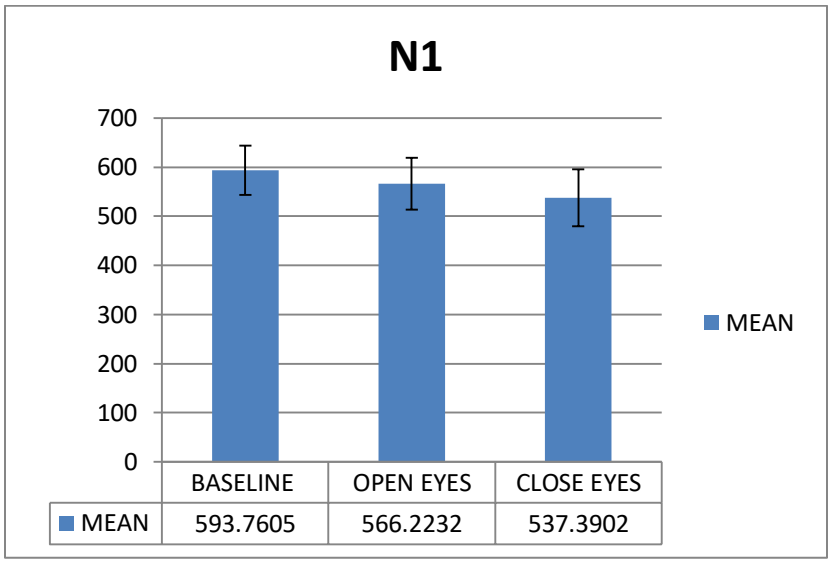


Figure 1

NOISE RESPONSE COMPATIBE (N2):

When the target is flanked with the noise letter of the same response set, the latency will be slow On comparing with eyesclose, eyesopen and baseline condition. The result Figure 2 shows that closedeyes shows least reaction time with mean and SD (550.2155 ± 57.2668).

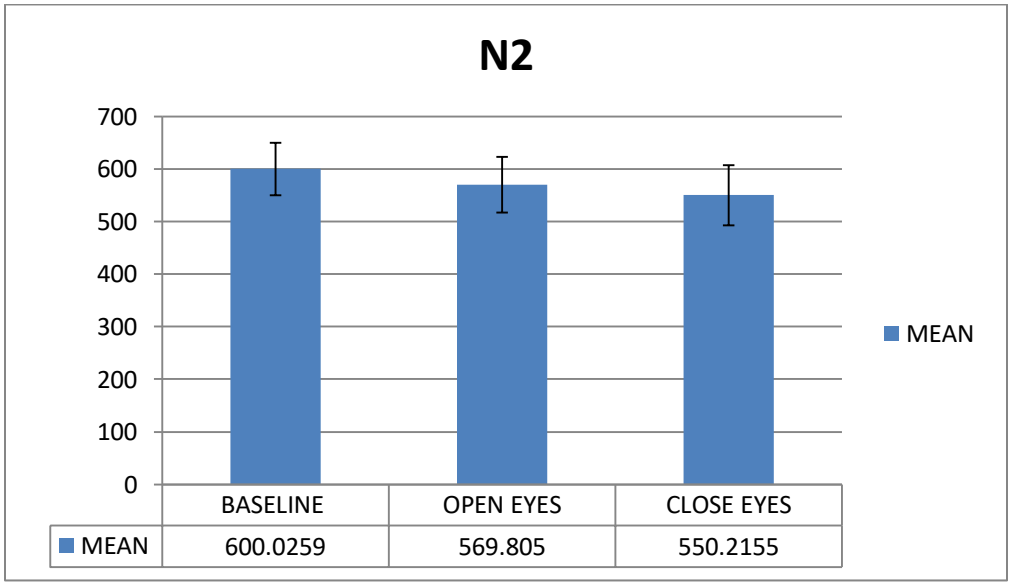


Figure 2

NOISE RESPONSE INCOMPATIBLE (N3):

The latency will be the longest When the target letter is flanked by the noise from the opposite target set because the letter is competed not only for internal recognition but also for lever movement. On comparing with eyesclose,eyesopen and baseline condition. The result **Figure3** shows that Close eyes shows least reaction time with mean and SD (564.1333±57.29493)

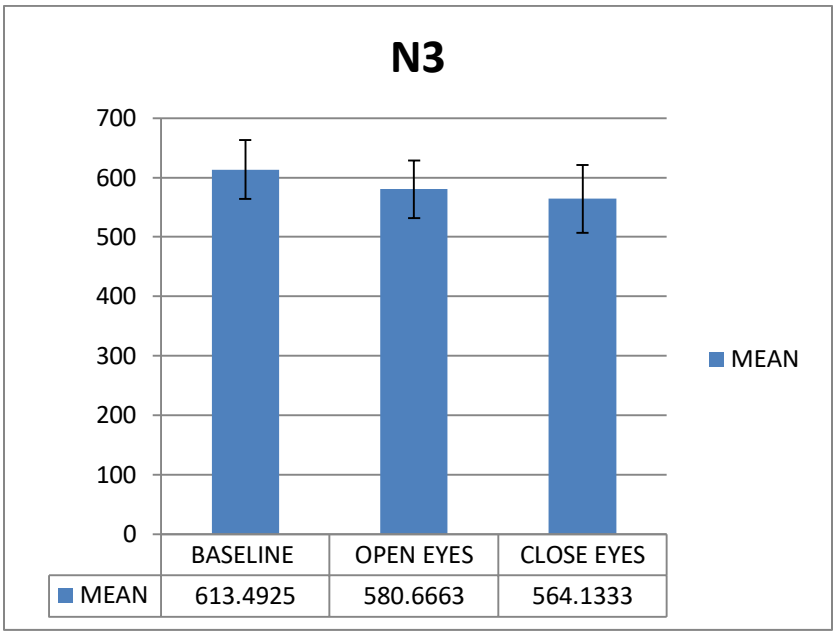


Figure 3

NOISE SIMILAR TO TARGET (N4):

The latency will be slow for the condition noise similar to target set because of slowed target recognition. When comparing with eyes close, eyes open and baseline condition. The result Figure 4 shows that close eyes shows least reaction time with mean and SD(550.3099 ± 56.99054)

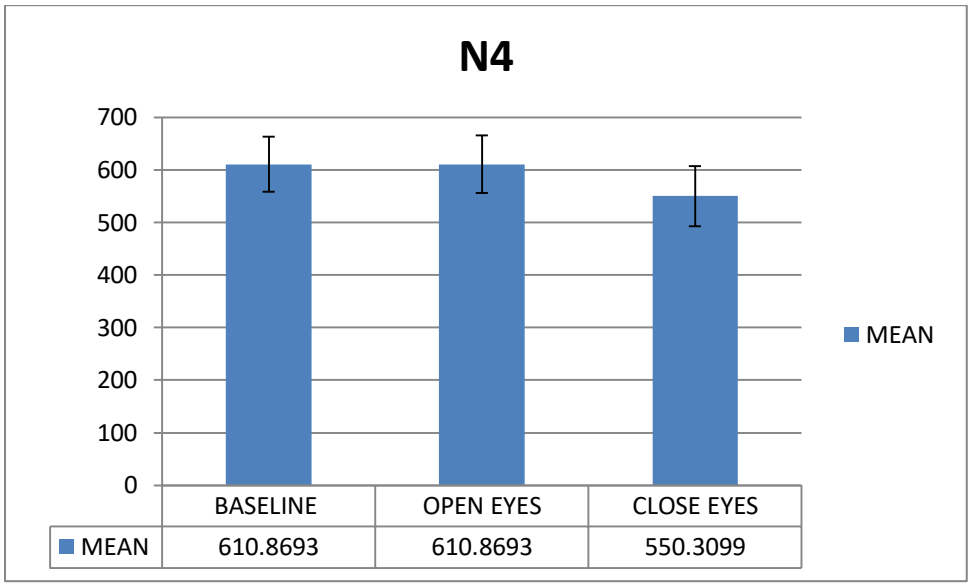


Figure 4

NOISE DISSIMILAR TO TARGET (N5):

The latency will be shorter than compared to noise similar to the target since, letter recognition will be faster. When comparing with Eyes close , eyes open and baseline condition. The result Figure 5 shows that close eyes shows east reaction time with mean and SD (555.6581± 56.94692)

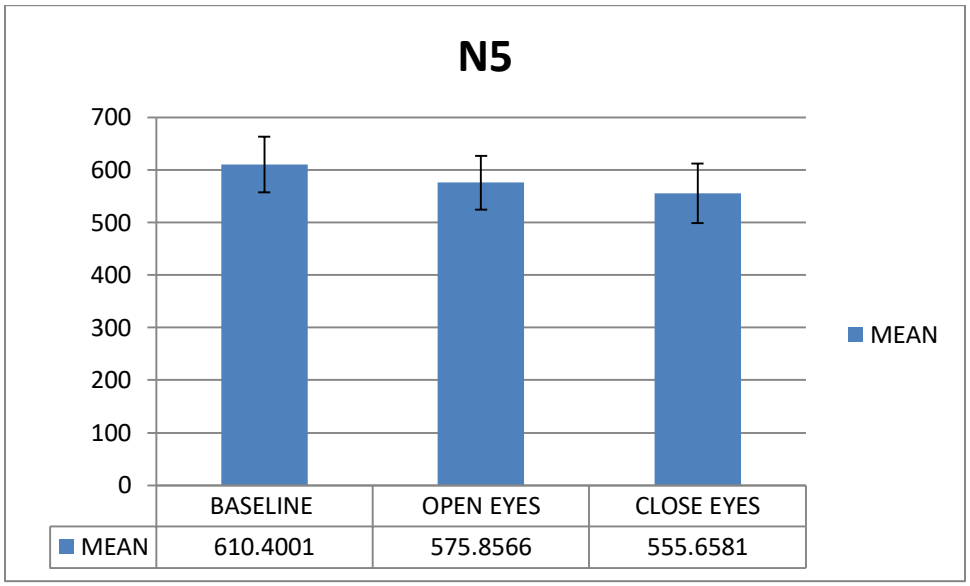


Figure 5

SPACING CONDITION ON 0.06° (S1):

The Spacing condition at 0.06° of spacing between the noise and the target letter, greater time is required for processing information since target and noise are very close to each other. When comparing with eyes close, eyes open and baseline condition. The result Figure 6 shows that close eyes shows less reaction time with mean and SD(573.719±58.82874)

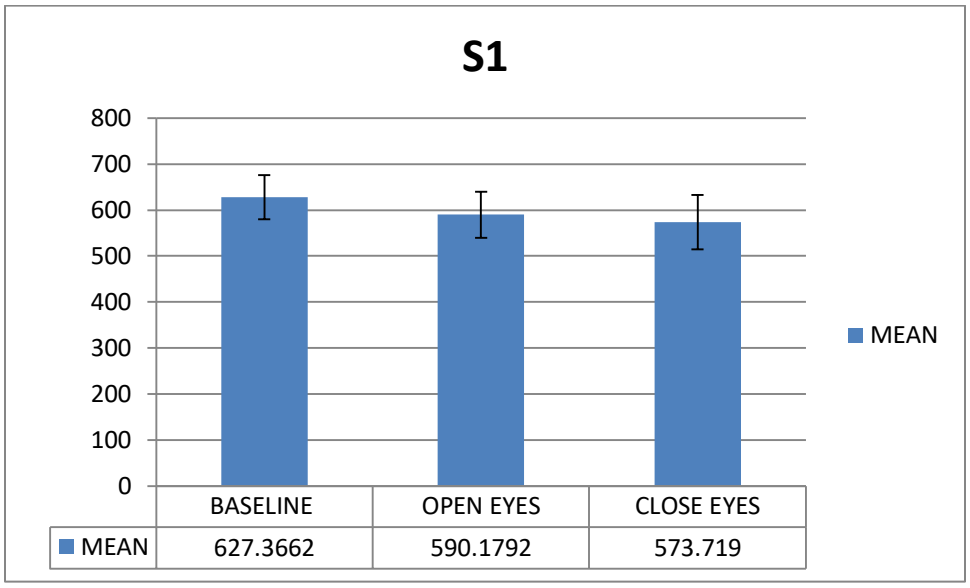


Figure 6

SPACING OF 0.5° (S2):

The location of the target and the noise letter will be more discriminable but the reaction time will be less than 0.06° of spacing. When comparing with eyes close, eyes open and baseline. The result Figure 7 shows that eyes close shows the less reaction time with mean and SD(542.4372 ± 55.8588)

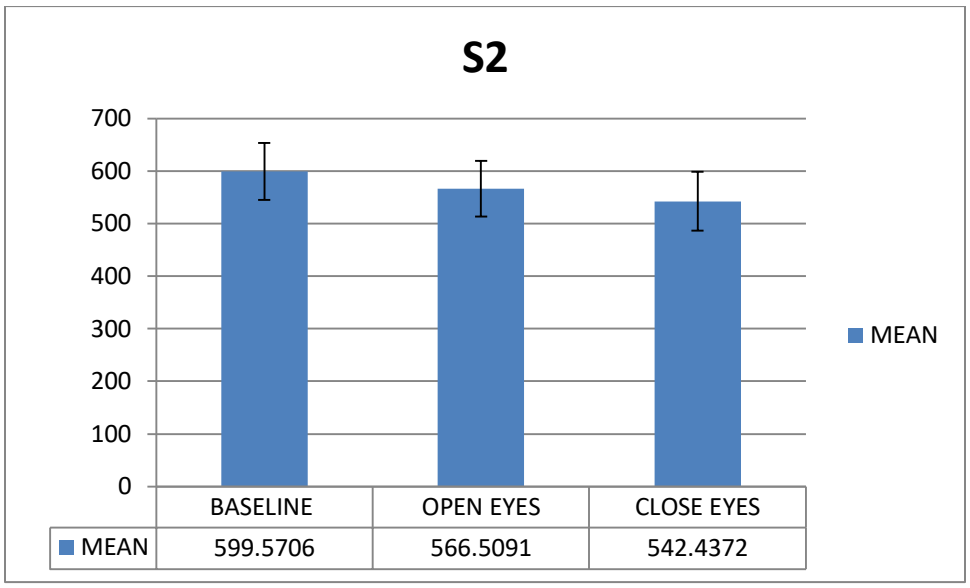


Figure 7

SPACING OF 1.0^{o} (S3):

The target letter can be identified and can be discriminated from the noise letter with ease. The reaction time will be least for the spacing condition three because of the distance between the noise letter and target are more. Baseline, open eyes, and close eyes were compared and the result **Figure 8** shows that the close eyes shows less reaction time with mean and SD (543.286 ± 57.28654)

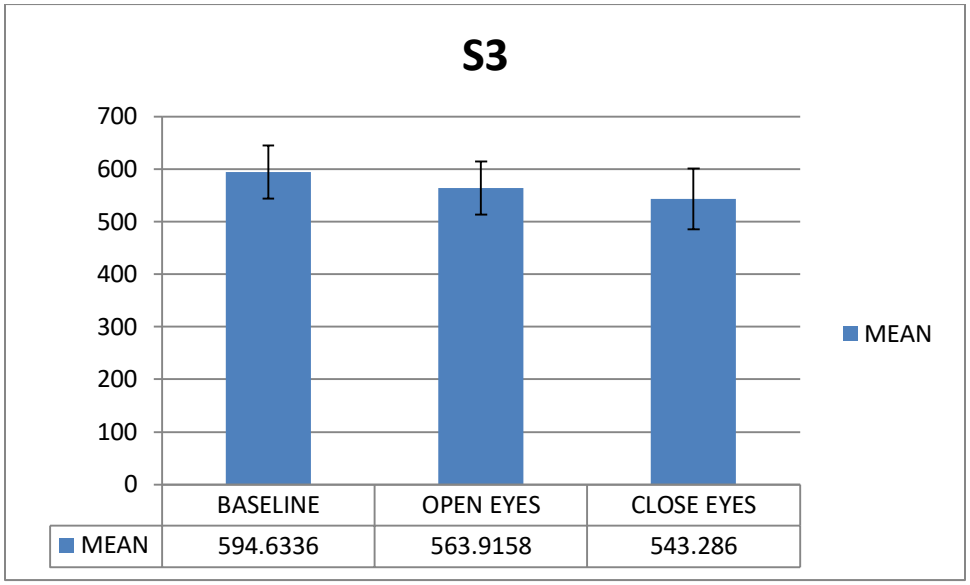


Figure 8

CHAPTER 7

In a study conducted by (Madanmohan et al., 1992) had a sample size of 27 student volunteers who were given yoga, pranayama training for 12 weeks. The study was done to study the effect of yoga practice on visual and auditory reaction time(RT), maximum expiratory pressure, hand grip strength, maximum inspiration pressure, breath holding. Single group pre-post study was done and it showed that there was a significant ($p<0.001$) decrease in the visual RT (from 270 ± 6.20 (SE) to 224 ± 5.76 ms) as well as auditory RT (from 194.18 ± 6.00 to 157.33 ± 4.85 ms). Also all the other variables showed positive result. Hence, 12 week of yoga training result in reduction in RT and improves respiratory pressure and breath holding time.

In a study (Malathi & Parulkar, 1989) was conducted to find the change in auditory and visual reaction time on 83 subjects who have never practiced yoga before. The subjects were randomized into two groups: Group A whose audio and visual reaction time was determined after 1 hour of practice and Group B whose auditory and visual reaction time was determined after 6 weeks of practice. Although both the groups showed a reduction in the RT but group B (VRT of 205.6 ± 8.79 to 178.36 ± 30.30 and ART of 178.60 ± 21.4 to 168.12 ± 19.8) showed a greater reduction ($p<0.001$) in RT than compared to Group A (VRT of 182.67 ± 15.73 to 176.58 ± 23.58 and ART of 146.30 ± 11.20) with $p>0.05$.

We conducted this study to see the change in Reaction Time in the yoga practice done with eyes open, eyes close and baseline effect on male subjects through Flanker task for all the three days visit of the subject to the lab. For this study the design was one way repeated measure ANOVA and post hoc analysis was tabulated. There was a significant change in all the five noise condition and all three spacing condition ($p<0.001$).

Further to evaluate from where the change is coming from post hoc analysis with bonferroni correction was applied for three condition and those were baseline and eyes close, baseline and eyes open and eyes open and eyes close. The result showed that there was a significant change in baseline and eyes close ($p<0.001$), baseline and eyes open ($p<0.001$). The result found for open eyes and close eyes condition was not found to be significant.

The objective was to study the effect of yoga practice on reaction time, to analyze the significant difference in reaction when yoga practice has done with eyes open, close and baseline, to study the difference in reaction time of the eyes open, eyes close and baseline condition. The tools used for this practice were flanker task (a computer based test).

The data of the subject (30 males) were collected three times for all three condition and was analysed to find the effect yoga practice done with open eyes, close eyes and baseline condition.

The finding was discussed with the reference of the hypothesis. Yoga practice has immediate effect on reaction time. Further, when open eyes and close eyes were compared; the result showed that the reaction time was less in the closed eyes.

CHAPTER 8:

CONCLUSION

The study was aimed to find any difference in practicing yoga with open eyes, closed eyes and baseline condition. The subject participated in the study were 30 males. The present finding of the study showed that yoga have an immediate effect on the reaction time for both eyes open and eyes closed condition from baseline condition with very high significant value ($p<0.001$).

Further, open eyes closed eyes and baseline condition were compared in all five noise condition and three spacing condition and the result was found that reaction time is more for the baseline condition and open eyes condition than closed eyes for all the conditions. Hence, reaction time significantly decreases when yoga is practiced with closed eyes in male.

CHAPTER 9

9.1 STRENGTH OF THE STUDY

- This type of study is useful to create awareness about the effect of yoga practice with eyes close, eyes open and baseline condition on reaction time among the male subjects in the university.
- It shows the very high significant value.
- Multiple dimension approach of yoga practice module for Reaction time from different ancient yoga scriptures.
- There were no dropouts

9.2 LIMITATION OF THE STUDY

- Sample size was small (n=30)
- Confounding variable couldn't be controlled
- Only male subjects were recruited for the study

9.3 RECOMMENDATIONS

- More sample size will help to find out the difference between eyes close, eyes open with baseline clearly in the study.

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APPENDICES

APPENDIX-1

SIGNED INFORMED CONSENT FORM

Title of the project : "immediate effect of yoga practice done with eyes open, eyes close and baseline on reaction time with male subject."

Investigator : N.SUBHASHRI, M,Sc candidate

Name of the guide : Dr. Vikas Rawat

Name of the participant : _____

Date and time :_____ and_____

ABOUT THE PROJECT:

In order to understand the effect of yoga practice done with open eyes, close eyes and baseline on reaction time.

First day, the student will do the flanker test without any intervention; second day student have to perform a set of 9 asana either with close eyes or open eyes (randomized) and perform the flanker task immediately. On students third visit they have to perform the same set of asana (if done with close eyes then with open eyes and vice versa) and perform the flanker task immediately.

Please note

- All the information obtained during the study will be kept confidential.
- You may withdraw from the study at any point unconditionally.

Thereby, I have understood the above and consent voluntarily to participate in the study.

Date: _____ Signature of the student

Table 1

subha

Predictor	df_{Num}	df_{Den}	*Epsilon*	SS_{Num}	SS_{Den}	*F*	*p*	η^2_g
(Intercept)	1.00	29.00		28810782.61	195404.34	4275.81	.000	.99
N1	1.90	54.98	0.95	47672.51	60280.82	22.93	.000	.16
(Intercept)	1.00	29.00		29585590.13	167410.93	5125.01	.000	.99
N2	1.91	55.52	0.96	37781.06	82198.68	13.33	.000	.13
(Intercept)	1.00	29.00		30915909.55	175042.89	5121.95	.000	.99
N3	1.71	49.68	0.86	37872.41	59462.40	18.47	.000	.14
(Intercept)	1.00	29.00		30040738.05	197798.30	4404.39	.000	.99
N4	1.83	53.14	0.92	56470.96	61033.84	26.83	.000	.18
(Intercept)	1.00	29.00		30342669.60	182296.49	4826.96	.000	.99
N5	1.83	52.99	0.91	45979.12	68938.81	19.34	.000	.15
(Intercept)	1.00	29.00		32086278.93	173833.28	5352.84	.000	.99
S1	1.88	54.40	0.94	45318.32	65894.18	19.94	.000	.16
(Intercept)	1.00	29.00		29190301.82	198671.98	4260.89	.000	.99
S2	1.84	53.35	0.92	49367.40	58914.12	24.30	.000	.16
(Intercept)	1.00	29.00		28962437.33	174141.99	4823.14	.000	.99
S3	1.77	51.35	0.89	40057.49	69213.16	16.78	.000	.14

Note. df_{Num} indicates degrees of freedom numerator. df_{Den} indicates degrees of freedom denominator. Epsilon indicates Greenhouse-Geisser multiplier for degrees of freedom; *p*-values and degrees of freedom in the table incorporate this correction. SS_{Num} indicates sum of squares numerator. SS_{Den} indicates sum of squares denominator. η^2_g indicates generalized eta-squared.

RAW DATA

Id	baseline_n1	baseline_n2	baseline_n3	baseline_n4	baseline_n5	baseline_s1	baseline_s2	baseline_s3
101	501.4545455	515.4923	496.1	516.4851	519.015	536.7152318	502.6903226	497.6710526
102	569.7826087	601.303	645.2576	590.7463	609.5299	621.1210191	603.8993711	580.9738562
105	572.4827586	559.1967	606.9508	598.771	592.0385	614.1360544	572.4468085	580.0653595
106	581.7391304	558.2647	617.2206	597.375	584.2727	612.5354839	579.163522	574.9056604
107	538.890625	570.0299	575.2609	596.0226	569.0952	593.4563758	565.8104575	562.7834395
110	614.0149254	639.1935	655.7273	650.0606	643.7652	644.0794702	642.0576923	640.8881579
111	647.4761905	656.75	675.4194	679.9147	677.5846	696.4965986	668.1589404	648.1133333
112	581.5454545	584.8261	619.3051	601.6923	603.8473	636.6948052	581.1315789	578.6241611
114	634.6615385	639.4848	648.6364	645.9191	635.0216	667.9745223	639.79375	613.8258065
120	601.15625	650.8657	654.3016	654.7937	636.712	663.222973	643.5960265	616.8219178
124	592.2857143	601.1167	615.2344	590.4504	584.0488	620.0071942	597.98	566.2171053
125	573.8548387	590.9545	633.8	579.6231	597.7054	614.1608392	581.5723684	586.0509554
130	571.2380952	583.3692	603.2031	590.3906	605.3548	613.9060403	587.4569536	576.1666667
132	520.9852941	508.8592	502.4706	519.7063	517.7868	541.56875	504.7212121	500.1925466
133	561.0625	555.2029	564.3621	570.7937	572.6349	592.8108108	548.2551724	558.5933333
135	620.5490196	632.4314	620.6875	653.4752	669.3061	674.71	633.2769231	634.3781513
136	657.46875	682.2459	667.48	682.5929	670.4426	689.4685315	663.6492537	665.2105263
137	602.7413793	614.2	630.85	631.4071	629.4831	629.4583333	623.3636364	619.0942029
138	660.6176471	661.2206	678.194	700.378	698.0606	706	678.8675497	669.2532468
139	674.5535714	633.82	635.35	670.3697	674.0708	675	659.4274809	651.8496241
151	634.7741935	662.1692	656.25	652.5635	655.3279	662.4630872	645.8142857	649.66
152	561.2615385	574.1111	575.8305	586.5968	588.4298	583.041958	571.4551724	585.6041667
153	626.0704225	616.8406	621.1667	621.4737	617.9489	629.7924528	615.427673	616.2317073
154	473.6056338	490.9155	499.4058	488.7042	474.3869	516.1840491	461.8343558	475.0609756
155	661.0181818	638.0351	618.1778	636.6522	650.2712	661.6153846	642.2923077	622.9307692
158	660.1875	652.871	653.2813	653.5283	668.2295	685.2537313	643.8888889	648.5285714
161	591.1639344	592.1864	600.6441	623.8407	604.4667	619.7536232	597.9481481	598.6978417
163	539.3571429	547.3621	588.92	547.6583	559.0236	571.0222222	545.2777778	549.2727273
164	554.3934426	544.4545	575.1324	555.6045	553.8	593.522293	539.9066667	533.7960526
167	632.421875	643	670.1563	638.4885	650.3413	654.8133333	645.9542484	637.5460526

Id	openeyes_n1	openeyes_n2	openeyes_n3	openeyes_n4	openeyes_n5	openeyes_s1	openeyes_s2	openeyes_s3
101	477.6956522	488.7937	508.697	494.8372	494.6508	516.9256757	485.5751634	478.2302632
102	579.9393939	603.2121	618.4571	619.6296	606.7664	628.8974359	598.70625	596.556962
105	514.5217391	522.6197	530.2429	540.9265	523.029	550.3024691	515.5246914	517.53125
106	552.25	552.6667	569.4098	581.7615	578.0853	599.9121622	558.8219178	553.724359
107	575.1904761	554.0606	554.1061	570.2273	574.7519	579.5225806	553.6883117	569.4966887
110	564.7142857	581.7385	573.7969	583.2121	582.2263	583.1290323	586.9415584	566.2955975
111	638.4347826	607.75	648.2188	633.2481	627.0071	635.8782051	640.0931677	615.4620253
112	533.890625	561.8143	571.9355	561.9924	572.4453	588.0397351	552.5886076	547.8269231
114	641.2463768	634.5143	641.9254	623.9504	627.0284	631.081761	633.8606061	628.8414634
120	641.2463768	634.5143	641.9254	623.9504	627.0284	631.081761	633.8606061	628.8414634
124	503.1617647	515.3623	551.9231	547.6544	547.9615	559.2156863	519.987013	532.4720497
125	577.5492958	577.2429	599.6912	561.2117	586.6923	600.29375	562.9390244	573.369697
130	551.3114754	558.1212	557	532.7405	554.8092	579.62	530.2368421	536.442953
132	519.9428571	498.6667	547.7143	527.0704	522.0216	534.7037037	519.402439	516.7378049
133	547.390625	534.2813	567.7097	540.5703	551	561.1468531	542.6	539.261745
135	490.1111111	484.3971	505.2941	497.5814	497.4662	502.7891156	494.2919255	490.4313725
136	484.4393939	469.3134	494.6441	464.2977	476.6515	488.8219178	478.525974	459.8774194
137	594.8196721	640.6462	626.0484	628.6583	618.3047	646.4256757	620.8461538	599.1103448
138	659.3030303	650.1029	655.6667	655.5615	655.3385	666.1146497	657.8823529	641.4575163
139	643.8064516	628.4328	646.45	640.4167	636.3333	643.8394161	640.9315068	631.7534247
151	631.3283582	626.4194	633.7671	632.8203	640.2373	646.5454545	624.9236111	630.1564626
152	577.7761194	564.2941	591.1667	584.5108	584.8222	611.8571429	568.7070064	563.7070064
153	547.2361111	544.6479	583.875	557.972	547.1277	571.5928144	541.9636364	551.8862275
154	498.7101449	522.9577	503.7538	499.0593	489.5985	513.2830189	499.7341772	488.51875
155	636.4761905	652.9825	648.6379	671.0161	644.775	664.9455782	653.2753623	639.5547445
158	620.4142857	594.1471	609.5286	631.4604	622.0815	648.1875	610.2787879	597.7452229
161	562.390625	571.8806	590.2419	582.2891	578.6963	590.0675676	564.3870968	580.0718954
163	547.390625	634.5143	554.1061	497.5814	627.0284	631.081761	530.2368421	573.369697
164	541.6451613	536.4375	557.9032	544.3083	552.9697	553.3426573	543.0671141	545.7297297

167	532.3636364	547.6176	536.1515	530.9008	528.7638	546.7302632	531.3949045	523.0134228

Id	closeeyes_n1	closeeyes_n2	closeeyes_n3	closeeyes_n4	closeeyes_n5	closeeyes_s1	closeeyes_s2	closeeyes_s3
101	472.28125	470.2031	474.8413	456.5078	471.1615	485.2040816	460.04	457.8092105
102	508.265625	552.8955	652.9365	545.1955	528.5414	562.0779221	551.5432099	636.3421053
105	496.826087	494.5	508.6818	492.4779	484.9574	507.6625	486.308642	486.4567901
106	564.1060606	581.9375	591.8833	596.2824	595.3308	605.2133333	580.2281879	580.9290323
107	596.0869565	625.5507	608.1739	593.2857	617.3971	625.2201258	598.5125	598.4585987
110	542.4166667	559.8571	574.5652	569.2741	577.6742	594.925	551.3846154	554.2592593
111	650.5322581	624.1719	652.9365	674.6457	663.2422	687.4609929	651.218543	636.3421053
112	545	552.8955	560.1719	573.563	581.708	611.0266667	551.5432099	541.4037267
114	607.1527778	609.5139	620.8286	614.2587	625	641.0898204	602.8963415	605.4166667
120	546.4029851	551.8676	563.5077	537.8923	531.3529	562.0779221	535.5328947	531.20625
124	508.265625	548.8235	545.6452	534.1324	553.9308	565.4697987	530.8397436	524.2967742
125	482.5737705	509.8	516.8852	507.084	514.4889	529.2384106	489.3181818	504.8513514
130	509.6142857	553.3881	531.5507	545.1955	554.5612	546.5541401	533.4240506	545.595092
132	521.6	536.2222	549.7647	541.3913	540.4929	550.0909091	532.8282209	532.93125
133	500.7647059	537.2206	522.9118	511.3985	528.5414	544.9072848	510.6089744	506.2392638
135	537.7460317	529.0308	546.9194	525.8504	538.6694	547.8356164	534.3333333	522.013245
136	510.9692308	511.4571	523.0606	515.0611	518.1729	531.8120805	516.2745098	501.208589
137	587.6557377	592.2308	624.9661	582.8067	612.1933	624.8467153	582.5942029	590.6621622
138	656.469697	691.75	685.8308	672.4274	673.8125	705.9933333	660.02	659.2176871
139	637.6190476	584.0758	640.6866	621.7266	621.7652	648.704698	610.9025974	604.9869281
151	563.8529412	569.0714	583.5373	580.9353	589.7023	616.477707	559.0186335	563.6050955
152	550.2727273	560.9677	562.661	553.5794	561.0615	571.5793103	545.0666667	556.3851351
153	503.9428571	507.1972	541.4	515.3191	512.7708	537.0424242	503.8203593	505.695122

154	425.9285714	442.7313	441.1538	446.3929	440.4044	470.525974	429.8875	422.5609756
155	638.1714286	682.8955	648.6471	642.9416	636.3824	669.6075949	643.5576923	627.8780488
158	516.3970588	509.4366	543.0313	534.8309	526.5036	551.8589744	517.0126582	513.1419753
161	503.1014493	514.6364	545.806	519.5414	533.2553	544.0886076	528.2911392	500.63125
163	487.5254237	518.9	541.0172	520.8595	542.0574	542.6965517	525.2444444	505.95
164	482.5737705	509.8	516.8852	507.084	514.4889	529.2384106	489.3181818	504.8513514
167	467.5915493	473.4366	503.1111	477.3566	480.1223	501.0424242	461.5481928	477.2545455