

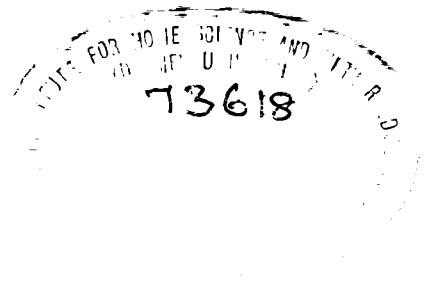
# Impact of Yoga on Certain Dimensions of Personality

BY

Sharmila A.

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# Introduction

## I. INTRODUCTION

"When a person acquires a body lustrous with the fires of yoga, how can sickness, old age and even death touch him?"

### UPANISHAD

Seth (1989) is of the opinion that nobody comes to a psychiatrist with the complaint that he feels very happy. There are various reasons why people fall sick. Depression is more prevalent in society. Happiness is something which you hunt for. Simple problems become complicated in the process of life - it is we who complicate them. The common denominator of the problem is personality - either internal or external (Promil and Sequeira, 1989).

Andhra<sup>a</sup> (1989) exhorts that as one is born hereditary, environmental and several other factors start moulding one's conscious and subconscious personality. As a result of these structures one functions in life in different ways and reaps plenty of good and bad experiences. The purpose of such experience is to attain the highest realisation. Yoga is experiencing the realities of life with depth and awakening to seek greater depths into apparent

realities. It helps the modern man to experience inner peace and to function better with the family and the society.

The field of yoga is based on psychology, philosophy and religion (Schumann, 1984), it is a physio-psychological technique based on a sound understanding of processes of the body and the psyche of man (Shastri, 1984). Chinwala (1989) expounds that the practice of yoga gives the person an insight into the personality - a persistent characteristic of an individual. It has holistic approach to health and to one's personality. It represents the way of life which endows perfect health - physical, mental, moral and spiritual (Agrawala, 1989). It helps in establishing healthy routines, right habits, a change in motivations and attitude (Jayadeva, 1988) and the process of self perfection (Shah, 1988). To Patanjali it is the suppression of the functions of the psyche (Valecha, 1988).

Sitadevi (1989) tells that yoga paves the way for world unity through its immaculature moral activism. Removal of all moral and mental impurities, the individual rises above his ego. To Afzal (1989) and Swami Gitananda (1987) yoga is a science, an art, a philosophy, a religion, a fad and fanaticism. Sri Krishna in Bhagvad Gita says that yoga means a total building together without any

differenciatio. It is a complete philosophy of life. It is different from other forms of exercise. It is gradual, rhythmic, relaxing and precise (Vaishnav, 1988).

Anand (1989) propounds that the art of yoga consists in bringing under control and purifying the three lower vehicles on man - viz. body, mind and the spiritual self. It is associated with the acquisition and exhibition of supernatural powers (Datey, 1988 and Joshi, 1985).

While describing the objectives of yoga, Jayadeva (1989) points out that yoga as 'education' is to teach a person how to handle himself subjectively and behaviourally - - - - how to handle one's feelings. It is a stagewise, stepwise education, which leads to the highest stage of evolution.

To Swami Satya Prakash Saraswathi (1975) yoga is the nirodha (inhibition) of the vrthi (function) of the Citta (mind) i.e. freedom from attachment and can bring by practice. Fayadeva Yogendra (1986) says that yoga helps us in opening the door of the yonder world, i.e. the world of Lord. In its ultimate extension, yoga leads to inner most core ie. the self, beneath intelligence (Feys, 1977).

to consciously control automatic or involuntary functions such as temperature, heart beat and blood pressure (Afzal, 1989).

Yoga is the most popular symbol of spirituality in affluent civilisation today. It has come to dominate Hollywood and Oxford alike. Whether it is in a park, a swimming pool, a sea-beach, a workshop, a college campus or an open field, figures in yogic postures are a common sight. In a single word, it is a craze in the modern world.

Hence a study was taken in 1987-88, in our department - 'Impact of yoga on Adult Men'. It has investigated that the knowledge and training in yoga changed the attitude, had an impact on physical dimensions, physiological functions and memory power of the men (Tanuja and Baradha, 1988).

In order to find out the impact of yoga on integrating human personality, a follow up study has been taken up by the investigator on "Impact of yoga on Certain Dimensions of Personality" with the following objectives.

1. Yoga promotes the integration of personality - unity of all components of the personality at all levels. With this idea of achieving better personality integration, in turn leading to better functioning by exposing the selected subjects to worth while yogic concepts through the medium of experimental learning, it is hoped that the subjects would be able to function at a more complete level in all spheres of their lives.
2. To find the changes in their attitude towards yoga before and after the experience based education on yoga.
3. To publish the findings so that many people, who have found no solace either in drugs or in the present day style of life, may find a road of hope in yoga.

# Review of Literature

## II. REVIEW OF LITERATURE

The related literature pertaining to the study - "Impact of Yoga on Certain Dimensions of Personality" is reviewed under the following headings:

- A. Meaning and Elements of Yoga
- B. Origin of Yoga
- C. Types of Yoga
- D. Impact of Yoga on
  - 1. Physical dimensions
  - 2. Physiological functions
  - 3. Cognitive ability
  - 4. Spiritual development
  - and 5. Therapeutic values

### A. Meaning of Yoga

Originally the word Yoga is derived from the Sanskrit root Yujir meaning - unite or connect. Later it is associated with the control of mind (Joshi, 1985), to join (Seth, 1986), bind, attach, direct and concentrate one's attention on to use and apply (Iyengar, 1980).

Das (1981) says that yoga is the transformation of human consciousness into devine consciousness. Jingham (1986) explains that Yoga means Hindu System of ~~cont~~templation for effecting union of human soul with the

supreme being. Technically speaking yoga means "to mix". Yoga is not a religion. It is a pure science like mathematics, or physics or chemistry. It is an exact Science of inner being (Seth, 1986).

Chanbe (1977) quotes Sri Aurobindo's statement as yoga is a methodised effort towards self perfection by the expression of the potentialities, talent in the being and a union of individual with the universal and transcendent. It is an integral form of Philosophy. Both are correlative to each other. Patanjali has defined yoga as 'subduing the modifications of the mind stuff'. Yoga is attained by practise and dispassion. The practise becomes well grounded by long continued effort with zeal without break (Swami Satprakashananda, 1976).

According to Hewitt (1987) and Fenerstein (1986) yoga is both a practise and a goal. Though the word yoga may be constructed as to referring to the union of body and mind in harmonious health and effeciency, its highest level refers to the unitary consciousness of mystic. Das (1981) refers Bhagavat Gita's view that evenness of mind is yoga. It is a method of coming to a non-dreaming mind, and a science of being in the here and now. It is not only a view of life, but also a way of life and a means of liberation. It is an integral science of sciences, and

a means of leading one to introspection and reflection and aims at making the inner experience a basis for life rather than theory or scriptures. It is an art of being and teaches order and discipline in life and actual day to day living. It points out your centre within and it is skill in action and equilibrium.

Day (1970), Bapuji and Sharma (1980) exhorts yoga as a complete philosophy of life. It embraces the physical, mental and spiritual aspects of life practiced from ancient times in our country. Iyengar (1980) describes yoga as wisdom in work and skillful living amongst activities, harmony and moderation. In Rigveda the technique of achieving the unachieved had been referred as yoga. In its broad sense, any effort or combination of efforts which make it possible to achieve the highest object of one's life also known as yoga. Rigveda also connotes yoga as a communication link or a bond between the subject and the object, between the individual and the universe and therefore between microsm and macrosm.

Shri Yogendra (1971) states yoga as an integrated holistic system of self culture which aims at the harmonious development and health of the body and

mind complex. It is a sum and substance of a conceptual science and aid the process of evolution, therefore it is eternal. Yoga is an instrument to achieve all objects of life. It is an exact science word whose practices based upon the unchangiable iron laws of nature.

### Elements of yoga

These elements are means of mental concentration. They should be considered as the stepping stones to grand achievement. We enumerate them as follows:

1. Yama (Forbearance)
2. Niyama (Religious observance)
3. Asana (Postures)
4. Pranayama (Supression of the breath or  
breathing in a peculiar way)
5. Pratyahara (Restraint of the senses)
6. Dharma (Steading of the mind)
7. Dyana (Contemplation)
8. Samadhi (Trance)

The first five make external yoga while the other three internal yoga. All of these have futher subdivisions. According to Patanjali,

1. Yama - There are 5 yamas, i.e.
  - a. Ashina (Non violence)
  - b. Satya (Truth)
  - c. Asteya (Conquest of the senses and mind)
  - d. Aprigraha (Non-receiving)
 and
  - e. Brahmacharya (Celibacy)

2. Niyamas - They are no doubt indispensable and their importance cannot be underestimated but it seems that much stress has not been laid on their observance. Niyamas are also five in number i.e.

- a. Shanch (regularity obeying the call of nature of cleanliness)
  - b. Santosh (contentment)
  - c. Tapas (penance)
  - d. Swadhyay (self-study)
- and
- e. Iswar paridhan (God consciousness)

3. Asanas (postures) are in calculable in number.

For physical vigour and mental poise or spiritual upliftment, all these asanas advisably done with pranayama and significantly important. Many of the postures are said to be curative in nature, they have medicinal effect on the various physiological functions of the human organism.

4. Pranayama - It is infact, a part of upasana or devotion. It has 3 phases i.e.

- a. Purak (inhalation)
  - b. Rechak (exhalation)
- and c. Kumbak (supression of the breath)

After the adoption of the correct posture, one aims at synchronising inhalation - exhalation process to such an extent that there is natural and automatic supression of the breath. This state is called "Pranayama".

5. Pratyahar - It is restraining the senses which are gateways of knowledge. In fact, pratyahar simply means "bringing back" i.e. bringing the senses back from the sensual pleasures which are often the cause of mental distraction and bodily pains, because from the spiritual point of view the causes of all troubles in the world are "desires" and the senses are stimulants of wordly desires.

6. Dharma - When senses have been controlled though it is considerably difficult, there is an attempt to study one's mind. To this yogis called 'Dharma' which means studying and concentrating one's mind in particularly 'nothing'.

7. Dhyana - After the mind has been steadied, the real contemplation (Dhyana) starts. At this stage, there is smooth flow of deep thinking - neither hampered nor distorted.

8. Samadhi - The above state of body and mind can be compared to the smooth flow of water in a stream which is never disturbed whether the waves are too big or too small. This state of mind which originated in Dhyana, now culminates in 'Samadhi' or profound meditation, the highest state of yoga where there is neither aught ~~nor~~ haught, neither dark nor light, neither pleasure nor pain etc.

Dhayana, dharma and samadhi all the three together make sanyam (restraint or control). Profound meditation enables the jiva (the soul) to merge with the Brahma (the universal soul).

#### B. Origin of Yoga

Shri Yogendra (1973) tells that yoga is as old as civilisation itself. It represents the effort, the path, the progress and the end of human evolution. Yoga is universal and its origin should be accepted as from time immemorial. In the cultural history of India, yoga occupies as an unparalleled and distinct recognizance as the one and only practical system of physical, mental moral and spiritual culture.

Chanbe (1975) views that, as to the date of origin of yoga, nothing can be said with certainty. However,

claims have been made that it is as old as the Hindu culture itself. There are widely scattered references to yoga in the ancient Sanskrit literature. Excavations at the Mohenjadaro reveal that yoga was practiced in India as early as 300 B.C. (Sitadevi, 1989). Much of the vedic literature is supposed to have been written some time in 2100 B.C., where yoga has been frequently referred to as 'a way of life'. Later the oldest 10 of the 180 Upanishads, explained the philosophy, laws and principles governing yoga. The knowledge and wisdom which these Upanishads contain was collected, classified and assimilated sometime during 100 B.C. though we do not know who the writers of these Upanishads were. The Bhagavad Gita which was written, approximately in 400 B.C. contains ample discussion on yoga and its practices. It reveals yoga as the only means of renunciations and emancipation.

In the Ramayana and Mahabharata ages, yoga has been understood to have reached all the sundry and much has been written on the yogic exercises and concentration of mind. During the middle ages many yogis name and fame have been mentioned in the books of history. Patanjali is one of the most leading yogis and is a treasurer, classifier and codifier and he brought yoga into the status of science.

Poets like Kabir, Surdas, Tulasidas and Namdev have much talked about yoga in their poems and songs. Many saints like Gurunanak stressed the need for yoga, only as a way of life but not as an austere discipline of penance. All this shows that yoga as a celebrated philosophy originated in India and this remained as a part of religious duty for every Hindu.

Joshi (1985) opines that the word yoga is older than the system of philosophy which goes by the name. The oldest use of the word 'yoga' is found in the Vedic literature. It has rightly been held in very high esteem by all the systems of Indian philosophy including Jainism and Buddhism.

Shri Yogendra (1973) believes that the word yoga seems to have been first used in Rigveda, then in the Yajurveda and Atharvaveda, later in vedic works such as Sathapatha Brahmana and the Brahadaranyaka Upanishad. And so tapas interpreted as self mortification, austerity or asceticism in those days - happened to be regarded as a great virtue procedure of the highest power, thus then was yoga. In the early upanishadic period, it took the form of meditation (dhyana) and passed as yoga. Later with the evolution of new metaphysical ideals, yoga also began to acquire a wider range of meaning. Hiranyagarbha is of the earliest vedic and upanishadic lore is spoken of as the first being to reveal yoga.

### C. Types of yoga

Mangal and Chandha (1983) explains that, if the yoga is the union of the individual soul with the supreme soul, it can be understood that there are many ways and methods to influence the union. Hence yoga is of numerous types, depending upon one's inclination, resources and capacity. The main types of yoga are Jnana Yoga, Karma Yoga, Ashtanga Yoga, Raja Yoga, Hatha Yoga, Kundali Yoga, and Sama Yoga. All leading to the same destination - Salvation or Union with the supreme being. Brubacher (1970) quotes Sri Aurobindo who described the methods of yoga that are free from the difficult feats of physical postures (Asana, Pranayama) and mechanical exercises in concentration, which are profoundly religious and spiritual.

Das (1981) and Swami Sivananda (1977) describe that, all systems, yogas, religions have aimed at how to use the mind. To achieve this state, different methods are employed. There are four main paths to suit to four main kinds of temperaments. For the man of action, for the devotional man, for a mystic or philosophical man and for a man of reason, there are Karma yoga, Bhakti yoga, Jnana yoga and Raja yoga respectively. Some other types are Hatha yoga, Kriya yoga, Samkhya yoga, Japa yoga, Purna yoga, Vichar yoga, Turiya yoga, Laya yoga, Kundaline yoga and Mantra yoga.

1. Karma yoga - Das (1981) expounds that karma is a Sanskrit word which comes from the root 'kri' meaning action. The whole universe is bound by action. Karma yoga is the completion of karmas. In this, there are four fold attainment.

- a. Dharma (fulfilment of duty)
  - b. Artha (attainment of wealth)
  - c. Kama (satisfaction of desires)
- and d. Moksha (liberation)

Swami Tapasyananda (1983) describes that Karma yoga is a system of ethics and religion intended to attain freedom through unselfishness and by good works. It is the way by which man's will power as expressed in action is utilised for his spiritual development. Yogiraj Vethathiri Maharshi (1986) says Karma yoga as the path of action finds response among persons with social traits and love for social service and practical life. The active man travels the path of Karma yoga (Swami Sivananda, 1977).

## 2. Bhakthi yoga

Swami Sivananda (1977) exhorts that the one who is full of devotion follows the path of Bhakthi yoga (selfless love and devotion). It removes the confusion of the mind and unfolds the heart. Swami Satprakashananda (1976) opines that it is a path of devotion and direct

approach to Saguna Brahman. It leads to the realization of unity with the supreme being. Preparation for meditation in Bhakthi yoga means progressive development of devotion to the supreme being. This is the easiest varieties of yoga. It has a tremendous appeal to the common man, because it develops a feeling of security in the devotee who has a kind of reliance and dependence on the objectives of his devotion. The wide spread appeal of Bhakthi yoga is largely drawn from the element of simplicity, which is a characteristic mark of it (Joshi, 1985).

### 3. Jnana yoga

Swami Satprakashananda (1976) propounds that, Jnana yoga is a path of knowledge, is the way to the realization of the identity of the adherents in most self with Nirguna Brahman.

Bahadur (1988) expounds that the philosopher, and the thinker is attached to the path of Jnana yoga (knowledge). It overcomes the evil of ignorance and brings the knowledge to the self. Joshi (1985) affirms that Jnana yoga is supposed to be the yoga of the intelligence or the superior few. They rely on reason and higher intellect and aim at gaining discriminative knowledge which they expect to equip them for their ascendance to the highest

(Shri Yogendra, 1971). This is supposed to be achieved through a continued practice of a strenuous mental discipline and virtue.

Shekhawat (1979) proclaims that it is a yoga of will. It is the cessation from thinking of particular and annihilation of the feeling of separateness. It is a yoga of union or identification with the absolute existence.

#### 4. Raja yoga

Swami Sivananda (1977) tells that raja yoga studies the mind and lends its concentration. Das (1981) describes raja yoga as a mastery of the mind and through this yoga, the mind blossoms into one pointedness which leads it on to the super consciousness. The objective meaning of the term 'Raja' devotes - 'Kingliness', it is so precisely because man through this yoga becomes the king of the mind and body.

Day (1970) states that through raja yoga, a student is able to gain a true understanding of himself. Its aim is to raise the character to its highest peak of development. It aids the mind at the various levels of higher consciousness like Parapsychology (Shri Yogendra, 1971).

## 5. Hatha yoga

Shri Yogendra (1986) voices that the term 'Hatha' means 'forcefulness'. The underlying principle of this system of yoga is that the source of thought on one hand and of breath and vital force on the other hand. Effective control of the one will naturally bring the other under control. It is an empirical system of exercises leading to the stabilization of homeostatis of the regulatory processes of human organism. It may be used for an increase of resistance capacity in prevention, curing and rehabilitation. Dortalek and Joshi (1985) remarks Hatha yoga, perhaps a comparatively later development among the varieties of yoga. It is made of four parts, viz., Asana, Pranayama, Mudra and Nadhanusandhana.

Guyot (1976) tells the law of Hatha yoga that is expended energy should be exactly proportioned to the result desired. In other words, agitation must not be confused with action. The ultimate objectives and results of Hatha yoga are health, happiness and prosperity. Kameswara Rav. (1984), regards Hatha yoga as primal effort, which gradually came to be recognised as the methodical approach to the attainment the highest in yoga. Because it deals primarily with the physical

the human body, in relation to the mental. It has been appropriately identified as the Physiological yoga or Shatarya yoga.

#### 6. Kriya yoga

Literally, Kriya yoga means "working towards yoga". It is three fold - austerity, spiritual study and practice of devotion to God. This is very important because through the long practice of only this, klesas or pain - bearing obstructions to the practice of yoga can be overcome, and one gradually gains the fitness to practice samadhi (Swami Tapasyananda, 1983).

To Swami Kuvalayananda and Vinekar (1970), Kriya yoga is the technique of purification and reconditioning. The aim of this is to help oneself to retain one's psycho-physiological balance as far as possible, even in the face of strong external and internal stimuli.

#### 7. Samkhya yoga

Swami Satprakashananda (1976) describes that, in the realisation of self, samkhya yoga follows primarily the method of withdrawal of the self from the non-self, particularly from the buddhi sattva (the pure mind stuff), with which it has the close relation.

### 8. Japa yoga

Bahadur (1988) defines that japa is an oral or mental repetition of a sacred divine name, with intense devotion, love and without expectation of fruit. Step by step the chanter progresses on the path of japa yoga as he goes from vokhari (loudly) to Madhyama (whispering) and then to para and pashyanthi (mental japa) from the heart or navel centre.

### 9. Purna yoga

Das (1981) says that purna yoga is to leave oneself entirely at the mercy of the divine power to allow it to mould oneself (devotee) as it will. This yoga sadhana is higher to self surrender. It is total surrender, surrender of all, relinquishing everything in totality, nothing remains to him. A purna yogi tries to mould his life according to the inner divinity. He is patient, perseverent, has perfect control over his body and mind. He keeps his courage in the face of difficulty and when a storm of difficulties come in the sea of his life, he does not lose courage.

### 10. Vichar yoga

Lakshminarayana (1985) tells it is a yoga propounded by Brahmaling Bhagvan Ramana Maharishi. It is very easy and Sublime Sadhana. It starts from an enquiry into the self and then peeling off one cover after the other,

reaches the core, the centre of the self, the ultimate reality. This enquiry appearing simple in the beginning, full of substance and potentiality for the Sadhana.

#### 11. Turiya yoga

Das (1981) views that this is an ancient, quick, safe, sure and sublime sadhana taught by Upanishads. This is jet plane method compared to other methods. In this yoga, the practitioner has to make his mind void of all thoughts, knowledge and reasoning. He is to go beyond mind directly.

#### 12. Laya yoga

According to Day (1970) Laya yoga helps one to gain such a mastery of the nerve centres as to make him a master and not a tool of his senses. Shri Yogendra (1971) and Das (1981) say that with the aid of sound at its various levels of vibrations, attain the same through the soundless sound. Sound is relevant, because it can be used to change the inner electricity - the mind, bio energy. In this yoga, the importance of Guru is emphasized. Gurus have described several spiritual lokas (planes) (ie. Satloka, Alkha loka, Agamloka), where the Sadhana ascends by the grace of Guru and hears different nadas.

### 13. Kundalini yoga

Devi (1978) says that as of all with hills, woods and lands, the support is Lord of serpents, so of all treatises of yoga, un support verily is "kundalini". Kundalini means "coiled up". It is also called "Serpent power". This was recognised 5000 years ago and it mentioned in ancient Hindu scriptures. eg. - Saundaryalahari, Panchastavi, Laghustuti etc.

Kundalini (individual static form of creative energy) is the mother of prana. Prana is kayu or universal force of activity. It is principally responsible for keeping up body temperature.

### 14. Mantra yoga

Day (1970) opines that it is the yoga of sound and vibration. It will appeal strongly to musicians and those who love form, colour and ritual. Much of it conforms amazingly with modern ideas on vibration.

The chanting of beads, the repeating of mantra (the mystic formula of words) and the identification of deities with name and form inherent in each or group of consonants and vowels proposes to achieve (Shri Yogendra, and Sri Hari, 1971).

Sri Hari (1971) and Pandit (1988) say that the followers of this type of yoga are required to be very particular about the names and forms of the deities with whom they identify their sadhana. They are so strict about pronouncing the mantras correctly that they would never concede even the slightest deviation in pronunciation of the consonants, vowels and syllables. They seek to achieve their goal through their method only.

D. Impact of yoga

While listing the benefits of yoga, Mangal and Chandha (1983) spell out that yoga asanas:

1. maintain the delicate balance of bodily humors of kaff, vata and pita.
2. help in cure and prevention of many diseases especially those of stomach or digestion.
3. are the simplest forms of relaxation, hence the horror of psycho somatic diseases does not loom large.
4. have a hygiene effect - tone up various internal vital organs of the body.
5. are panacea for mental poise and peace.
6. stimulate higher processes of the brain, in order to accomplish spiritual tasks.
7. regularise the breathing mechanism and increase the vital capacity.

Swami Gitananda (1987) explains that yoga is highly intellectual as it gives play to the inquiring mind. It allows for positive emotions. It openly prescribes friendliness, gentleness, love, unity, compassion, empathy and other good feelings, curbing only the distractive, destructive and disruptive side of human nature.

Datey (1988) explains that yoga is a boon to patients of various diseases in general and to patients of Hypertension in particular. Yogic practices will keep the body healthy and mind alert. Ajgaonkar (1988) states that yoga helps us to discipline internally and externally. It modifies our behaviour, helps us to cope with stressful situations.

Mcharg (1988) voices that many people come to yoga for a variety of reasons, some to aid a physical problem, some to help them cope with life better and some because age is learning their faculties. Agrawala (1989) explains that yoga brings us body awareness, positive attitude to coordinated functioning of our body and mind through Asanas coupled with rhythmic breathing, full control, over our emotions and mental fluctuations and there by keeps us healthy not only physically, mentally, emotionally but also spiritually.

It makes one aware of one's body there by facilitating control and discipline which ensure better health and more stable mental state (Sadhakas, 1987 and Bapuji, 1988).

a. Impact of yoga on physical dimensions

Muzunder (1970) exhorts that boys and girls in the pre-pubertal stage are prohibited from practising all yogic exercises because of the state of hypoplasia - that is the infantile condition of their inner organs. Yogic exercises can be adopted by them sometime after hairs have appeared on the upper lip in the case of boys and the periodic function has set in the case of girls.

Yesudevan (1979) explains that with the yoga breathing exercise the voice becomes crystal clear and pleasant to listen to, firm and self confident. States of anxiety disappears and there is conscious manifestation of the human spirit.

Young (1987) describes that torso trainer shapes off bulges on the sides of your upper backs and replaces them with youthfulness. Myotatic relaxes structures the body effectively and releases the weight of the

vertebrae from final discs, stimulates from head to foot. Yoga exercises tones up most of the muscles. It makes taller and broader shouldered. It helps to expand the chest, triggers the bowels, improves the sight, keeps the ears and shapes the mind. It strengthens the muscles that keep the back straight.

Seth (1986) says that it restores the most of the lost natural height by stretching and straightening the spine. All the yoga postures help to increase height. It is more in growing years. It will suit to the nature of the various psycho physiological changes taking during pregnancy. A good and postnatal yoga practice assists and quickens the natural process of rehabilitation (Anand and Anand, 1988). They are in valuable aid in keeping the figure slim and youthful and many women will also find them effective in helping to solve their practical problems (Devi, 1978).

The results of the pilot study Kocher and Pratap, 1971 and Swami Digambaraji, 1975 in which the student was asked to sit on a chair and to hold one leg raised as he could do. The time noted for this persistent maintenance of leg persistence. It was significantly increased after yogic training of one month. Kocher and Pratap (1971-72) have given Persin's motor coordination

apparatus and a hole steadiness tests along with electromechanical error counts to 13 students of G.S. College of yoga and 24 students of Maharashtra Teacher's training camp. Comparision of results obtained during pre and post training periods showed increase in steadiness and better two hand coordination after yogic training.

Gharote (1973) conducted a study on 27 males and 12 females of the summer camp certificate course in yoga. The findings show that the training in yogic exercises for a period of 3 weeks definitely improved the general fitness of the males and females with special emphasis on the fitness factors of flexibility, trunk strength and equilibrium. This study suggests the utility of yogic exercises for the improvement of physical fitness. Yoga can even help a person with some organic defect to carry on as well as normal men (Iyer, 1974).

In Kocher's (1972) study the mirror tracing test was given to 36 subjects. (21 experimental group and 15 of control group). They were asked to trace the design of the mirror drawing apparatus as quickly as possible. Scores were recorded interms of errors and time in seconds elapsed in tracing the star completely.

Significant improvement in hand steadiness was recorded in subjects of experimental group of yoga practitioners as compared to subjects of control group.

b. Physiological Functions

Yesudevan (1979) lists out the impact of yoga on physiological functions, 1. that gives a magnificent relaxation for the heart. 2. reduces high B.P. (Vaishnav, 1988), 3. stimulates digestion (Trivedi, 1978 and Young, 1987) 4. regulates intestinal activity, 5. gives a splendid internal massage to all organs of the abdomen, 6. takes the pressure off the heart (Ghoshal, 1987), 7. freshens the blood circulation to the liver, gall bladder, stomach, spleen and kidney (Tiwari, 1984) 8. airs the lungs 9. increase the oxygen and prana supply in the blood 10. sets up in the equilibrium between the positive and negative currents, 11. calms the entire nervous system 12. regulates the activity of the heart (Hewitt, 1987) 13. induces a feeling of peace, quiet and security, 14. eliminates constipation (Kothare, 1984 and Joshi, 1985), 15. cleans the skin and abdominal organs, right and left side alternatively, 16. expels the toxins in the blood, fortifies immunity and 17. regenerates the inner organs. Asanas permit the easy control

of important nerve centres which are disturbed, over the whole body and cannot be influenced even by dynamic gymnastic.

Shri Yogendra (1973) states that yoga has demonstrated its system of physical culture in conjunction with respiratory and nervous control enables an individual to regulate his biologic living by conservation and control of bio-energy. Many of the yoga postures are specifically designed to stimulate the endocrine gland system which keeps the body in its proper balance (Hutchinson, 1970).

Young (1987) opines that yoga asanas squeezes the liver and spleen, massages stomach and forces faecal matter down the bowels and combating constipation. They bring flexibility to shoulder joints to prevent and combat burritis. It stimulates the vertabrae around the waist. This improves the functions of pancreas, adrenals, spleen, colon, bladder etc. It develops breathing muscles, helps heart and lungs to function more efficiently. Datey (1988) views that some of the exercises help to reduce B.P. heart rate, respiratory rate and even increase alpha activity as recorded by electro encephalogram. All yogic exercises and process

aim at purification, nervous control and coordination of muscles. Ganguly and Gharote (1974) refers the results of experiment that there is a significantly improved cardio vascular efficiency in the subjects after the yogic practices.

Sitadevi Yogendra (1972) views that in yoga practices through neuromuscular motility contribute directly more to the inner rather than to the external health and development of the body and there by gradually leading to education, coordination, culture and control mainly of the nervous system which is now regarded by all leading scientists as of utmost importance not only one's physical well being but also for the mental, moral and psychic stamina.

Body has a secret homeostatic mechanism which helps him to avoid danger. Yoga helps to keep this mechanism as the entire body and mind ever trim (Iyer, 1974). Tiwari (1984) describes that yogic poses render a very good help in the contraction and relaxation of the heart cause a circulation of blood throughout the body. The heart is made up of the strongest muscular - stuff but it can be always be made healthier by means of proper yogic exercises. Experimental results showed that there is a significantly increase in vital capacity after yogic training. (Bhole, Karmabelkar, Gharate, 1974).

Bhole and Karambalkar (1971) states that the present work records the suspension of heart activity upto 5.6 seconds and throw light on the mechanisms involved in such attempts of heart control through yoga practices. Trivedi, (1978) says that through yoga digestive power is improved, you feel good appetite and hence take more food. Good digestion means improved quality of blood, which inturn health in general . So you increase your weight.

Joshi (1986) opines that pranayama has good effect on improving the digestion, circulation of blood, respiration, secreation, excretion, reproduction and coordination of various functions.

### C. Cognitive Ability

Shri Yogendra (1971) expounds that one of the objectives of yoga is to help to gain control over mind. Yoga asserts and proves that alike physical control of the body which imparts ability and precision, the mental control is ultimately capable of leading to self mastery - the control of personality - which is the key to all success in life. Yoga is guiding you through its disciplinary code to create no problems for yourself and the society, the irresponsible but permissive habit of acting, speaking and thinking is rightly denounced by yoga. It prefers to the path of sublimating the emotional life through yoga, and recommends prayers as a means of emotional and psychic elevation.

Jingham (1986) says that yoga aims at development of your inner thinking power into a positive way, helping to purify your inner self. It is a way to know about your own self.

While explaining the contribution of various types of yoga on cognitive ability of the individual, Swami Sivananda (1970) states that karma yoga removes the impurities of the mind and deepens the heart. Bhakthi yoga destroys the lossing of the mind. Raja yoga steadies the mind and develops concentration. Jnana yoga removes the veil of ignorance and brings knowledge of self. In general yoga is the blockade of the modifications of consciousness (Lakshminarayana, 1985 and Savant, 1972).

Yesudian (1979) points out that yoga teaches any child or adult the practical steps such as acquiring will power, resistance, concentration, self control, the retentive faculty of memory, powers of discrimination, courage, mental and physical balance, perservarence, calmness and peace of mind.

In the view of Sahai and Malhotra (1970) the numerous asanas forming the constituents of the yoga system have been found much to do with the mind. Yogic practices are proved to provide perfect calmness of the mind and to increase the concentration of the predetermined thought or action plan. Yogic exercises develop power of

concentration which is essential at all times of life. It develops will power of the person and a great amount of ability and suppleness. (Doss and Shri Yogendra, 1970). The simple postures, standing, sitting and lying down at the conceptual levels can be turned into personal experience creating bodily and breathing awareness leading to calmness and oneness (Felder, 1989). It can really quench man's eternal thrust for happiness (Seth, 1973).

Palsane and Kocher (1973) are of the opinion that the short term memory related to remembrance of words would be improved after yogic training. Swami Digambaraji (1975) opines that Ujjayi pranayama delayed the onset of mental fatigue, in performing the mathematical calculation and helped the subjects to improve their mental efficiency. There is also significant improvement in the capacity to perform fatiguing mental work as a result of yogic training.

Kocher and Pratap (1971) state that a significant reduction in free association responses was formed after the yogic training indicating there by increased relief from emotional conflicts and it reduces the neurotic tendencies, anxiety and general hostility and individual could achieve more emotional balance after practicing yoga. (Kocher and Pratap, 1972). It also lessens mental tensions (Jaggi, 1986).

Frances Pocock (1974) tells his own feelings as "my mind is more content and calmer than previously when even it is upset or dispersed into many thoughts. I have simply to relax or meditate to calm it. Another plus is in concentration. I have always good concentration but now I am more aware of when it is complete and when it is diffused".

Bhave (1988) advices that yoga can be practiced by people who have anxiety disorders, stress induced disorders, psycho-physiological disorders, addictions etc. Yoga plays a very important role is not only coping with stress, but avoiding stress , (Vaiashnav, 1988). Through yoga 'Sukha' can be experienced which is peaceful, serene, harmonious, happy at the some time not exuberant (Khanna, 1988).

#### d. Spiritual Development

Shri Shankaracharya defines Bhakthi as devotion unto Atman. It is a path of trust and love. It is a surrender to divine will. A devotee shows intense faith and love for God. In its oldest known form yoga was a spiritual practice intimately connected with the religious ritual of ancient Indians (Fenerstein,1975). The first aim of yoga is to open the mind to a higher spiritual consciousness (Aurobindo, 1976), yoga means

the spiritual communion of the devotee with his chosen deity (Sinha, 1987). It takes us into higher realms of spiritual awareness (Seth, 1986). Gopal and Shastri (1972) is of the opinion that proper practice of yoga produces nerve current through the spine which can be utilized for awakening of the spiritual power in man. It is a practical and scientifically worked out system of approaching the truth (Savant, 1972), where the deeper meaning underlying is the spiritual purpose (Phelan, 1976).

Swami Sivananda (1977) assures that many great yogis have reached the high stage of spiritual development through the practice of yoga. Man can rule his inner and external nature and transmit himself into Divinity. In order to make rapid progress along the spiritual paths, one may select Jnana Yoga.

The yoga practices were simple but with deep concepts to help in life, in prayer and in spiritual life. Concepts like synchronisation, concentration, humility, like how to pray better, concepts like karmayoga how to offer one's actions to God, they captured quickly (Castillo, 1989).

Jingham (1986) says that yoga gives you internal as well as external purity and strength. It gives you proper perspective to see mankind in relation to God, strength to tell the truth, courage to protect the weak, poverty, stricken, suffering and ailing humanity, trains your mind to distinguish between good and bad actions and also devilish and Godly acts, and clears the path towards God realization. It is a state in which there is complete elimination of the bad thoughts and modifications of the mind (Marson Qurel, 1987). Jingham (1986) says that it is a practical approach to divinity and is universal in acceptability. Aurobindo (1986) explains that the aim of yoga is to open the consciousness to the Divine and to live in the inner consciousness, to bring in most psychic into the front and be the power of this; to purify and change the being. So that it may become ready for transformation and be in union with the divine knowledge will and love.

Frances Pocock (1974) depicts that spiritually the changes are evident after practicing yoga. I am no longer maintaining a wishy - washy honesty but trying to be as honest as I can. I am a little less quick to anger than before. I am giving more of time to other people now, doing things without looking for any thing

in return. My belief in God is strengthened every day by turning into my inner self and discarding worldly cares for a time.

Diwarkar (1975) writes that yogas which are non spiritual are not supposed to be ante spiritual or materialistic but they would aim at lesser achievement involving the perfection of some of the constituents of men, namely the body, the vital power and so on. .

Let me emphasize that non spiritual yogic practices do not exclude the spiritual aim as together since these other aims also are ultimately meant to help the total integral being of man and lead him to spiritual liberation that in the final purpose of the whole as existence.

e. Therapeutic values

Swami Kuvalayananda and Vinekar (1970) propounds that a healthy body and mind are considered as essential pre-requisites to the higher practices of yoga. To ensure the health of body and mind, yoga sastra (the science of yoga) has laid down certain positive hygiene methods both of mental as well as physical hygiene.

Muzundar (1970) explains that "In 1930 I had an attack of gastritis and suffered acutely for more than a year. It was a reign of medicine bottles, injections executing pain and despair. The illness became chronic. My last hope lay in yoga. I tried Sarvangasana, the healing claims of which had appeared to me as unbelievable and pre-posterous before.

Shri Yogendra (1970) says that disease is a physical sin in the sense of yoga and the sick is considered to be just as much responsible for his ill health as he is for his ill actions. He quotes that, McSorely suffering from asthma for the past number of years came to me for treatment. Before he was not able to sleep on the bed because it was impossible to breath. But in a course of a week after the yoga treatment, the patient was able to use his bed instead of a chair for sleeping. He improved very rapidly under the yogic regiment and was allowed to return home after three weeks. He religiously kept to the treatment methods taught to him and regained his normal health in the course of 6 more months.

Satyapal and Agarwal (1986) explain that the practice of yoga is conducive to health and longevity. It removes all sorts of diseases. Its object is to

enable one to possess a high standard of health and hygiene and vitality. Yesudevan (1979) and Datey (1988) depict that yoga exercises aim at health rather than building muscles. They aim both at treatment and prevention of diseases specially liver disorders and cures diabetes.

Bapuji (1988) advises that people suffering from high B.P. (Goyal, 1986), ischaemic heart disease (Devicente and Kothare, 1984) cervical spondylosis, glaucoma, retinal detachment, spinal injuries and chronic lower back aches and hernias should consult a naturopathy expert to teach yoga. Gopinath (1989) says that some of yoga asanas will help to reduce the frequency, severity and duration of respiratory difficulties. Sinha (1987) opines that one can cure diabetes, Asthma, obesity, neck and spiral pains with the help of simple yogic exercises.

Joshi (1986) explains that Pranayama helps the practitioner tremendously to correct the postural defects to cure the headache, migraine, back ache, diabetes (Kumar, 1988), obesity (Sinha, 1987), constipation, (Devicente, 1984) flatulence, dyspepsia, acidity, gastric and peptic ulcer (Goyal, 1986), chronic dysentery, piles, hypertension, varicose veins, common cold, rhinitis, chronic bronchitis, insomnia, spondylitis, gout, rheumatoid arthritis, displacement of the uterus, irregularities of menstruation to release from the sexual weakness and to reduce the maladjustment of personality (Kothare, 1984).

# Experimental Procedure

### III. EXPERIMENTAL PROCEDURE

The study on "Impact of Yoga on Certain Dimensions of Personality" was carried out in Coimbatore. The procedure of the study comprises,

- A. Selection of the area
- B. Selection of the sample
- C. Selection of the tools
- D. Collection of the data
- and E. Analysis of the data

#### A. Selection of the Area:

Avinashilingam Institute for Home Science and Higher Education for Women (Deemed University), Coimbatore in Tamil Nadu was selected to carry out the study, since it was an easy access <sup>for</sup> ~~for~~ <sup>the</sup> investigator to select the samples, to seek the co-operation of the head of the institution and other personnels.

#### B. Selection of the Samples:

One hundred and fifty adolescent girls of 16 - 19 years studying I B.A. (Economics), I B.Com. (Literature), II and III Year Psychology were chosen to find out their attitude towards yoga and the personality traits. As Yoga

is a part of physical exercise, and as first year students had classes for games, the investigator utilised it in such a way so that the regular stream of education of the selected subjects would not be affected. As II and III B.A. Psychology students were keen to take part in the study, they were also selected.

### C. Selection of the Tools:

Questionnaire, PGI Adaptation of Yoga Attitude Scale and 16 Personality Factor Inventory were used to collect the data concerned to the general information of the selected adolescents, their attitude towards yoga and their personality traits respectively.

#### 1. General Information of the Selected Individuals:

Since the questionnaire method is appropriate and quick to collect the data from the subjects (Adivi Reddy, 1987), most suitable instrument for the research task and can bring out the mind of the respondent (Rossi, Wright and Anderson, 1983) and can be adopted easily (Gupta, 1987), a questionnaire was prepared to elicit the general information of the selected subjects. (Appendix I).

#### 2. Changes in Attitude Towards Yoga:

Attitude is a composite of how an individual understands, feels about, and acts towards the given object

or issue (Carlson, 1987) and represents a categorization of an object along an evaluative dimension (Price, Glickstein, Horton and Bailey, 1982). Spodek (1982) defines attitude as learned, emotionally cast predispositions to react in a consistent manner, favourable or unfavourable toward certain objects, people, ideas or ~~unfavourable toward certain objects, people, ideas or~~ situations. Through an attitude scale we can measure the attitude of an individual towards a matter, thing, object or system (Ghosh, 1985) and is the most suitable form for registering differences in degree (Wilkinson and Bhandarkar, 1982). PGI adaptation of yoga attitude scale - a standardised tool developed by department of Psychiatry, Post Graduate Institute of Medical Education and Research, Chandigarh was used (Appendix II). Out of sixteen statements, 12 depict the positive attitude and 4 of them reveal negative attitude. Each was rated on a 5 point scale which was assigned weightage as follows:

Positive Attitude: Strongly agree	-	4
Agree	-	3
Uncertain	-	2
Disagree	-	1
Strongly disagree	-	0

Negative Attitude: Strongly agree	-	0
Agree	-	1
Uncertain	-	2
Disagree	-	3
Strongly disagree	-	4

The subjects were asked to express their attitude freely and frankly by marking the item given. To find out the changes in attitude of the selected subjects, based on the above ranking, each statement was assigned the suitable scores and was totalled up. The maximum score is 64.

### 3. Effect of Yoga on Personality Dimensions:

Bourne and Ekstrand (1982) quote Allport's definition as personality is the dynamic organisation within the individual of those psycho-physical systems that determine his unique adjustments to his environment. Mahale (1987) exhorts that personality as the total pattern of characteristic way of thinking, feeling and behaving, that constitute an individual's distinctive method of relating to his environment, and has been an intriguing subject at almost all times (Nateshan and Devi, 1987).

To trace out the personality traits of the selected adolescents, 16 personality Factor Inventory developed by

Cattle was used (Appendix III). This consists of 187 questions which reveals 16 different personality traits as given below.

1. Reserved  $\mathcal{V}$ s outgoing (Factor A)
2. Less Intelligent  $\mathcal{V}$ s More intelligent (Factor B)
3. Emotionally Stable  $\mathcal{V}$ s Emotionally Unstable (Factor C)
4. Humble  $\mathcal{V}$ s Assertive (Factor E)
5. Sober  $\mathcal{V}$ s Happy - Go - Lucky (Factor F)
6. Expedient  $\mathcal{V}$ s conscientious (Factor G)
7. Shy  $\mathcal{V}$ s Venturesome (Factor H)
8. Tough minded  $\mathcal{V}$ s Tender minded (Factor I)\*
9. Trusting  $\mathcal{V}$ s Suspicious (Factor L)\*
10. Practical  $\mathcal{V}$ s imaginative (Factor M)\*
11. Forthright  $\mathcal{V}$ s Shrewd (Factor N)
12. Placid  $\mathcal{V}$ s apprehensive (Factor O)\*
13. Conservative  $\mathcal{V}$ s Experimenting (Factor Q<sub>1</sub>)
14. Group dependent  $\mathcal{V}$ s self sufficient (Factor Q<sub>2</sub>)
15. Self conflict  $\mathcal{V}$ s controlled (Factor Q<sub>3</sub>)
16. Relaxed  $\mathcal{V}$ s Tensed (Factor Q<sub>4</sub>)\*

Factors indicated by the star (\*) are dealt with the negative traits. Eight personality traits have 10 questions each and other 8 have 13 questions. Each question contains 3 alternatives and different marks were assigned to each ranging from zero to two. The total raw score for each

trait will be calculated and changed into sten score (Standard ten) ranging from one to ten with the population average (or mean) fixed at sten 5.5 . One would consider stens of 5 or 6 as average, 4 or 7 slightly deviant (respectively in a low and a high direction), 2, 3, 8 and 9 strongly deviant and 1 to 10 extreme. Those who fall under one to three are considered as low scorers and those who achieve 8 to 10 are high scorers. Those who fall in the middle are neither low nor high scorers and would not be considered (16 PF. Manual). (Appendix IV and V).

#### D. Collection of Data:

Before launching the study, proper prior permission was obtained from the authorities. After establishing a good rapport with the students, they were oriented with the study, their role and co-operation.

The Investigator adopted the "Action Method", hence she collected the required data before and after the onset of the experiment.

The investigator devised a special "Experience Based Education on Yoga". The central feature was to provide actual, worthwhile positive experiences in yoga in addition to the theoretical information and technique. The Experience Based Education on Yoga consisted the following methods.

1. Orientation towards yoga and the objectives of the study
2. Lecture on yoga (PHOTO I)
3. Exposure to video cassette (keep fit) (PHOTO II)
4. Exhibition (PHOTO III)
5. Teaching yoga (PHOTOS IV to VII)
6. One day camp on yoga (PHOTO VIII)

1. Orientation towards yoga and the objectives of the study:

The investigator approached the students, spelled out the objectives of the yoga. The fundamental objective in yoga is the positive attitude, acceptance, awareness, consciousness and relaxation (Agarwala, 1989).

While explaining the objectives, she stressed that with proper yoga training, many issues involved in education in Universities like mediocrity, lack of social responsibility, immaturity and dislike for work can be dealt within a masterly way. In order to built up a certain general feeling, the meaning and the direction of yoga was explained.

The training of yama and Niyama, which can be beyond the classroom, can lay the foundation of a sane and peaceful future society (Sequeira, 1988).



Photo I LECTURE ON YOGA



Photo II EXPOSURE TO VIDEO CASSETTE



Photo III EXHIBITION

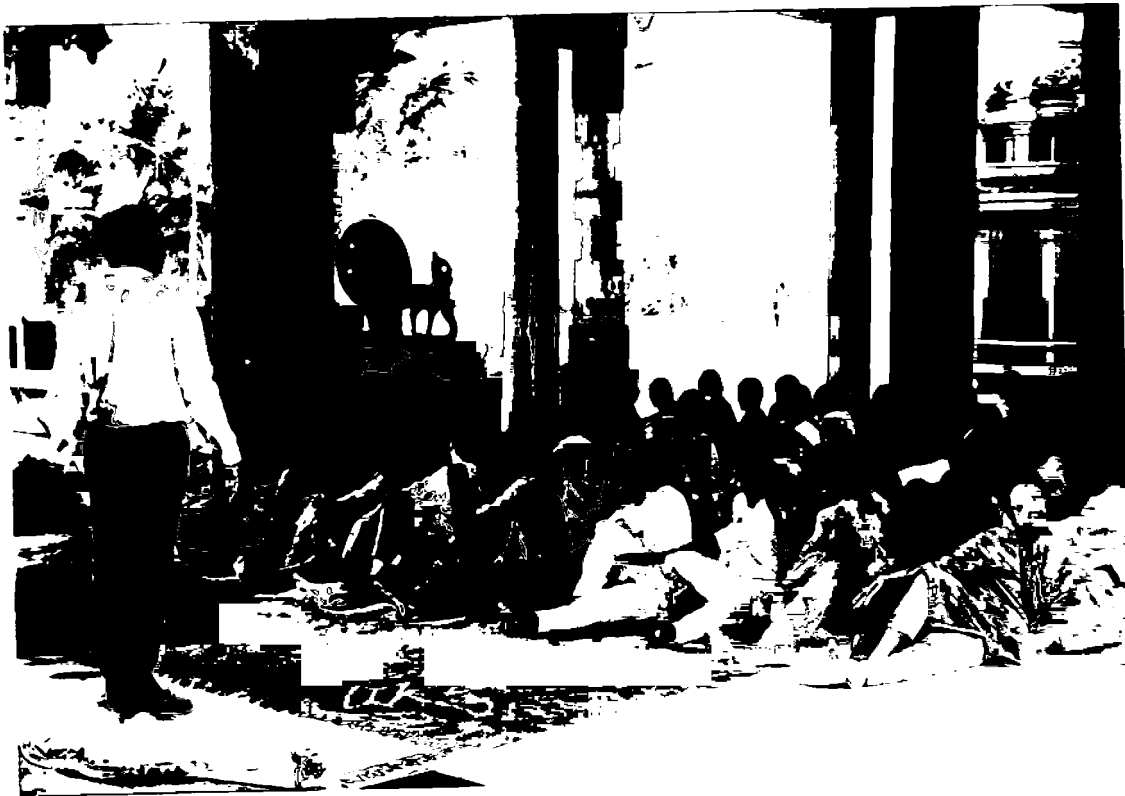


Photo IV ARDHA MATSYENDRASANA



Photo VI TRIKONASANA



Photo VII YOGA MUDRA



Photo VIII MEETING AT ONE DAY CAMP

THE DEAN, STAFF AND STUDENTS OF THE FACULTY OF HOME SCIENCE -  
DEPARTMENT OF HUMAN DEVELOPMENT

Cordially invite you for the ONE DAY CAMP ON  
YOGA at Gowmaramadalayam, Chinnavedampatti,  
Coimbatore on 18.3.1989, Saturday.

INVITATION FOR ONE DAY CAMP



**AVINASHILINGAM INSTITUTE FOR HOME SCIENCE AND  
HIGHER EDUCATION FOR WOMEN**

(Deemed University)

COIMBATORE - 641 043

Faculty of Home Science Human Development

**CERTIFICATE**

**This is to Certify that Smt./Kumari**.....

**of**.....

..... attended the one day camp  
on 18-3-89 on **YOGA**.

**DEAN OF HOME SCIENCE**

CERTIFICATE DISTRIBUTED AT ONE DAY CAMP.

2. Lecture on yoga - Through the lecture method more technical information can be given and the subject matter could be covered <sup>o</sup>throughly in a given time to a large group and is a useful educational forum and ideas can be openly discussed (Adivi Reddy, 1987).

Nagarkar (1988) quotes purposes of lecture method suggested by Wesley and Wronski (1964) and Hoover (1980) as to motivate, clarify, review and expand contents. He says when the facts and problems are conflicting and confusing in nature and the needed information is not easily accessible to students, lecture method can be used. Hence a formal meeting was arranged. Sister Anushiya, from Raja yoga Meditation Centre, Coimbatore was kind enough to enlighten the selected students with the informative talk on yoga and personality.

She voiced that the meaningless complexities, incomprehensible goals and mushrooming growth of subjects in the educational scenario prepare the adolescents only to earn livelihood and the material needs of life. Latest up the sleeve to overhaul the decomposing scenario is the introduction of yoga into the educational institutions throughout the country. Whether the yoga tonic will be able to revive the system is a debatable question. But, yoga

works as a friend, philosopher and guide to the student by giving support on the physical plane, and helps to build confidence and peace at the mental plane.

### 3. Exposure to video cassette:

Without doubt one of the most versatile audio visual aids ever developed is video (Sharma and Moquemuddin, 1982) and it is the most exciting and powerful media of communication ever devised by man (Oakley and Garforth, 1985). It has gained a place of prominence. It is amusing as well as communicative. It can appeal to both eyes and ears simultaneously and has lasting influence on people (Mamidi and Shankar, 1984). Makhija (1989) explains that the use of video transforms a dull teaching situation into an active process, enable the trainee to learn at his won time, pace and convenience. It is the most useful device to quickly dispense knowledge to trainees in different regions and is an effective way of demonstrating a skill or procedure to the learner (Venkataraman, 1989). Hence a Video Cassette on "keep fit" was shown for an hour to the subjects, which consisted an introductory talk on yoga, different asanas and demonstration of asanas by number.

#### 4. Exhibition

Through exhibits as we can arouse interest, stimulate thought (Adivi Reddy, 1987) and where certain items of information can be displayed and knowledge can be imparted to the students (Sharma and Moquemuddin, 1982), the investigator planned to give this exposure to the subjects. She displayed the charts, postures, photographs, pictures, books, journals, paper cuttings, pamphlets and leaflets revealing the information about what is yoga, types of yoga, asanas and benefits of each asana etc. The subjects were instructed to go through each and every item displayed in the exhibition in detail.

#### 5. Teaching yoga:

Teaching is giving information and guidance causing and stimulating to learn, helping to make effective adjustments to his environment and to develop emotional stability in an individual (Bhatia and Arora, 1985). Learning is the acquisition of knowledge, progressive change in behaviour which is associated with successive presentations of a situation and with repeated efforts of the individual to reach to it effectively (Shankar, 1984).

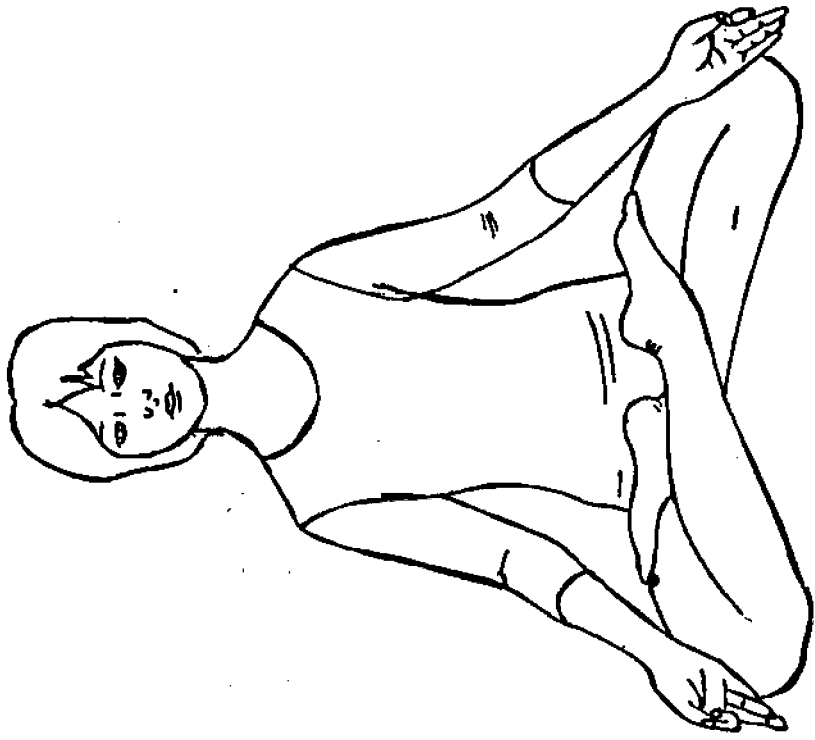
The selected subjects were divided into two equal groups. An yoga expert was assigned to teach some basic and useful yoga asanas namely Vajrasana, Savasana, Sirasasana, Dhanurasana, Yoga mudra, Vrksasana, Trikonasana, Padahastasana, Chakrasana, Parbatasana, Paschimottanasana, Gomukhasana, Ardha Matsyendrasana, Halasana, Mayurasana, Pranayama and these asanas were taught in sequence (Figures 1 to 8).

6. One day camp on yoga:

To stimulate interest, conviction, action and to induce a spirit of healthy competition, for intensive work and proper training camps can be conducted (Adivi Reddy, 1987) .

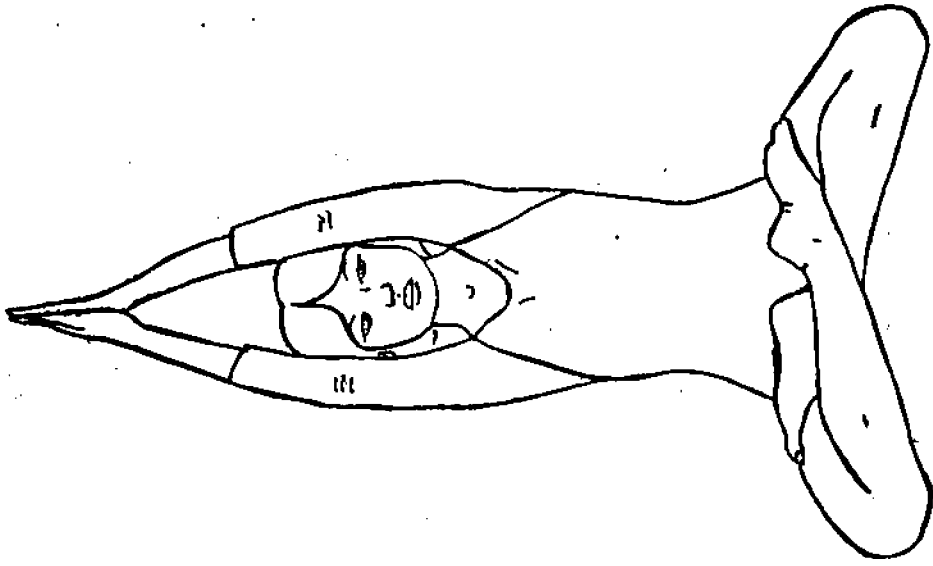
In the view of Zia Paracha (1988) the basic purpose of the camp is to bring attitudinal changes in the students. The camp is an effort to make one think, to give new routines, to make aware of mechanical responses in life, to teach, to function better in every day life and above all how to be control of the life.

One day camp was conducted in Chinnavedampatti Growmara Madalayam, Coimbatore. Prior permission was taken from authorities, the programme was chalked out and proper orientation was given to the subjects. At the end a certificate was given to the participants.



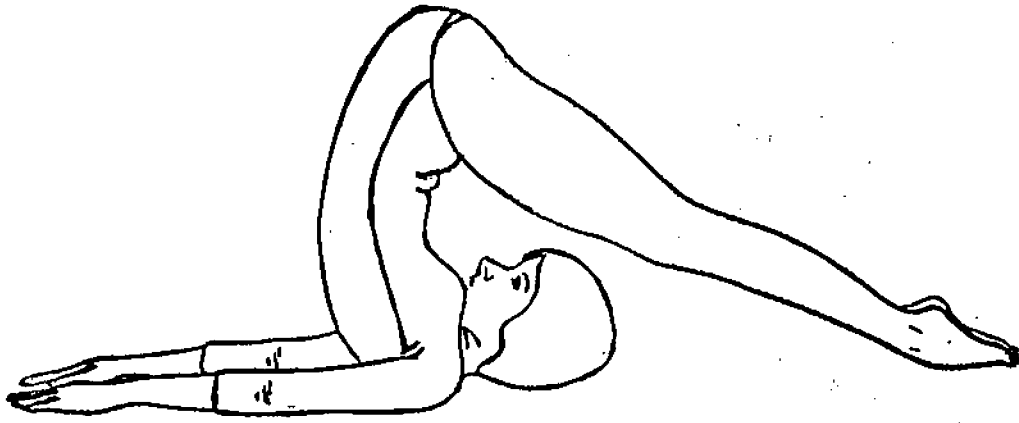
PADMASANA

Figure.I



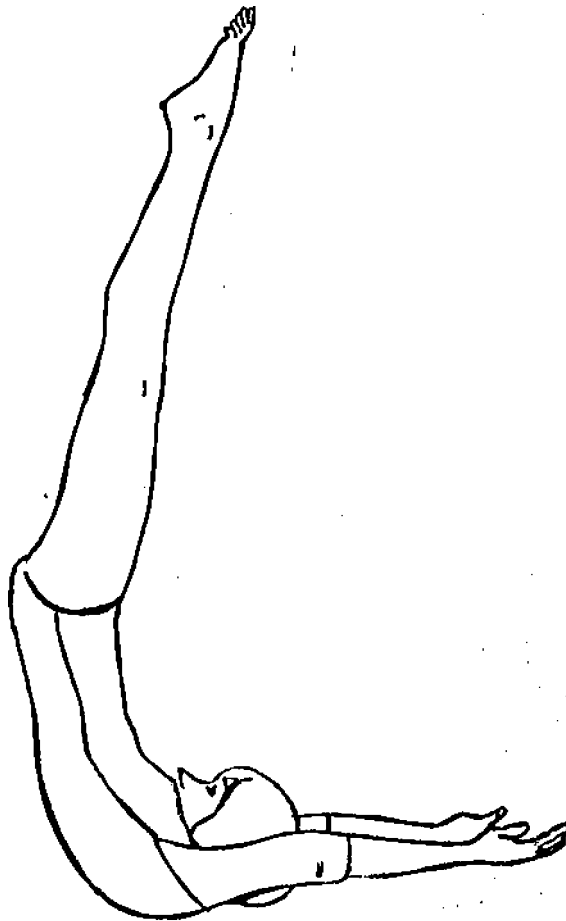
PARBATHASANA

Figure.II



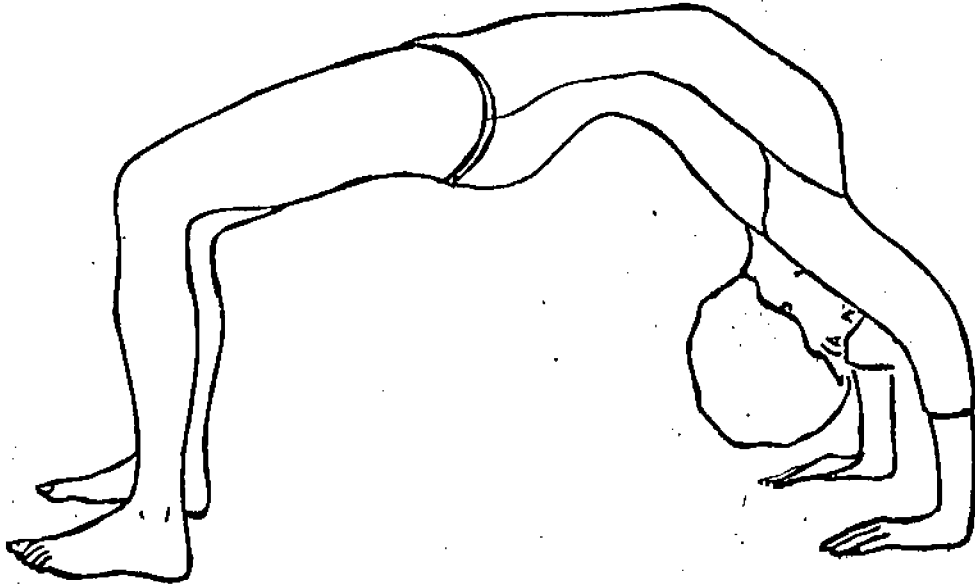
HALASANA

Figure. III



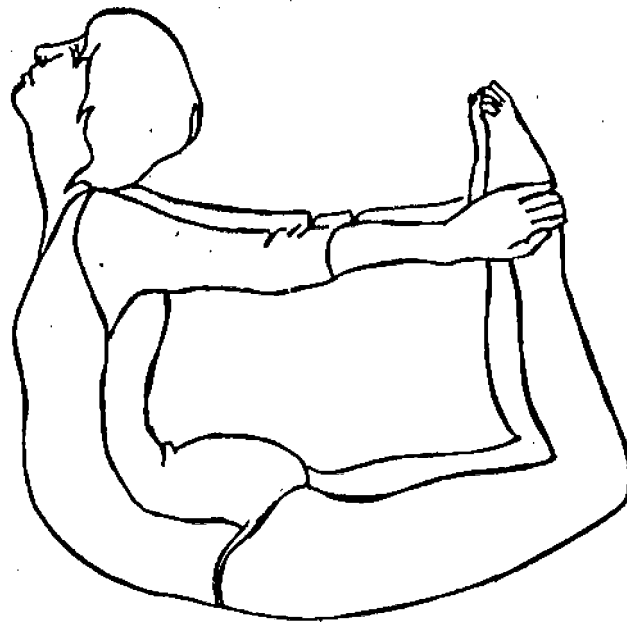
NIRLAMBA SARVANGASANA

Figure. IV



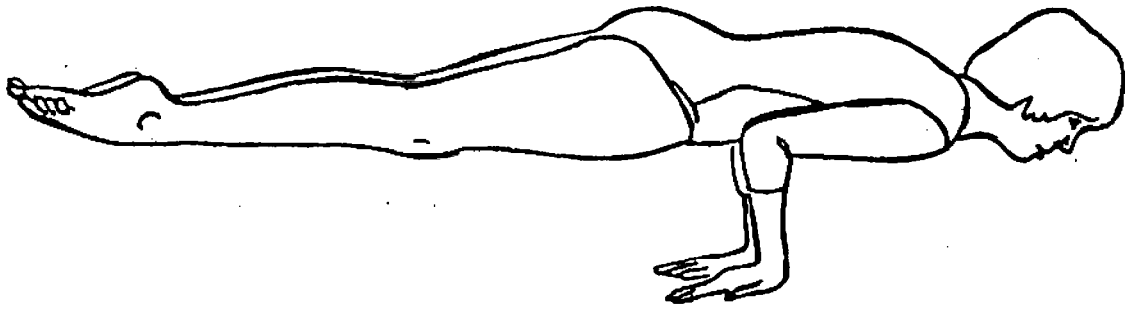
CHAKRASANA

Figure.V



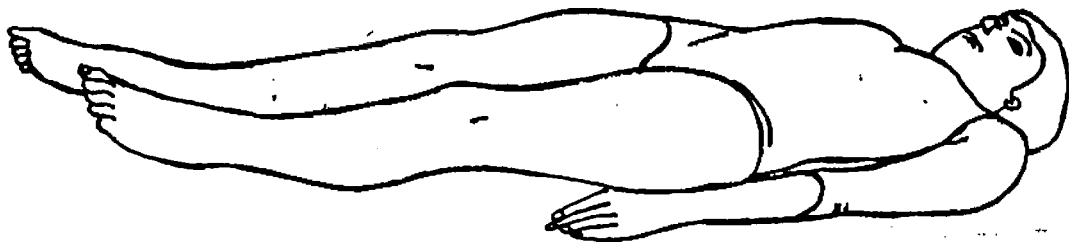
DHANURASANA

Figure.VI



MAYURASANA

Figure. VII



SAVASANA

Figure. VIII

Programme of the one day camp:

<u>Time</u>	<u>Activity</u>	<u>Resource Persons</u>
10 to 10.15 a.m.	Prayer	
10.15 to 10.30 a.m.	Orientation about the camp	
10.30 to 11.30 a.m.	Yoga and women	Sr. Brahmakumari, Yoga Math, Coimbatore
10.30 to 12.00 p.m.	Exposure to yoga related materials.	
12 to 1.00 p.m.	Benefits of yoga	Mr. Palani Swami, Professor, Maruthi College of Physical Education Periyanaicke palayam, Coimbatore.
1 to 2.00 p.m.	Lunch	
2 to 3.00 p.m.	Review of previous practical classes.	Mr. Perumal, Physical Director, Kendriya Vidyalaya Sulur, Coimbatore.
3 to 3.30 p.m.	Evaluation	
3.30 to 4.15 p.m.	Certificate distribution	
4.15 to 4.45 p.m.	Group discussion	
5 p.m.	Dispersal	

E. Analysis of the Data

To find out the impact of experience based education on yoga towards the attitude and personality dimensions of the selected adolescents, statistical analysis - test of significance based on students' 't' statistic was done. (Appendix VI).

## Results and Discussion

#### IV. RESULTS AND DISCUSSION

The data for the study, "Impact of Yoga on Certain Dimensions of Personality" are consolidated and discussed under the following headings.

- A. Background Information of the Subjects
- B. Attitude of Adolescents Towardsa Yoga
- and C. Impact of Yoga on Personality Dimensions

A. Family Background of the Selected Subjects:

The background information of the selected adolescents are discussed in terms of the size of the family, area of living, educational status, occupation and income of their parents.

1. Size of the Family

The size of the family from which the subjects were drawn for the study is given in Table I.

TABLE I  
SIZE OF THE FAMILY

No: 150

S.No.	Size of the Family	Number	Percentage
1.	Small.	139	93
2.	Large	11	7

It is evident from the above table that 93 per cent of the adolescents belong to small family, (number of members are five) which is the common pattern of family living in this modern days (Luthra, 1988).

2. Area of Living

Table II shows the subjects area of living.

TABLE II

AREA OF LIVING

No.150

S.No.	Area	Number	Percentage
1.	Urban	136	91
2.	Sub-urban	14	9

Since the invertigator selected an urban area to conduct the study, 91 percent of the selected subjects living in the urban area and the remaining 9 percent of the adolescents locality is the sub-urb area.

3. Educational Status of the Parents:

The educational status of the parents is shown below.

TABLE III  
EDUCATIONAL STATUS OF THE PARENTS

No. 150

S. No.	Educational Status	Mother	Per-centage	Father	Per-centage
1.	College	18	12	63	42
2.	High School	75	50	66	44
3.	Primary School	41	27	16	11
4.	Illeterates	16	11	5	2

The above table reveals that 50 and 44 percent of the mothers and fathers respectively had high school education. Where as 42 and 12 percent of the fathers and mothers respectively had the college education, 11 and 3 percent of mothers and fathers are illeterates. The remaining members had gone upto elementary school.

## 4. OCCUPATION OF THE PARENTS

Table IV depicts the occupational status of the parents.

TABLE IV  
OCCUPATION OF THE PARENTS

No. 150

S.No.	Type of Occupation	Fathers		Mothers	
		Number	Percent	Number	Percent
1.	Business	63	42	-	-
2.	Clerical	34	22	-	-
3.	Professional	16	11	8	5
4.	Skilled	15	10	-	-
5.	Semi skilled	13	9	1	1
6.	Non earning members	9	6	-	-

From the table IV, it is understood that 42 percent of the fathers are involved in business and 22 percent of them are doing clerical jobs. Another 11 and 8 percent of the fathers and mothers placed respectively in professional jobs. Nineteen percent of the parents are carrying out skilled and semi skilled works. Only 9 percent of the parents are jobless.

## 5. Income Level of the Family

Table V reveals the income level of the families of the selected subjects.

TABLE V  
INCOME LEVEL OF THE FAMILIES

No.150

S.No.	Income Level of the Family	Number	Percent
1.	Low Income (Rs. 0 to 15000/-)	58	39
2.	Middle Income (Rs. 1500 to 2500/-)	48	32
3.	High Income (Above Rs.2500/-)	44	29

According to the classification of the income level (Hudco, 1985), in the present study 39 percent of the adolescents hailed from low income group (Rs.1500/-), the parents of 32 percent of the subjects earn upto Rs.2500/- and the rest of them fall under high income category (Above Rs. 2500/-).

### B. Attitude of Adolescents Towards Yoga

In order to trace out the impact of yoga in terms of attitudinal changes of the selected subjects, the opinion towards yoga was taken at the commencement and end of the study and discussed below.

1) Attitude of Adolescents Towards Yoga

The subjects attitude towards positive, uncertain and negative statements of the PGI Attitude Scale Towards yoga in percentage is presented in table VI.

TABLE VI

## ATTITUDINAL CHANGES TOWARDS YOGA

No.150

S. No.	Statements	Positive		Uncertain		Negative	
		Initial Percentage	Final Percentage	Initial Percentage	Final Percentage	Initial Percentage	Final Percentage
1.	Yoga benefits every one	80	88	10	6	10	6
2.	Yoga makes a man emotionally stable	65	82	22	13	13	5
3.	Yoga can cure all diseases	43	76	33	11	23	13
4.	Yoga Principles are very difficult to follow in real life	57	17	23	17	20	66*
5.	Yoga is meant only for sadhus, sanyasis or saints who live alone in the jungle	19	9	23	-	58	91*
6.	Yoga is only for those incompetent or weak people who cannot face difficulties in life	26	7	15	5	59	88*
7.	Yoga is essential for spiritual life	79	90	18	5	8	5

Contd..

S.No.	Statements	Positive		Uncertain		Negative	
		Initial Percentage	Final Percentage	Initial Percentage	Final Percentage	Initial Percentage	Final Percentage
8.	Yoga is essential for good health	90	95	6	3	4	2
9.	Yoga gives peace, strength and unity to the whole life	71	87	16	18	13	5
10.	Yoage brings success to life	49	72	28	17	23	11
11.	Yoga can overcome mental conflicts or problems	52	79	25	14	23	7
12.	Yoga can make a person more intelligent	31	70	38	13	31	17
13.	There are many other ways besides yoga by which a person can obtain peace and happiness	69	9	23	10	8	81*
14.	Yoga give many ways by which a person can strengthen and build character	60	85	25	6	15	9
15.	Even bad habits like stealing, gambling etc. a can be checked by yoga	20	84	33	8	47	8

contd.

S.No.	Statements	Positive		Uncertain		Negative	
		Initial Percentage	Final Percentage	Initial Percentage	Final Percentage	Initial Percentage	Final Percentage
16.	Yoga brings discipline into life	64	86	19	6	17	8

\* Negative statements.

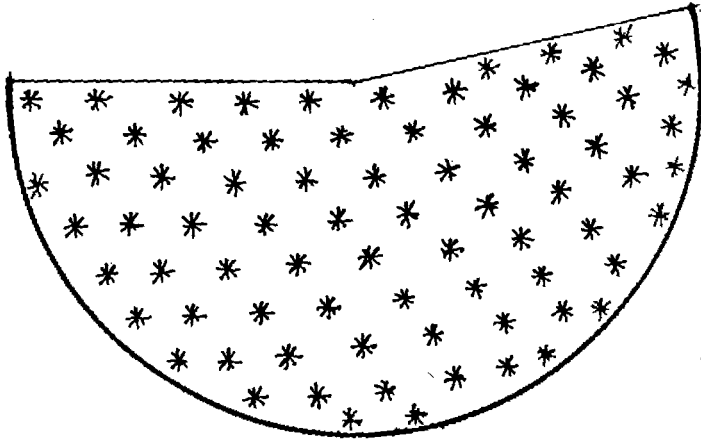
The four months training cum practise on yoga brought a considerable change in the attitude of the subjects towards yoga. In general the subjects opined that yoga is a conditioning process and it changed their attitude and behaviour.

There is a considerable change in the attitude of the subjects towards yoga before and after the commencement of the study. The most remarkable aspect of the finding is that 84 percent of the subjects realised the truth that yoga eliminates the bad habits like stealing and gambling, where as only 20 per cent of them had this view at the onset of the experiment.

They strongly impressed that through asanas, pranayamas and relaxation techniques, one gets complete control over mind and its fluctuations, thus makes the person more intelligent (final score - 70 percent). There was a 33 percent of differential mean for the statement that yoga can cure all diseases.

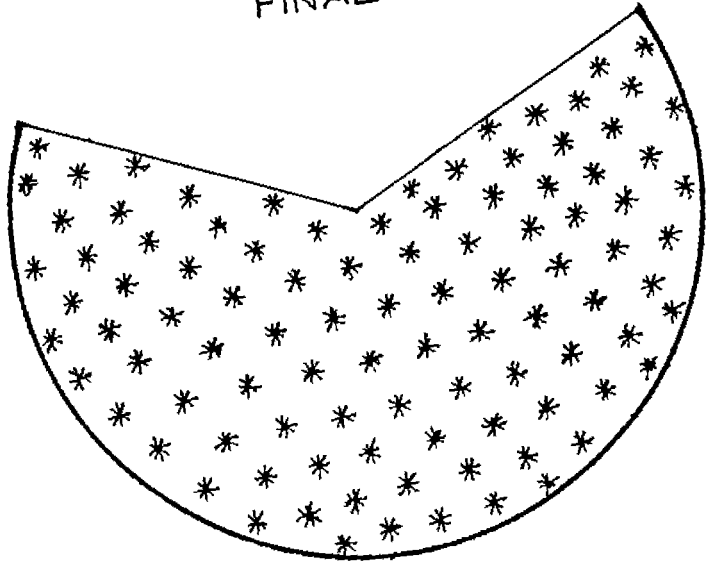
ATTITUDINAL CHANGES DUE TO YOGA

INITIAL



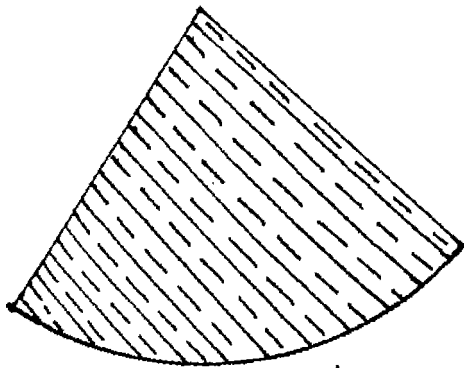
54.38%

FINAL



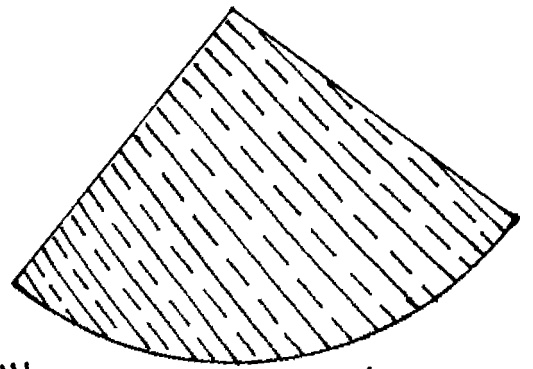
64.75%

POSITIVE

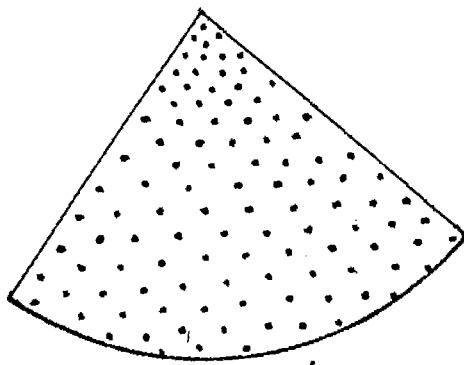


22.31%

UN CERTAIN

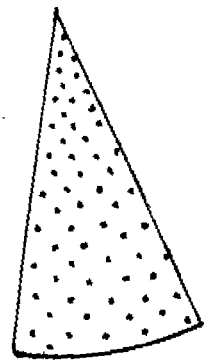


26.37%



23.31%

NEGATIVE



8.87%

Figure . IX

We could see vast difference in the initial and final scores of the positive attitude regarding, yoga brings success to life (23 percent), helps to overcome mental conflicts or problems (27 percent), builds character (25 percent), and brings discipline into life (22 percent).

Likewise most of them stressed that yoga is beneficial to every one, makes a person emotionally stable, is essential for spiritual life and good health, gives peace, strength and unity to the whole life.

The experience based training on yoga brought positive attitude to co-ordinated functioning of the body and mind through asanas coupled with full control over emotions and mental fluctuations. (Figure IX) These results are in accordance with the statement of Castillo (1989), that he was totally surprised to get the positive attitude of the students towards yoga, after the intensive practise in it.

### C. Impact of Yoga on Personality Dimensions

Personality implies a persistent characteristic of an individual. Formation of personality depends upon inherited childhood experiences and environment. An individual is subjected to certain changes. He can respond to a particular pattern of experience and that particular experience is necessary (Seth, 1989).

The closeness of an experiences to the personality helps in building newer traits that take root as against other kinds of learning that remain detached from the central core of the personality. Yoga gives the opportunity for a fuller and more integrated life (Mcharg, 1988).

An intensive and experience based yoga training was given to the selected 150 adolescent girls. The impact of this experience based yoga training on personality dimensions is discussed in 16 different factors, as listed below.

1. Reserved vs outgoing (Factor A)
2. Less Intelligent vs More intelligent (Factor B)
3. Emotionality stable vs Emotionality Unstable (Factor C)
4. Humble vs Assertive (Factor E)
5. Sober vs Happy - Go - Lucky (Factor F)
6. Expedient vs conscientious (Factor G)
7. Shy vs Venturesome (Factor H)
8. Tough minded vs Tender minded (Factor I)
9. Trusting vs Suspicious (Factor L)
10. Practical vs Imaginative (Factor M)
11. Forthringht vs Shrewd (Factor N)
12. Placid vs apprehensive (Factor O)
13. Conservative vs Experimenting (Factor Q<sub>1</sub>)
14. Group dependent vs self sufficient (Factor Q<sub>2</sub>)

15. Self conflic vs controlled (Factor  $Q_3$ )

16. Relaxed vs Tensed (Factor  $Q_4$ )

1. Reserved Vs Out Going

The reserved Vs outgoing nature of the adolescent girls, before and after the experiment is discussed in the table VII.

TABLE VII  
RESERVED Vs OUTGOING

	No.150			
	Low Scorers		High Scorers	
	Initial	Final	Initial	Final
Number of the subjects	41	4	3	135
Mean	2.6	2	3	9.27
Variance	0.01	0	0	0.005
't' value	6*		17.89*	

\* Significant at 5 per cent

The factor A which speaks about the detached or the participatory aspect of the individual is an important character, since this is a desirable trait in making one to be being rigid or cooperative in nature, when decisions are taken on any aspects either individually or collectively.

The 't' test applied to analyse the difference among the low scores both at the initial and final, indicates that significant difference exists between the scores. At the initial stage the score pertaining to Factor A (Low Score) is more which is significantly higher than the final stage after adaptation of the set yoga practises. This is a clear case where the yoga practises have reduced the low naturedness in the individuals and as such improvement for the positive side of factor A viz., being participatory and cooperative in nature increase with the involvement of yoga practice.

The comparison of the high scorers of same Factor A is also significant-the score at the end of the experiment is significantly higher than the score at the initial stage. This again clearly exhibits that the yoga practise has a vital role in enhancing the participatory and warm hearted nature of the individuals.

## 2. Less Intelligent Vs More Intelligent

The effect of yoga on intelligence of the respondents is tabulated below.

TABLE VIII

LESS INTELLIGENT V.S. MORE INTELLIGENT

TABLE VIII  
LESS INTELLIGENT VS. MORE INTELLIGENT

	No.150			
	Low Scorers		High Scorers	
	Initial	Final	Initial	Final
Number of the subjects	76	3	0	112
Mean	1.97	3	0	9.0
Variance	0.009	0	0	0.00
't' value	10.842*		116.883*	

\* Significant at 5 per cent level.

The Factor B which tells about the level of intelligence is a core factor because intelligence is very important to a human being for successful day to day life. The 't' analysis applied to find out the differences among the low scorers both at the initial and final point shows that significant differences exist between the two scorers. This shows clearly that the yoga improves the intelligence of the people through improving the concentration and by reducing the stress and worries.

The comparison of the high scorers of the same factor B is also significant i.e. the score at the end of experiment is significantly higher than the score at the initial stage. So we can conclude that yoga helps the individuals to grasp ideas quickly, able to learn fast and reduces the mental fluctuations.

This finding coincides well with the opinion of Subramaniam (1989) that yoga - sutra helps increasing an intellectual conviction. It directs the thinking, concentration and unravel the larger reality at it unfolds in the consciousness. It makes the man perfect and intelligent (Jayadeva, 1988).

### 3. Emotionally Stable Vs. Emotionally Unstable

The changes in emotional stability through yoga is given in Table IX.

TABLE IX  
EMOTIONALLY STABLE VS. EMOTIONALLY UNSTABLE  
No.150

	Low Scorers		High Scorers	
	Initial	Final	Initial	Final
Number of the subjects	45	7	1	123
Mean	2.4	2.43	8	9.32
Variance	0.012	0.09	0	0.004
't' value	0.03 NS		20.95*	

\* Significant at 5 percent level

NS: Not significant

In many psychometric studies it is clearly proved that the personality cult of an individual has a direct impact from the emotional stability Jaidar (1984). Therefore Factor C which relates to the emotional stability is directly responsible for one's emotional maturity possessing ego-strength to maintain solid group morale, becomes an important factor to be considered in the present experimentation.

The difference between the initial and final scores of the low scorers is not significant, which can be interpreted that the emotional maturity will start only after a certain stage.

The high scorers on this particular factor have been critically examined, the score at the final stage is higher than the score at the initial stage. It depicts the high scorers are emotionally stable, being mature, realistic about life, unruffled in nature possessing ego - strength etc. and also increase with the extent of adapting yoga practises positively. There is a positive relationship between the yoga practise and the traits of factor C which enables a person to achieve effective adjustment despite an underlying psychotic potential. This result accords with the statement of Young (1987) that years of personality training could not bring one fourth of the emotional power over others, which one could acquire suddenly through the practice of yoga. The yogis have known this for centuries. That's why they perform miracles without even trying.

4. Humble Vs Assertive

Humble vs assertive nature of the respondents is presented in the below given table.

TABLE X  
HUMBLE VS. ASSERTIVE

	No.150			
	Low Scorers		High Scorers	
	Initial	Final	Initial	Final
Number of the subjects	16	1	8	138
Mean	2.69	1	8.63	9.29
Variance	0.02	0	0.09	0.005
't' value	11.986*		2.46*	

\* Significant at 5 percent level

Factor E reveals one's mild or independence nature. The statistical analysis done through 't' test shows that there is a significant difference among the low scorers, the number of low scorers were reduced at the end of the experiment.

The data of the high scorers shows the significant difference i.e. the number of high scorers were increased after the adaption to the yoga practises. Hence we can say that yoga helps one to be independent, dominant, competitive and self-assured and reduced the milds, submissive, anxious and docile nature.

5. Sober Vs Happy - go - lucky

Table XI shows the changes from Sober vs Happy - go - lucky nature of the adoloscents through yoga training.

TABLE XI

SOBER VS. HAPPY - GO - LUCKY

No.150

	Low Scorers		High Scorers	
	Initial	Final	Initial	Final
	Number of the subjects	81	16	0
Mean	2.44	2.44	0	9.03
Variance	0.004		0	0.006
't' value		0		115.77*

\* Significant at 5 per cent level.

In the present fast moving world, one's success depends upon his ability of expressiveness, activieness and

effervercent. Hence the factor F which deals with the sober Vs. Happly - go - lucky nature has to be analysed, to trace out the impact of yoga on this particular dimension of personality. It is evident from the statistical analysis that through yoga practise there is no significant change in the traits of low scorers, which can be reasoned out that the independent nature and frankness will increase with age and experience but not through other practises.

But yoga improves the ability to be cheerful, carefree and impulsiveness of the high scorers. The above table shows that the high scores were 117 at the final stafe, which is proved statically significant. Thus yoga improves the leadership quality to be impulsive and mercurial. This result can be substantiated with Castillo's (1989) findings that faith, enthusiasm and joy were noted in the final evaluation of his study.

#### 6. Expedient Vs. Conscientious

The changes in respondents' ego strength was assessed and shown in the following table.

TABLE XII  
EXPEDIENT VS CONSCIENTIOUS

	No.150			
	Low Scorers		High Scorers	
	Indial	Final	Initial	Final
Number of the subjects	8	0	12	127
Mean	2.63	0	9.17	9.01
Variance	0.069	0	0.012	0.003
't' value	10.12*		75.05*	

\* Significant at 5 percent level.

Many studies indicate that the personality of an individual depends on his or her ego strength (Young, 1987). The number of low scorers of the expedient Vs conscientious trait were reduced through the practise of yoga which is reveled in the statistical appraisal, yoga reduces the unsteadiness and antisocial acts.

The statistical analysis through the 't' test of significance cleraly reveals that there is a significant change among the high scorers, i.e. there is a difference between initial and final scorers. This inidicates that yoga improves the senseof duty, perseverance, responsibilities and planfulness. Through yoga one can become rule bounded and hard working.

This finding confirms with Desai's (1988) case history, I had very imbalanced state of mind. I feel presently it is more balanced state than at any stage of life so far. I feel other aspects of yoga than asanas are contributing to it. Desire affects perception, desirelessness is liberation.. By desire, I mean craving for certain things, ambitions, favour of people, recognition, control over other persons and acquisition.

#### 7. Shy Vs Venturesome

The effect of yoga on shy and venturesome behaviour is given in Table XIII.

TABLE XIII

#### SHY VS VENTURESOME

No.150

	Low Scorers		High Scorers	
	Initial	Final	Initial	Final
Number of the subjects	13	2	2	122
Mean	2.31	3.0	10	8.96
Variance	0.04	0	0	0.005
't' value	6.55*		14.857*	

\* Significant at 5 per cent level

The Factor H speaks about the timid and spontaneous behaviour of the individual because it reflects the sociability and social adjustment. The 't' test applied to analyse the difference among the low scores both at the initial and final point, shows that significant difference exists between the initial and final score. This puts forth that yoga reduces the different, timid, with drawing, inferiority feelings and improves the ability to increase the contacts with a large group.

There is also a significant difference among the high scorers i.e. the score at the end of the study is significantly high than the score at the onset of study. This again exhibits that yoga moulds the person to face wear and tear in dealing with people and real emotional situations, without fatigue. It helps to be bold, sociable and spontaneous.

#### 8. Though Minded Vs. Tender Minded

The changes in flexibility in the mind of adolescents through yoga is figured out below.

TABLE XIV  
TOUGH MINDED VS TENDER MINDED

No.150

	Low Scorers		High Scorers	
	Initial	Final	Initial	Final
Number of the subjects	39	105	2	11
Mean	2.46	8.02	8	9.72
Variance	0.012	0.006	0	0.021
't' value	3.283		12.198*	

\* Significant at 5 per cent level

Factor I reveals that tough minded of tender minded is an important factor since it takes a vital role in decision making and helping others. The 't' test analysed to know the differences among low scorers shows that there is a significant difference among the low scorers from the onset to the end of the experiment, which proves that yoga practice has a vital role in improving the realistic, practical, independent and self-reliant nature.

The comparison of the high scorers of same factor I is significant i.e the score at the end of the experiment is significantly higher than the score at the initial stage.

This clearly shows that yoga can reduce the dependent, over protective, sensitive and impatient nature of the respondents.

9. Trusting Vs Suspicious

Table XV shows the changes in trusting or suspicious nature of the adolescent girls after practising yoga.

TABLE XV  
TRUSTING VS SUSPICIOUS  
No. 150

	Low Scorers		High Scorers	
	Initial	Final	Initial	Final
Number of the subjects	3	87	51	3
Mean	3	2.32	8.53	8
Variance	0	0.006	0.01	0
't' value	17.142*		5.3*	

\* Significant at 5 per cent level

The 't' test analysis used to know the effect of yoga among low scorers clearly screens that there is a significant change from the beginning to the end of the study. This lead us to view that yoga assista one to be free of jealous, tendencies, adaptable, cheerful, uncompetitive and concerned

about other people. Khanna (1988) found in his studies that the teacher dealigates acknowledged that yoga asanas make one active, joyous, peaceful and less angry.

There is also a significant change among the high scroers, the number of high scorers were significantly reduced at the end of the study which attributes that yoga reduces the mistrusting and doubtful nature of the individuals.

10. Practical Vs Imaginative:

The practical or imaginative nature of the respondents before and after the experience based education on yoga is presented below.

TABLE XVI

	PRACTICAL VS IMAGINATIVE			
	Low Scorers		High Scorers	
	Initial	Final	Initial	Final
Name of the subjects	39	125	5	1
Mean	2.49	2.18	8	8
Variance	0.013	0.005	0	0
't' value	2.313*		NS	

NS Not significant

\* Significant at 5 per cent level.

The factor M talks about the practical or imaginative nature of the individual is very important because it has a vital role to reach the goal successfully. The statistical analysis shows that there is a significant change among the low scorers through the practices of yogs. Hence we can say that yoga helps the man to do right things, attentive to practical matters, able to keep this head in emergencies and careful.

It is in support with the statement of Kumar (1988) that the regular practice of yogica activities give capacity for right thinking and to accept the situation.

The comparatsion of the initial and final score of the high scorers of for the same factor M, pictures that it is not statistically significant.

#### 11. Forthright Vs. Shrewd.

Table XVII shows the changes in forthright or shrewd nature of the selected subjects.

TABLE XVII  
 FORTHRIGHT VS SHREWD

No.150

	Low Scorers		High Scorers	
	Initial	Final	Initial	Final
Number of the subjects	5	0	50	127
Mean	2.2	0	9.1	9.65
Variance	0.14	0	0.015	0.004
't' test	5.95*		3.99*	

\* Significant at 5 per cent level.

The statistical scrooting through the 't' test of significance shows that among the low scorers there is a significant change from the onset of the experiment to the end.

Also among their counterparts the high scorers, the differential value is significant. This results lead us to conclude that yoga helps one to reduce artlessness, sentimental, crude and akward nature. And alsd yoga improves the wordly, polished, experienced and analytical nature of the individuals, which in turn helps to develop intellecual and unsentimental approach of the situations.

At a high level meeting Senjirea (1988) expressed that through correct yoga training, the will power of an individual can be raised to the n<sup>th</sup> degree and mediocrity in the majority can be overcome. This statement accords with the result of this particular aspect of the study.

12. Placid Vs. Apprehensive:

Placid Vs apprehensive nature of the individuals before and after the experiment is shown in Table XVIII

TABLE XVIII  
PLACID VS. APPREHENSIVE

N = 150

	Low Scorers		High Scorers	
	Initial	Final	Initial	Final
Number of the subjects	0	99	76	9
Mean	0	2.07	8.80	8.56
Variance	0	0.006	0.009	0.059
't' value	26.883*		9.923 NS	

\* Significant at 5 per cent level.

NS Not significant

Factor 0 explains self assured or worrying nature of the individuals because it plays the major role in doing any thing. The 't' test analysis shows that there is a significant change between the initial and final score.

On the other hand the differential mean of high scorers is not significant. This clearly tells that yoga improves the person's confidence, self assurance, maturity and capacity to deal with things and also reduces the apprehensive nature, worry and depressiveness.

Here it is apt to quote Vaishnav (1988) - cardiologists findings with innumerable cases that yoga plays a very important role in not only coping with stress, but avoiding stress, which is in line with the finding of the present study. Sequeira and Sequeira (1989) interviewed a cardiologist, Dr. Shah, who also opined that the best way to combat stress is, yoga practise.

13. Conservative Vs. Experimenting:

Table XIX shows how yoga can affect the conservative or experimenting nature of the adolescents.

TABLE XIX  
CONSERVATIVE VS. EXPERIMENTING

N= 150

	Low Scorers		High Scorers	
	Initial	Final	Initial	Final
Number of the subjects	4	0	39	146
Mean	2.75	0	8.75	9.62
Variance	0.06	0	0.013	0.003
't' test	11.224*		6.984*	

\* Significant at 5 per cent level .

Conservative vs experimenting nature is very important in present fast moving world. The 't' test applied to analyse the difference among the low scorers indicates that significant difference exists between the initial and final score. The raw score in the table reveals that only 4 persons scored less for the nature of the conservatism and tolerance to traditional difficulties and they changed this nature at the end of the study.

The high scorers of the same factor  $Q_1$  also significant because the score is higher at the final than at the initial stage. This again shows that yoga helps the individual to experiment with new things, free thinking, liberal and analytical.

The result of this investigation, goes in line with Jayadeva's (1988) view that the idea of yoga training is to conditionally break-up the old ways, so that something new can start.

14. Group Dependent Vs Self Sufficient:

The degree of dependent nature of the respondents is tabulated here.

TABLE XX  
GROUP DEPENDENCE VS. SELF SUFFICIENT

No. = 150

	Low Scorers		High Scorers	
	Initial	Final	Initial	Final
	Number of the stubjects	11	--	28
Mean	2.73	0	8.25	9.46
Variance	0.038	0 0	0.012	0.003
't' value		14*		9.918*

\* Significant at 5 per cent level.

The degree of dependent and independent nature is an importance factor because it determines one's individuality. The 't' test analysis cleraly shows that at the initial stage the score is significantly higher amont the low scorers than at the final stage.

The comparison among the high scorers shows that there is a vast improvement at the final stage than at the initial stage which is also statiscally proved to be significant.

Thus yoga helps one to be resourceful, independent; making decisions, taking actions on his onw, and lessens hig dependnce on group support.

Similar result was found by Heuser (1989), who expressed that in the beginning, the participant basically thought that yoga was mere physical training. At the end they viewed it as a mean of self-improvement and self-realisation, which ultimately makes one to be self-sufficient.

15. Self Conflict Vs Controlled:

The initial and final score of the subjects on the self conflict Vs controlled trait is given in Table XXI

TABLE XXI  
SELF CONFLICT VS. CONTROLLED

	No. 150			
	Low Scorers		High Scorers	
	Initial	Final	Initial	Final
Number of the subjects	9	0	17	147
Mean	2.56	0	8.12	9.45
Variance	0.03	0	0.006	0.03
't' value	14.798*		6.821*	

\* Significant at 5 per cent level.

Factor Q<sub>3</sub> reveals the self image and self conflict behaviour of an individual. The 't' test analysis indicates that among low scorers there is a significant change from the initial to final stage of the experiment.

Training in yoga has an effect on high scorers also, the 't' test analysis shows a significant improvement in the number of high scorers from the onset to the final stage of the study. This exhibits that yoga improves leadership qualities, one's self concept helps to control their emotions, socially aware, and reduces the carelessness, maladjustment and low integration.

This result is similar to that of Sitadevi's (1980) report that the preliminary training in yoga affords in the cultivation of social virtues as universal brotherhood, universal sympathy and the desirable habituation.

#### 16. Relaxed Vs Tensed:

The effect of yoga on relaxed or tensed nature of the adolescents is figured in Table XXII.

TABLE XXII

	RELAXED VS. TENSED		No. 150	
			Low Scorers	High Scorers
	Initial	Final	Initial	Final
Number of the subjects	14	117	19	2
Mean	2.92	2.38	8.5	9.5
Variance	0.006	0.004	0.02	0.25
't' value	5.4*		1.923 NS	

\* Significant at 5 per cent level

NS Not significant

Factor  $Q_4$  which deals with relaxed or tensed nature of the individuals is an important trait of personality because it has a major role in controlling one's emotions and making adjustments. The statistical analysis done through 't' test shows that among the low scorers there is a significant change in the adolescents from the initial to final stage.

As Hewitt (1987) points out that there is no more efficacious way of combating tension than to have yoga practise daily, which calms the mind and relaxed the body, this investigation also shows that yoga helps one to be relaxed, composed, satisfied, and not frustrated.

17. Personality Traits Before and After the Experience  
Based Education on Yoga

Table XXIII depicts the changes in personality traits of the selected adolescents.

TABLE XXIII

CHANGE IN PERSONALITY TRAITS DUE TO YOGA

No.150

S. No.	Personality Traits	Factor	Low Scorers		High Scorers	
			Initial	Final	Initial	Final
1.	Reserved Vs. outgoing	A	43	4	3	125
2.	Less Intelligent Vs. More Intelligent	B	96	3	0	112

contd.

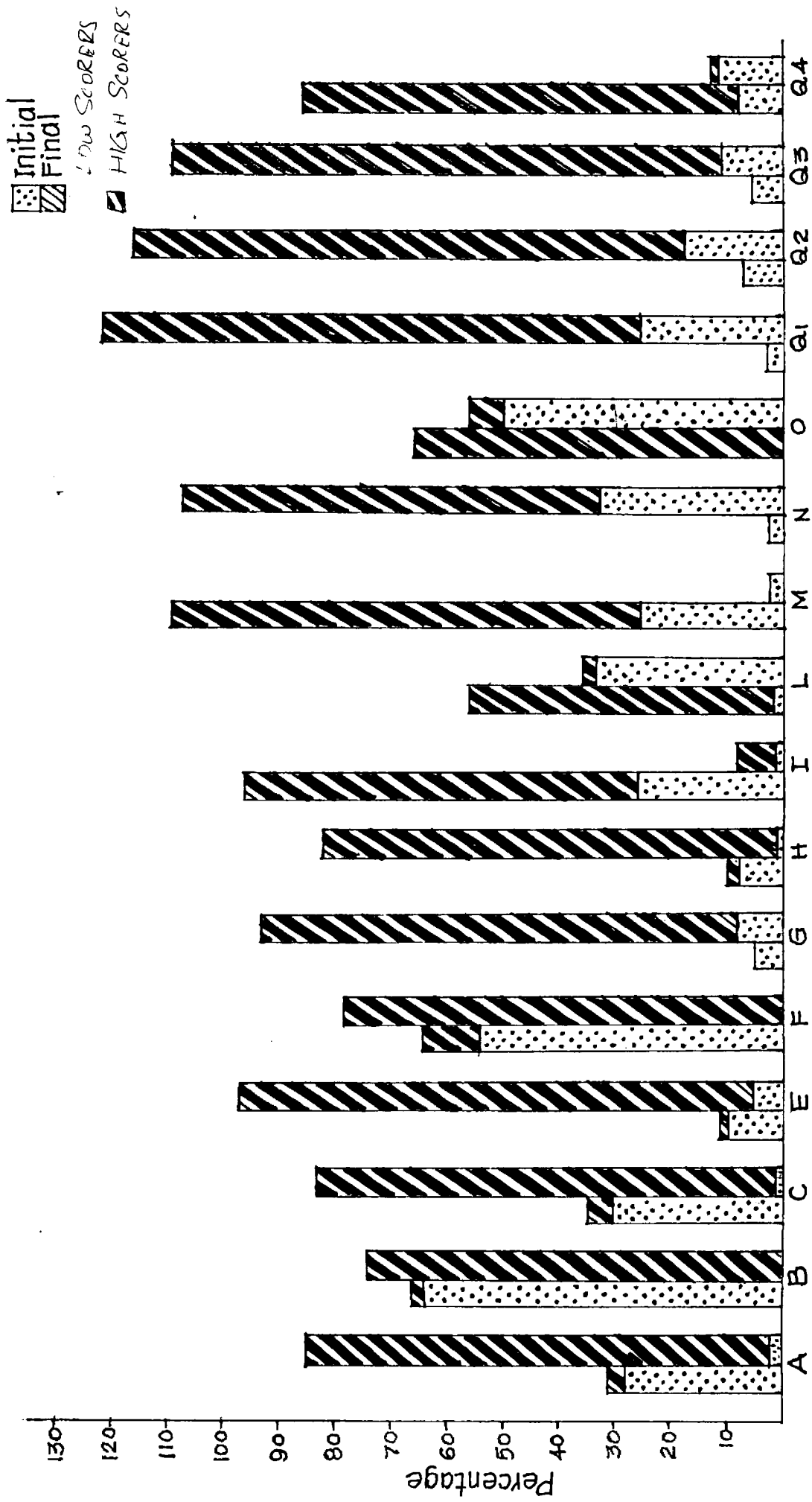
S. No.	Personality Traits	Factor	Low Scorers		High Scorers	
			Initial	Final	Initial	Final
3.	Emotionally Unstable Vs. Emotionally stable	C	45	7	1	123
4.	Humble Vs. Assertive	E	16	1	8	138
5.	Sober Vs. Happy - go - lucky	F	81	16	0	117
6.	Expedient Vs. Conscientious	G	8	0	12	127
7.	Shy Vs. Venture- some	H	13	2	2	122
8.	Tough Minded Vs. Tender Minded	I*	39	105	2	11
9.	Trusting Vs. Suspicious	L*	3	81	51	3
10.	Practical Vs. Inapinative	M*	39	125	5	1
11.	Forthright Vs. Shrewd	N	5	0	50	127
12.	Placid Vs. Apprehensive	O*	0	99	76	9
13.	Conservative Vs. Experimenting	Q <sub>1</sub>	4	0	39	145
14.	Group Depedent Vs. Self Sufficient	Q <sub>2</sub>	11	0	28	147
15.	Self Conflic Vs. Controlled	Q <sub>3</sub>	9	0	17	147
16.	Relaxed Vs. Tensed	Q <sub>4</sub>	13	117	18	2

\* Negative Factors.

Results of the 16 Personality Factor Tool given at the onset and end of the experience based education on yoga were compared.

Noticeable change was found among the high scorers for all the positive traits. In the similar way, the low scorers were more at the final stage for the all negative traits. (Figure X)

In contrast to the result of this study, Vinòd et al (1984) found that improvement in positive traits of personality was not significant when these traits were considered separately, where as a whole, was significant at 0.05 per cent level. It was reasoned out that probably to the short duration of the s course.



Factors

CHANGES IN PERSONALITY TRAITS DUE TO YOGA

Figure . X

## Summary and Conclusion

## V. SUMMARY AND CONCLUSION

In the present day educational system it has been observed that the majority of the graduates are mediocre; a small number have outstanding personalities. The graduates have generally no sense of responsibility. They lack clear or correct motivation. As there has been no training in integrating personality, they are immature and are not fit to take on responsibility (Sequeira, 1988).

The potential for personality development is present at birth and is shaped by the constant interplay of temperament and environment. Adolescence which is often described as the period from the childhood to the adulthood. The fast changes in the last two decades have made the problem more complex for an adolescent. Yoga has much to offer here (Nair, 1988).

With proper yoga training many issues involved in education in Universities like mediocrity, lack of social responsibility, immaturity and dislike for work can be dealt within a masterly way.

There has been a keen interest in yoga shown during recent times and many educational and industrial agencies have turned to yoga for various reasons as people have realised the intrinsic goal that this subject has to offer when presented and practiced in its holistic context (Yogendra, 1989)

The investigator devised a special Experience Based Education on Yoga for the Selected adolescents to collect the data for the study 'Impact of Yoga on Certain Dimensions

of Personality'. The central feature was to provide actual, worth-while positive experiences as to information or technique by itself.

The experience based education on yoga consisted the following methods.

1. Orientation towards yoga and the objectives of the study.
2. Lecture on yoga.
3. Exposure to video cassette (keep fit)
4. Exhibition
5. Teaching yoga.
6. One day camp on yoga.

A group of 150 adolescent girls with the age range of 16-19 years, studying I B.A., B.com., II and III year psychology were selected. PGI Adaptation of Yoga Attitude scale and 16 personality Factor Inventory were used to gather the required data to findout the attitude towards yoga and certain dimensions of personality of the adolescents respectively. To trace out the change in attitude and personality dimensions of the selected adolescents, the data was collected both at the commencement and end of the study.

#### I. FAMILY BACKGROUND OF THE ADOLESCENTS

Since the study is carried out in an urban area, 93 percent of the subjects belonged to small family. Forty four and 50 per cent of their fathers and mothers had high school education respectively, and only 3 and 11 percent of fathers and mothers are illeterates.

Parents of 42 per cent of the subjects involved in business and 22 percent of them in clerical jobs. Eleven

and 8 per cent of fathers and mothers respectively doing professional jobs.

Thirty nine, thirty two and 29 per cent of the selected subjects belonged to low, middle and high income families respectively.

## II. Attitude of Adolescents Towards Yoga

Eighty four percent of the subjects come to know the truth that yoga can eliminate the bad habits like stealing and gambling, where as only 20 per cent of them had this view at the onset of the experiment. 70 percent of them agreed that through yoga one gets complete control over mind and its fluctuations, thus one can become more intelligent.

We could observe considerable difference in the initial and in final scores of the positive attitude regarding yoga brings success to life (23 percent), helps to overcome mental conflicts or problems (27 percent), builds character (25 percent) and brings discipline into life (22 percent);

Most of them agreed that yoga is beneficial to every one, makes a person emotionally stable, is essential for spiritual life and good health, gives peace, strength and unity to the whole life.

Generally it was found that the adolescents' attitude is changed due to the experience based education on yoga, Participants' opinion reflects that the yoga alters a man's anatomy, physiology, mental and psychic responses.

### C. Impact of yoga on Personality Dimensions

Results of the psychological test given at the onset and end of the experiment were compared. There was a statistically significant improvement in the desirable personality traits of all 16 factors.

### CONCLUSION

This study emphatically proves there is no doubt as to the efficacy of the yoga practice in achieving personality integration. It was investigated the experience based education on yoga brought positive attitude to co-ordinated functioning of the body and mind with full control over emotions and mental fluctuations. And also remarkable improvement in the desirable personality traits of the selected adolescents.

RECOMMENDATIONS

1. We live in an era of speed, stress and strain, such a life makes heavy demands on our nerves, which are but invisible branches of the brain. When the nerves collapse, anxieties and neuroses of one kind or another set in. The individual becomes a nervous wreck. Prevention is better than cure, and yoga is the 'Prevention'. Hence more of yoga training centres have to be started by the Government/Voluntary agencies.
2. The values of yoga have to be propagated in the temples, churches, Masjits and gurudwaras where communication with God takes place in a specific way.
3. Yoga has to be introduced in the educational institutions, which will definitely give fruitful results. Because, school/college education does not attend to the personality of the student, whereas yoga does-----leads to the highest stage of evolution.
4. Yoga camps can be conducted by the Human Resource Development, Department, so as to help the people who do not have time to attend the regular course on yoga, but interested to adopt it as a 'relaxomat'.
5. Publishing articles on yoga in all the regional languages, so as to make the people understand the psycho physiological and society values of yogaasans, pranayama and meditation in releasing tensions and diseases.
6. Although the art of the yoga is an ancient art, it is a young science. Standardisation of all the yogic practices and its exact role in individual disease is yet to be done.

## Bibliography

## BIBLIOGRAPHY

- Adivi Reddy, A.  
1987 Extension Education,  
Sree Lakshmi Press,  
Bapatla, pp. 36, 42, 82.
- Afzal, M.  
1989 Yoga and Man, Yoga and Total Health,  
Vol. 34, No. 9, p. 17.
- Agrawala, B.L.  
1989 My Experience with Yoga,  
Yoga and Total Health, Vol. 34,  
No. 8, p. 26.
- Agrawala, B.L.  
1989 Obesity, Yoga and Total Health,  
Vol. 34, No. 9, p. 10.
- Ajgaonkar, A.S.  
1988 Medical Symposium: Diabetes,  
Yoga and Total Health, Vol. 34,  
No. 4, p. 22.
- Anand  
1989 The Complete Book of Yoga,  
Orient paper backs, Bombay: pp.14,17.
- Anand,  
Anand, S  
1988 Yoga For Easier Pregnancy and  
Natural Child Birth,  
Orient Paper Backs; Bombay: p. 10.
- Andharia, D.J.  
1989 Editorial, Yoga and Total Health,  
Vol. 34, No.7, pp. 2-3.
- Asrani, U.A.  
1971 Yoga Today, The MacMillan Co. of  
India, Pvt. Ltd; Bombay: p. 50.
- Aurobindo  
1986 Bases of Yoga, Sri Aurobindo Ashram,  
Pondicherry: p. 74.
- Bahadur, K.P.  
1988 The Wisdom of Yoga,  
Sterling Publishers Pvt. Ltd.,  
New Delhi: p. 63.

- Bapuji, B.  
1988 Tone Up with Yoga,  
Indian Express, September, 24th
- Bhatia, K.K.,  
Arora, J.N.  
1984 Methodology of Teaching,  
Prakash Brothers,  
Ludhiana: p. 82.
- Bhave, N.  
1988 Yoga Therapy in a Hospital Set-up,  
Yoga and Total Health,  
Vol. 34, No. 2, p. 10.
- Bhole, M.V.,  
Karambalkar, P.V.  
1971 Heart Control Through Yoga Practises,  
Yoga Mimamsa, Vol. 13, No. 4, p. 53.
- Bhole, M.V.,  
Karambalkar, P.V.,  
Gharate, M.L.  
1974 The Effect of Yoga Practises on  
Vital Capacity, Indian Journal of  
Chest Diseases, Vol. 13, p. 1-4.
- Bourne, L.E.,  
Kstrand, B.R.  
1982 Psychology, Holt, Rinehart,  
Winston; New York: p. 332.
- Brubacher, J.S.  
1970 Modern Philosophies of Education  
TATA McGraw-Hill Publishing Co.  
Pvt. Ltd., Bombay: p. 107.
- Carlson, N.R.  
1987 Psychology, Allyn and Bacon Inc.,  
Borton: p. 534.
- Castillo, E.  
1989 The Inner Strength of India,  
Yoga and Total Health, Vol. 34,  
No. 34, No. 9, p.7.

- Chanbe, S.P.  
1975 Some Foundations and Guidelines of Modern Education,  
Ram Prasad and Sons, Agra: pp. 337-338, 441.
- Chanbe, S.P.  
1977 Recent Educational Philosophies in India, Ram Prasad and Sons,  
Agra: p. 26.
- Chinwala, R.J.  
1989 Psycho-Analysis and Yoga,  
Yoga and Total Health, Vol. 34,  
No. 9, p. 4.
- Dahama, P.  
1973 Extension and Rural Welfare,  
Ram Prasad and Sons, Agra: p. 282.
- Das, S.K.  
1981 Glimpse of Divine Light,  
Intellectual Publishing House,  
New Delhi: Pp. 1, 10, 40-47, 50-56,  
72-74, 82, 92, 108-109.
- Datey, K.K.  
1988 Yoga for the Control of Mental Tension, Prakrithi, Vol. 67,  
No. 3, Pp. 38, 42.
- Day, H.  
1970 About Yoga - The Complete Philosophy, Thorsons Publisher Ltd.,  
London: Pp. 8 - 9, 34, 44-47, 51-53.
- Devi, I.  
1978 Yoga For You, Jaico Publishing  
House, Bombay: p. 74.

- Devicente, P.  
1984 Yoga and Psychosomatic Medicine,  
Kaivalyadhama, Lonavala: p. 115.
- Diwarkar, R.B.  
1975 Collected Papers on Yoga  
by Swami Digambaraji, Kaivalyadhama,  
Lonavala: p. 5.
- Dortaleck, C.  
1985 Yoga: A Returning Constituent  
of Medical Services, Vol. 24,  
No. 2, p. 23.
- Doshi, N.S.  
1989 Letters to the Editor, Yoga and  
Total Health, Bombay, Vol. 34,  
No. 7, p. 4.
- Doss, S.N.  
1970 Yoga's Utility in Games and  
Sports, November, p. 5.
- Duggal, S.  
1985 Teaching Yoga, The Yoga Institute,  
Bombay: p. 58.
- Fayadeva Yogendra,  
1986 Guide To a Fuller Life,  
The Yoga Institute, Bombay: p. 39.
- Fenerstein, G.  
1986 Jnana Yoga and the Way of Radical  
Understanding, Yoga Mimamsa,  
Vol. 15, No. 1 and 2, p. 1.
- Fenerstein, G.  
1975 Text Book of Yoga, Rider and Co.,  
London: Pp. 3, 5, 12.
- Feys, J.  
1977 The Yogi and the Mystic,  
Firms K.L.H. Pvt. Ltd.,  
Calcutta: p. 70.

- Frances Pocock,  
1974 Journal of the Yoga Institute,  
Bombay, Vol. 18, No. 1, Pp. 10-11.
- Ganguly, S.K.,  
Gharote, M.L.  
1974 Cardio Vascular Efficiency Before  
and After Yogic Training,  
Yoga Mimamsa, Vol. 17, No. 2, p. 95.
- Gharote, M.L.  
1973 Effect of Yogic Training on  
Physical Fitness, Yoga  
Mimamsa, Vol. 15, No. 4, Pp. 32, 34.
- Ghoshal, S.  
1987 Heart Care Through Yoga,  
Indian Express, August, 18th.
- Ghosh, B.V.  
1985 Scientific Methods and Social  
Research, Sterling Publishers  
Pvt. Ltd., Bangalore: p. 142.
- Gopal, R.T.V.,  
Chastri, K.B.  
1972 Yoga - The Magic Power,  
A Universal Publications,  
Delhi: p. 48.
- Gopinath, D.  
1989 Asanas for Respiratory Problems,  
Indian Express.
- Gupta, S.P.  
1987 Statistical Methods, Sultan Chand  
and Sons, New Delhi: p. 37.
- Guyot, F.  
1976 Yoga, The Art and Science of Self  
Mastery for Success.  
A Universal Publications, Delhi:  
Pp. 14, 21, 24.

- Hansa Jayadeva,  
1988 Pleasant Versus Good,  
Yoga and Total Health,  
Vol. 34, No. 5, p. 22.
- Heuser, K.  
1989 Letters To The Editor,  
Yoga and Total Health, Vol. 34,  
No. 8, p. 3.
- Hewitt, J.  
1987 Yoga, David McKay and Co. Inc.,  
New York: pp. 3, 5, 11-13.
- Hutchinson, R.  
1970 Yoga - Health and Beauty  
Arthur Barker Ltd., London: p. 16.
- Iyer, S.N.  
1974 Yoga For You and Me,  
Journal of Yoga Institute,  
Vol. 20, No. 5, Pp. 76 - 77.
- Iyengar, B.K.S.  
1980 Light on Yoga,  
George Allen and Unwin Ltd.,  
London: Pp. 21 - 22, 26, 30.
- Jaggi, O.P.  
1986 Mental Tension and Its Cure,  
Orient Paperbacks, Delhi: p. 128.
- Jaidar, I.  
1984 Yoga and Research,  
Kaivalyadhama, Lonavala:p. 37.
- Jayadeva, Y.  
1988 Yoga and Therapy in Asthma,  
Diabetes and Heart Disease,  
Yoga and Total Health, Vol. 34,  
No. 3, Pp. 18, 25.
- Jayadeva, Y.  
1989 Yoga News, Yoga and Total Health,  
Vol. 34, No. 8, p. 28.

- Jhingam, R.P.  
1986 Self Improvement through Practical  
Yoga, Kumar Publications,  
New Delhi: p. 27.
- Joshi, K.S.  
1985 Yoga in Daily Life, Orient  
Paperbacks, Delhi: Pp. 10-20.
- Joshi, K.S.  
1985 Yoga in Daily Life,  
Orient paperbacks, Delhi: Pp. 10-20.
- Kameswara Rav  
1984 Yoga and Tantra, Bhavani Printers,  
Hyderabad, p. 20.
- Khanna, D.  
1988 Report on NVS - Camps, Yoga  
and Total Health, Vol. 34,  
no. 3, p. 25.
- Khanna, D.  
1988 Sukha, Yoga and Total Health,  
Vol. 34, No. 2, p. 21.
- Kocher, M.C. ,  
Pratap, V.  
1971 A Free Association Study Before and  
After Training, Yoga Mimamsa  
Vol. 14, No. 1, and 2, Pp. 32, 42.
- Kocher, H.C.  
1972 The Mirror Tracing Test As Measure  
of Steadiness Among Yoga Practitioners,  
Yoga Mimamsa, Vol. 15, No. 3, Pp. 13-22.
- Kocher, H.C.,  
Pratap, V.  
1972 Neurotic Trend and Yogic Practises,  
Yoga Mimamsa, Vol. 14, No. 1, and 2,  
p. 40.

- Kocher, M.C.,  
Pratap, V.  
1972
- A Psycho Physiological Study of the effects of Short Term Yogic Training on the two Hand Coordination. Yoga Mimamsa, Vol. 14, No. 3, and 4, Pp. 48-54.
- Kocker, H.C. ,  
Pratap, V.  
1972
- Yoga Practices and Variable in Neuroticism, Anxiety and Hostility. Yoga Mimamsa, Vol. 15, No. 2, p. 46.
- Kothare, U.R.  
1984
- Clinical Review of Yogic Therapy. Kaivalayadhama, Lonavala: p. 105.
- Kumar, P.A.D.  
1988
- Yoga Maketh A Man. Yoga and Total Health, Bombay, Vo. 34, No. 1, Pp. 2, 4-6.
- Lakshminarayana, T.C.,  
1986
- Way to Human Salvation. T.C. Lakshmanarayana, Tirupathi: p. 81.
- Luthra, P.N.  
1988
- The Sovereignty of the Family. Social Welfare, Vol. 35, No. 6, p. 16.
- Mahale, M.N.  
1987
- The Adolescent, other Family Situation and Education. Mittal Publications, Delhi: p. 323.
- Mahija, A.  
1989
- Video, Teaching Aid of 90's. Indian Express, April, 13th.

- Mauidi, M.R.,  
Shankar, S.R.  
1984
- Curriculum Development and  
Educational Technology,  
Sterling Publishers Pvt. Ltd.,  
Bangalore: p. 81.
- Margal, S.K.,  
Chandha, P.C.  
1983
- Health and Physical Education,  
Prakash Brothers, Ludhiana:  
Pp. 61 - 65.
- Mcharg, G.,  
1988
- Yoga Institute Today,  
Yoga and Total Health, Vol. 34,  
No. 2, Pp. 24 - 25.
- Muzundar, S.  
1970
- Yogi Exercises, Orient Longmans,  
Madras: pp. ix, 1-3, 35.
- Nagarkar, S.  
1988
- Alternative Methods of Teaching,  
Yoga and Total Health, Vol. 34,  
No. 4, p. 17.
- Nair, P.  
1988
- What The Child Needs,  
Yoga and Total Health,  
Vol. 33, No. 12, p.9.
- Nateshan, K.H.,  
Devi, K.D.  
1987
- Comparative Study of Personality  
Traits of High and Low Achievers,  
Vol. 24, No. 2, p. 73.
- Oakley, P.,  
Garforth, C.  
1985
- Guide to Extension Training.  
F.A.O., Rome: Pp. 78, 82.

- Palsane, M.N.,  
Kocher, H.C.  
1973
- The Effect of Short Term Yogic  
Training on Immediate Memory of  
School Boys, State Education  
Journal, Vol. 3, No. 1, Pp. 32-49.
- Pandit, M.P.  
1988
- Traditions in Sadhana,  
Sterling Publishers Pvt. Ltd.,  
New Delhi: p. 96.
- Phelan, N.  
1976
- A Beginner's Guide to Yoga  
Spheres Books Ltd., London: p. 11.
- Parikh, M.D.  
1988
- Psychology Based Upon Hindu  
Philosophy, Yoga and Total Health,  
Vol. 34, No. 2, p. 14.
- Price, R.H.,  
Glickstein, M.,  
Horton, D.L.,  
Bailey, R.H.  
1982
- Principles of Psychology.  
Hold, Rinehart, Winston,  
London: p. 505.
- Promil, H.J.,  
Sequeira, H.  
1989
- Psycho-Analysis and Yoga,  
Yoga and Total Health, Vol. 34,  
No. 9, p. 5.
- Rossai, P. H.,  
Wright, J.D.,  
Anderson, A.B.  
1983
- Hand Book of Survey Research,  
Academic Press Inc., London:  
Pp. 195 - 196.
- Sadhakas,  
1987
- Yoga Therapy in Asthma, Diabetes  
and Heart Disease, The Yoga  
Institute, Bombay, Pp. 20, 87.

- Sahai, M.  
Malhotra, D.D.  
1970
- Yoga for Mental Health,  
Yoga Mimamsa, Vol. 6, No. 3,  
p. 32.
- Satyapal,  
Agarwal, D.D.  
1986
- Yogasana and Sadhana,  
Bharathiya Yoga Sasthan,  
Delhi: p. 50.
- Savant, P.K.  
1972
- Yoga Sadhana by Yogasakthi  
Saraswathi, Wilco Publishing  
House, Bombay:p.20.
- Schumann, U.  
1984
- Yoga as a cultural Element,  
Kaivalyadhama, Lonavala: p. 27.
- Seth, S.  
1973
- The Role of Yoga in Family Life,  
Journal of Yoga Institute, Vol. 18,  
No. 12, Pp. 202-203.
- Seth, S.  
1986
- Practical Yoga, Indian Book House  
Pvt. Ltd., Bombay: p. XVI.
- Seth, A.  
1989
- A Psychiatrist View on Happiness,  
Yoga and Total Health,  
Vol. 34, No. 9, p. 22.
- Sequeira, S.H.  
1988
- National Educational Policy and the  
Role of Yoga, Yoga and Total Health,  
Vol. 33, No. 12, Pp. 5-6.
- Sequeira, P.J.,  
Sequeira, H.  
1989
- Interviewing A Cardiologist,  
Yoga and Total Health, Vol. 34,  
No. 7, p. 7.

- Shah, R.  
1988 Yoga and its implication for Modern Man, Yoga and Total Health, Vol. 34, No. 5, p. 16.
- Sharma, P.D.  
1980 Yoga, Yogasana and Pranayama for Health, Gala Publishers, Bombay: p.7.
- Sharma, S.,  
Moquemuddin, M.  
1982 Audio Visual Education, Prakash Brothers, Ludhiana: Pp. 52, 82.
- Shankar, U.  
1984 Education of Indian Teachers Sterling Publishers Pvt. Ltd., Bangalore: p. 76.
- Shekhawat, V.  
1979 Yoga - A Technique of Liberation, Sterling Publishers Pvt. Ltd., New Delhi: p. 15.
- Shri Yogendra,  
1973 Yoga Asanas Simplified The Yoga Institute, Bombay: Pp. 38-39, 85, 120, 134 - 135.
- Shri Yogendra,  
1971 Facts About Yoga, The Yoga Institute, Bombay: Pp. 5-6, 9-11, 17, 21-23, 27-28.
- Shri Yogendra,  
1970 Yoga Hygiene Simplified. The Yoga Institute, Bombay: Pp. 58, 59, 85, 120, 134 - 135.

- Shri Yogendra,  
1986 Guide to Yoga Meditation,  
The Yoga Institute, Bombay: p. 61.
- Sinha, P.,  
1987 Yogic Cure for Common Diseases,  
Orient Paperbacks, Delhi:  
Pp. 49, 71, 117, 153.
- Sitadevi, Y.  
1989 Can Yoga Pave The Way for  
World Unity, Yoga and Total  
Health, Vol. 34, No. 6, Pp. 19 - 20.
- Sixteen Personality P.F. Manual  
Factor Manual
- Spodek, B.  
1982 Handbook of Research in Early  
Childhood Education, The Free  
Press, New York: p. 537.
- Sridhar, S.  
1989 Letters to the Editor, Yoga and  
Total Health, Vol. 34,  
No. 7, p. 4.
- Sri Hari  
1971 Yoga Today by Yogendra, J. and  
Clement Vaz, The MacMillan  
Co. of India (P) Ltd., Bombay:  
Pp. 3-4.50,77.

- Subramanian, T.A.  
1989 More in Life or Less in Life,  
Yoga and Total Health, Vol. 34,  
No. 7, p. 17.
- Swami Digambaraji,  
1975 Collected Papers on Yoga,  
Kaivalyadhama, Lonavala: Pp. 76, 79.
- Swami Gitaranda,  
1987 How to Begin A Practise of Yoga,  
Anand Ashram, Pondicherry: p. 1.
- Swami Kuvalayananda,  
Vinekar, S.C.  
1970 Yogic Therapy, CHEB, Ministry of  
Health, New Delhi: Pp. vi - vii,  
1 - 4, 19 - 20, 25, 30, 79.
- Swami Satprakashananda,  
1976 Meditation, The Vedanta Society  
of St. Louis, Missouri:  
Pp. 166 - 168, 170-175, 185-187,  
194, 196-197.
- Swami Satyaprakash,  
Saraswathi  
1975 Yoga, S. Chand Co. (Pvt.) Ltd.,  
New Delhi: Pp. iv, 1.
- Swami Sivananda,  
1977 Yoga Practise,  
D.B. Taraporevala Sons and Co.  
Pvt. Ltd., Bombay: Pp. 4-5.
- Swami Sivananda,  
1987 How To Begin a Practise of Yoga,  
Anand Ashram, Pondicherry: pp. 1,5.

- Swami Tapasyananda,  
1983 The Four Yogas of Swami  
Vivekaranda, Sri Ramakrishna  
Math, Madras: Pp. 27, 59-70, 75.
- Tanuja, P.,  
Baradha, G.  
1989 Impact of Yoga on Adult Men,  
Unpublished Thesis, 1987
- Tiwari, O.P.  
1984 Asana Why and How, Yoga Mimamsa,  
Kaivalyadhama, Lonagala: pp. 4, 7.
- Trivedi, S.V.  
1978 Yoga-You Too Can Do It,  
Urmila Press, Madras: p. 3.
- Vaishnav, S.N.  
1988 Yoga, Stress and Heart,  
Yoga and Total Health, Vol. 34,  
No. 2, p. 19.
- Valecha, S.  
1988 Book Review, Yoga and Total Health,  
Bombay, Vol. 34, No. 5, p. 23.
- Venkataraman, P.S.  
1989 Video, Teaching Aid of 90's,  
Indian Express, April, 13th.
- Vinod, S.D.  
1984 Effect of Yoga Practices Performed in  
State of Meditation on Adolescent  
Anxiety and Certain Personality  
Variables, Kaivalyadhama,  
Lonavala: p. 131.

- Wilkinson, T.S.,  
Bhandarkar, P.L.  
1982
- Methodology and Techniques of  
Social Research, Himalaya  
Publishing House: Bombay: p. 221.
- Yesudevan, S.  
1979
- Yoga Week by Week,  
Vikas Publishing House Pvt. Ltd.,  
Calcutta: Pp. 131-133, 135, 137.
- Yesudian, S.  
1979
- Self Reliance Through Yoga,  
Vikas Publishing House Pvt. Ltd.,  
Bombay: pp. 24-25, 65-66, 74-75.
- Yogiraj Vethathiri,  
Maharshi  
1986
- Karma Yoga - The Holistic Unity,  
Vethathiri Publications,  
Madras, p. 2.
- Young, F.R.  
1987
- Yoga Secrets For Extra Ordinary  
Health and Long Life,  
Tarang Paperbacks, New Delhi:  
Pp. 15-16, 18 - 19, 23 - 24, 41.
- Zia Paracha  
1988
- Yoga Residential Camp at the  
Yoga Institute in Bombay,  
Yoga and Total Health,  
Vol. 34, No. 3, p. 17.

## Appendix

APPENDIX - I

1. Name
2. Age
3. Type of the family      Small / Large
4. Area                      Urban / Rural
5. General Information of the family.

S.No.	Name of the family members	Relation to the Subject	Sex	Age	Educational qualifications	Occupations	Monthly income
					Illiterate	Pri. School	High School

APPENDIX - II

PGI ADAPTATION OF YOGA ATTITUDE SCALE

Name:

Date:

Age:

Sex:

Education:

Instructions: Given below are a few sentences about Yoga. Of these to which ones do you agree and to what extent.

S.No.	Statements	Strongly Agree	Agree	Uncertain	Disagree	Strongly disagree
1.	Yoga benefits every one					
2.	Yoga makes a person emotionally stable.					
3.	Yoga can cure all diseases.					
4.	Yoga principles are very difficult to follow in real life.					
5.	Yoga is meant only for sadhus, sanyasis or saints who live alone in the jungle.					
6.	Yoga is only for those incompetent or weak people who cannot face difficulties in life					
7.	Yoga is essential for spiritual progress.					
8.	Yoga essential for good health.					
9.	Yoga gives peace, strength and unity to the whole life.					

S. No.	Statements	Strongly Agree	Agree	Uncertain	Disagree	Strongly disagree
10.	Yoga brings success to life.					
11.	Yoga can overcome mental conflicts or problems.					
12.	Yoga can make a person more intelligent.					
13.	There are many other ways besides yoga by which a person can obtain peace and happiness.					
14.	Yoga gives many ways by which a person can strength and or build character.					
15.	Even had habits like stealing, gambling etc. can be checked by Yoga.					
16.	Yoga brings discipline into life.					

APPENDIX-III

Cattell's 16 Personality Factors Inventory.

1. I have the instructions for this test clearly in mind  
a. Yes b. Uncertain c. no.
2. I am ready to answer each question as truthfully as possible  
a. Yes b. Uncertain c. no.
3. I would rather have a house.  
a. in a sociable suburb  
b. in between  
c. alone in the deep woods
4. I can find enough energy to face my difficulties  
a. always b. generally c. Seldom
5. I feel a bit nervous of wild animals even when they are in strong cages.  
a. Yes (true) b. uncertain c. no (false)
6. I hold back from criticizing people and their ideas  
a. Yes b. sometimes c. no
7. I make smart, sarcastic remarks to people if I think they deserve it  
a. true b. uncertain c. never
8. I prefer semiclassical music to popular tunes  
a. true b. uncertain c. false
9. If I saw two neighbour's children fighting, I would  
a. leave them to settle it b. uncertain  
c. reason with them

10. On social occasion I:  
a. readily come forward b. in between c. prefer to stay quietly in the background
11. It would be more interesting to be:  
a. a construction engineer b. uncertain c. writer of plays
12. I would rather stop in the street to watch an artist  
a. true b. uncertain c. false
13. I can generally put up with conceited people, even though they brag or what show they think too well of themselves  
a. yes b. in between c. no
14. You can almost always notice on a man's face when he is dishonest  
a. Yes b. in between c. no
15. It could be good for everyone if vacations (holidays) were longer and everyone had to take them  
a. agree b. uncertain c. disagree
16. I would rather take the gamble of a job with possibly large but uneven earnings, than only with a steady small salary  
a. Yes b. uncertain c. no
17. I talk about my feelings:  
a. only if necessary b. in between c. readily, whenever  
I have chance
18. Once in a while I have a sense of vague danger or sudden dread for reason that I do not understand  
a. Yes b. in between c. no

19. When criticized wrongly for something I did not do I:  
a. have no feeling of guilt b. in between  
c. still feel a bit guilty
20. Money can buy almost everything  
a. Yes B. uncertain c. no
21. My decisions are governed more by my:  
a. heart b. feelings and reason equally c. head
22. Most people would be happier if they lived more with their  
fellows and did the same things as others  
a. Yes b. in between c. no
23. I occasionally get puzzled, when looking in a mirror as  
to which is my right and left  
a. True b. uncertain c. False.
24. When talking, I like  
a. to say things, just as they occur to me b. in between  
c. to get my thoughts well organised first
25. When something really makes me furious, I find I clam down  
again quite quickly  
a. Yes b. in between c. no
26. With the same hours and pay, it would be more interesting  
to be:  
a. a carpenter or cook b. uncertain c. a waiter in a  
good restaurant
27. I have been elected to:  
a. only a few offices b. several c. many offices
28. "Spade" is to "dig" as "knife" is to:  
a. sharp b. cut c. point

29. I sometimes can't get to sleep because an idea keeps running through my mind  
a. true b. uncertain c. false
30. In my personal life I reach the goals I set, almost all the time  
a. true b. uncertain c. false
31. An out-dated law should be changed  
a. only after considerable discussion  
b. in between  
c. promptly
32. I am uncomfortable when I work on a project requiring quick action affecting others  
a. true b. in between c. false
33. Most of the people I know would rate me as an amusing talker  
a. Yes b. uncertain c. no
34. When I see "Sloppy" untidy people:  
a. just accept it b. in between  
c. get disgusted and annoyed
35. I get slightly embarrassed if I suddenly become the focus of attention in a social group  
a. Yes b. in between c. no
36. I am always glad to join a large gathering, for example a party, dance, or public meeting  
a. yes b. in between c. no

37. In school I preferred (or prefer)
- a. music
  - b. uncertain
  - c. handwork and crafts
38. When I have been put in charge of something, I insist that my instructions are followed or else I resign
- a. yes
  - b. sometimes
  - c. no
39. For parents, it is more important to:
- a. help their children to develop their affection
  - b. in between
  - c. teach their children how to control emotions.
40. In a group task I would rather:
- a. try to improve arrangements
  - b. in between
  - c. keep the records and see that rules are followed
41. I feel a need every now and then to engage in a tough physical activity
- a. yes
  - b. in between
  - c. no
42. I would rather mix with polite people than rough, rebellious individuals
- a. Yes
  - b. in between
  - c. no
43. I feel terribly dejected when people criticize me in a group
- a. True
  - b. in between
  - c. false
44. If I am called in by my boss, I
- a. Make it a chance to ask for something I want
  - b. in between
  - c. fear I've done something wrong

45. What this world need is:
- a. more steady and "solid" citizens
  - b. uncertain
  - c. more "idealists" with plans for a better world
46. I am always keenly aware of attempts at propaganda in thing I read
- a. yes b. uncertain c. no
47. As a teenager, I joined in school sports:
- a. occasionally b. fairly often c. a great deal
48. I keep my room well organised, with things in known places almost all the time
- a. Yes b. uncertain c. no
49. I sometimes get in a state of tension and turmoil as I think of the day's happenings
- a. Yes b. Inbetween c. No
50. I some times doubt whether people I am talking to are really interested in what I am saying.
- a. Yes b. in between c. no
51. If I had to choose, I would rather be:
- a. a forester b. uncertain c. a high school teacher
52. For special holidays and birthdays, I:
- a. like to give personal presents
  - b. uncertain
  - c. feel that buying presents is a bit of a nuisance
53. "Tried" is to "work" as "proud" is to:
- a. smile b. success. c. happy
54. Which of the following items is different in kind from the others?
- a. candle b. moon c. electric light
- 55.

55. I have been let down by my friends
- a. hardly ever
  - b. occasionally
  - c. quite a lot
56. I have some characteristics in which I feel definitely superior to most people
- a. Yes
  - b. uncertain
  - c. no
57. When I get upset, I try hard to hide my feelings from others
- a. true
  - b. in between
  - c. false
58. I like to go out to a show or entertainment:
- a. more than once a week (more than average)
  - b. about once a week (average)
  - c. less than once a week (less than average)
59. I think that plenty of freedom is more important than good manner and respect for the law
- a. true
  - b. uncertain
  - c. false
60. I tend to keep quite in the presence of senior persons (people of greater experience, age, or rank)
- a. Yes
  - b. in between
  - c. no
61. I find it hard to address or recite to a large group
- a. Yes
  - b. in between
  - c. no
62. I have a good sense of direction (find it easy to tell which is North, South, East or West) when in a strange place
- a. yes
  - b. in between
  - c. no
63. If some got mad at me, I would:
- a. try to calm him down
  - b. uncertain
  - c. get irritated

64. When I read an unfair magazine article, I am more inclined to forget it than to feel like "hiting back";  
a. true b. uncertain c. flase
65. My memory tends to drop a lot of unimportant, trivial things, for example, names of streets or stores in town.  
a. yes b. in betwen c. no
66. I could enjoy the life of an animal doctor, handling disease and surgery of animals  
a. Yes b. in between c. no
67. I eat my food with gusto, not always so carefully and properly as some people  
a. true b. uncertain c. no
68. There are times when I don't feel in the right mood to see anyone  
a. very rarely b. in between c. quite often
69. people sometimes warn me that I show my excitement in voice and manner too obviously:  
a. Yes b. in between c. no
70. As a teenager, If I differed in opinion from my parents, I usually:  
a. kept my own opinion  
b. in between  
c. accepted their authority
71. I would prefer to have an office of my own, not sharing it with another person  
a. Yes B. uncertain c. no

72. I would rather enjoy life quietly in my own way than by admired for my achievements  
a. true b. uncertain c. false
73. I feel mature in most things  
a. true b. uncertain c. false
74. I find myself upset rather than helped by the kind of criticism that many people offer me  
a. often b. occasionally c. never
75. I am always able to keep the expression of my feelings under exact control  
a. working on it in the laboratory b. uncertain  
c. showing it to people
76. In starting a useful invention, I would prefer:  
a. Yes b. in between c. no
77. "Surprise" is to "Strange" as "fear" is to:  
A. brave b. anxious c. terrible
78. Which of the following fractions is not in the same class as the others?  
a.  $\frac{3}{7}$  b.  $\frac{3}{9}$  c.  $\frac{3}{11}$
79. Some people seem to ignore or avoid me, although I don't know why  
a. true b. uncertain c. false
80. People treat me less reasonably than my good intentions deserve  
a. often b. occasionally c. never

81. The use of foul language, even when it is not in a mixed group of men and women, still disgusts me  
a. Yes b. in between c. no
82. I have decidedly fewer friends than most people  
a. Yes b. in between c. no
83. I would hate to be where there wouldn't be a lot of people to talk to  
a. true b. uncertain c. false
84. people sometimes call me careless, even though they think I'm a likable person  
a. Yes b. in between c. no
85. "Stage-fright" in various social situations is something I have experienced:  
a. quite often b. occasionally c. hardly ever
86. When I am in a small group, I am content to sit back and let others do most of the talking  
a. Yes b. inbetween c. no
87. I prefer reading:  
a. realistic account of military or political battles  
b. uncertain c. a sensitive, imaginative novel
88. When bossy people try to "Push me around", I do just the opposite of what they wish  
a. Yes b. in between c. no
89. Business superiors or members of my family as a rule, find fault with me only when there is real cause  
a. true b. inbetween c. false

90. In streets or stores, I dislike the way some persons stare at people  
a. Yes b. in between c. no
91. On a long journey, I would prefer to  
a. read something profound, but interesting  
b. uncertain  
c. pass the time talking casually with a fellow passenger.
92. In a situation which many become dangerous, I believe in making a fuss and speaking up even if calmness and politeness are lost  
a. Yes b. in between c. no
93. If acquaintances treat me badly and show they dislike me:  
a. it doesn't upset me a bit b. in between  
c. I tend to get downhearted
94. I find it embarrassing to have praise or compliments bestowed on me  
a. Yes b. in between c. no
95. I would rather have a job with:  
a. a fixed, certain salary b. in between  
c. a large salary, which depended on my constantly persuading people I am worth it.
96. To keep informed, I like:  
a. to discuss issues with people b. in between  
c. to rely on the actual news reports
97. I like to take an active part in social affairs, committee work, etc.  
a. Yes b. in between c. no.

98. In carrying out a task, I am not satisfied unless even the minor details are given close attention  
a. true b. in between c. false
99. Quite small setbacks occasionally irritate me too much.  
a. Yes b. in between c. no.
100. I am always a sound sleeper, never waking or talking in my sleep.  
a. Yes b. in between c. no.
101. It would be more interesting to work in a business:  
a. Yes b. in between c. no.
102. "Size" is to "length" as "dishonest" is to  
a. prison b. sin c. stealing
103. AB is to Dc as SR is to:  
a. qp b. pq c. tu
104. When people are unreasonable, I just:  
a. Keep quiet b. uncertain c. despise them
105. If people talk loudly while I am listening to music, I:  
a. can keep my mind on the music and not be bothered  
b. in between  
c. find it spoils my enjoyment and annoys me
106. I think I am better described as:  
a. polite and quite b. in between  
c. forceful
107. I attend social functions only when I have to, and stay  
a. Yes b. uncertain c. no.

108. To be cautious and expect little is better than to be happy at heart, always expecting success  
a. true b. uncertain c. false
109. In thinking of difficulties in my work, I:  
a. try to plan ahead, before I meet them b. in between  
c. assume I can handle them when they come
110. I find it easy to mingle among people at a social gathering  
a. true b. uncertain c. no.
111. When a bit of diplomacy and persuasion are needed to get people moving, I am generally the one asked to do it.  
a. yes b. in between c. no.
112. It would be more interesting to be:  
a. a guidance worker helping young people find jobs  
b. uncertain  
c. a manager in efficiency engineering
113. If I am quite sure that a person is unjust or behaving selfishly, I show him up even if it takes some trouble.  
a. Yes b. in between c. no
114. I sometimes make foolish remarks in fun, just to surprise people and see what they will say  
a. Yes b. in between c. no
115. I would enjoy being a newspaper writer no drama, concerts, opera, etc.  
a. Yes b. in between c. no
116. I never feel the urge to doodle and fidget when kept sitting still at a meeting  
a. true b. uncertain c. false

117. If someone tells me something which I know is wrong I am more likely to say to myself:
- a. "He is a liar" b. in between
  - c. "Apparently he is misinformed"
118. I feel some punishment is coming to me even when I have done nothing wrong
- a. often b. occasionally c. never
119. The idea that sickness comes as much from mental as physical causes is much exaggerated
- a. Yes b. in between c. no
120. The pomp and splendour of any big state ceremony are things which should be preserved
- a. Yes b. in between c. no
121. It bothers me if people think I am being too unconventional or odd
- a. a lot b. somewhat c. not at all
122. In constructing something I would rather work:
- a. with a committee b. uncertain c. on my own
123. I have periods when it is hard to stop a mood of self-pity
- a. often b. occasionally c. no
124. Often I get angry with people too quickly
- a. Yes b. occasionally c. no
125. I can always change old habits without difficulty and without slipping back
- a. Yes b. in between c. no
126. If the earnings were the same I would rather be:
- a. a lawyer b. uncertain
  - c. a navigator or pilot

127. "Better" is to "Worst" as "slower" is to:  
a. fast b. best c. quickest
128. Which of the following should come next at the end of this row of letters x0000xx000?  
a. oxxx b. ooxx c. xooo
129. When the time comes for something I have planned and looked forward to, I occasionally do not feel up to going.  
a. true b. in between c. false
130. I can work carefully on most things ~~without being~~ ~~bothered~~ by people making a lot of noise around me  
a. Yes b. in between c. no.
130. I occasionally tell strangers things that seem to me important, regardless of whether they ask about them  
a. Yes b. in between c. no.
132. I spend much of my spare time talking with friends about social events enjoyed in the past.  
a. Yes b. in between c. no
133. I enjoy doing "daring" foolhardy things " just for fun"  
a. Yes b. inbetween c. no
134. I find the sight of an untidy room very annoying  
a. yes b. in between c. no
135. I consider myself a very sociable, outgoing person  
a. Yes b. in between c. no
136. In social contacts I.  
a. Show my emotions as I wish  
b. in between  
c. Keep my emotions to myself

137. I enjoy music that is:  
a. Yes, b. uncertain c. no
138. I admire the beauty of a poem more than that of a well made gun.  
a. Yes, b. uncertain, c. No.
139. If a good remark of mine is passed by, I;  
a. Let it go, b. in between, c. give people a chance to hear it again.
140. I would like to work as a probation officer with criminals on parole.  
a. Yes, b. in between, c. no.
141. One should be careful about mixing with all kinds of strangers since there are dangers of infection and so on.  
a. Yes, b. uncertain, c. no.
142. In travelling abroad, I would rather go on an expertly conducted tour than plan by myself the places I wish to visit.  
a. yes, b. uncertain, c. no.
143. I am properly regarded as only a plodding, half-successful person.  
a. yes b. uncertain c. no
144. If people take advantage of my friendliness, I do not resent it and I soon forget.  
a. true, b. uncertain, c. false.
145. If a heated argument developed between other members taking part in a group discussion, I would:  
a. Like to see a "winner", b. in between,  
c. Wish that it would be smoothed over.

146. I like to do my planning alone, without inter-ruption and suggestions from others.
147. I sometimes let my actions get swayed by feelings of jealousy.  
a. yes, b. in between, c. no.
148. I belive firmly "the boss may not always be right, but he always has the right to be boss".  
a. yes, b. uncertain, c. no.
149. I get tense as I think of all the things lying ahead of me.  
a. yes, b. sometimes, c. no.
150. If people shout suggestions when I'm playing a game, it doesn't upset me.  
a. true, b. uncertain, c. false.
- ( End, column 6 on answer sheet)
151. It would be more interesting to be:  
a. an artisit, b. uncertain, c. a secretary running.
152. Which of the following words does not property belong with the others ?  
a. any, b. some c. most.
153. "Flame" is to "heat" as "rose" is to  
a. thron, b. red petals, c. scent
154. I have vivid dreams, disturbing my sleep.  
a. often, b. occasionally, c. pratically never.
155. If the odds are really aganist something's begin a success, I still belive in taking the risk  
a. yes b. in between c. no.

156. I think it when I know so well what the group has to do that I naturally become the one in command.  
a. yes, b. in between, c. no.
157. I would rather dress with quiet correctness than with eye-catching personal style.  
a. true, b. uncertain, c. false.
158. An evening with a quiet hobby appeals to me more than a lively party.  
a. true b. uncertain c. false.
159. I close my mind to well-meant suggestions of others, even though I know I shouldn't.  
a. occasionally, b. hardly ever, c. never.
160. I always make it a point, in deciding anything, to refer to basic rules of right and wrong.  
a. yes, b. in between, c. no.
161. I somewhat dislike having a group watch me at work.  
a. yes, b. in between, c. no.
162. Because it is not always possible to get things done by gradual, reasonable methods, it is sometimes necessary to use force.  
a. true. b. in between c. false.
163. In school I preferred ( or prefer):  
a. English, b. uncertain, c. mathamatics or arithmetic.

164. I have sometimes been troubled by people's saying bad things about me behind my back, with no grounds at all.  
a. Yes, b. uncertain, c. No.
165. Talk with ordinary, habit-bound, conventional people.  
a. Is often quite interesting and has a lot to it.  
b. In between  
c. annoys me because it deals with trifles and lacks depth
166. Some things make me so angry that I find it best not to speak.  
a. Yes, b. in between. c. No.
167. In education, it is more important to :  
a. give the child enough affection,  
b. in between  
c. have the child learn desirable habits and attitudes.
168. People regard me as a solid, undisturbed person, unmoved by ups and downs in circumstances.  
a. Yes, b, in between, c. no.
169. I think society should let reason lead it to new customs and throw aside old habits or mere traditions.  
a. yes, b. in between. c. no.
170. I think it is more important in the modern world to solve:  
a. the question of moral purpose  
b. uncertain  
c. the political difficulties.

171. I learn better by:
- a. reading a well-written book,
  - b. in between
  - c. joining a group discussion.
172. I like to go my own way instead of acting on approved rules
- a. true, b. uncertain, c. false.
173. I like to wait till I am sure that what I am saying is correct, before I put forth an argument.
- a. always      b. generally,      c. only if it's practicable.
174. Small things sometimes "get on my nerves" unbearably though I realize they are trivial.
- a. Yes,      B. in between,      c. no.
175. I don't often say things on the spur of the moment that I greatly regret.
- a. true, b. uncertain, c. false.
176. If asked to work with a charity drive, I would
- a. accept,      b. uncertain,      c. politely say I'm too busy.
177. Which of the following words does not belong with the others?
- a. Wide,      b. zigzag,      c. straight.
178. "soon" is to "never" as "near" to
- a. nowhere,      b. far      c. away

179. If I make an awkward social mistake, I can soon forget it.  
a. yes b. in between c. no
180. I am known as an "idea man" who almost always puts forward some ideas on a problem.  
a. yes b. in between, c. no.
181. I think I am better at showing:  
a. nerve in meeting challenges,  
b. uncertain,  
c. tolerance of other people's wishes.
182. I am considered a very enthusiastic person,  
a. yes, b. in between, c. no.
183. I like a job that offers change, variety, and travel, even if it involves some danger.  
a. yes, b. in between, c. no.
184. I am a fairly strict person, insisting on always doing things as correctly as possible.  
a. true, b. inbetween, c. false.
185. I enjoy work that requires conscientious, exacting skills.  
a. Yes, b. in between, c. no.
186. I'm the energetic type who keeps busy.  
a. Yes, b. uncertain, c. no.
187. I am sure there are no question that I have skipped or failed to answer properly.  
a. yes, b. uncertain c. no.

#### APPENDIX - IV

##### DESIGN OF THE NORM TABLES: CONVERTING RAW SCORES TO STENS

The meaning of raw scores from any form or combination of forms of the 16 PF depends, of course, upon the particular forms used. Consequently, before these raw scores can be evaluated and interpreted, they must be converted into a system which places the examinee's score in relation to scores obtained by other people in some defined population (normal adults, college students, adult males only, etc). The standardization tables convert raw scores to what are called stens, a practice consistent with best modern usage, aiming at a good, but not unrealistically refined degree of accuracy in expression of results.

Stem scores (the term comes from "standard ten") are distributed over ten equal-interval standard score points (assuming normal distribution) from 1 through 10, with the population average (or mean) fixed at stem 5.5. Stems 5 and 6 extend, respectively, a half standard deviation below and above the mean, constituting the solid center of the population, while the outer limits for stems 1 and 10 are  $2\frac{1}{2}$  standard deviations above and below the mean. One would consider stens of 5 or 6 as average, 4 or 7 slightly deviant (respectively in a low and a high direction), 2, 3, 8, and 9 strongly deviant, and 1 or 10 extreme, all these being placements of the person relative to the defined population on which the standardizations are based.

The available selection of norm tables permits the conversion of any given raw score (as obtained from the application of the scoring key) for any of the sixteen personality factors to stens. The tables cover the general adult population and various sub-samples, with various tables for individual forms and for frequently encountered combinations of forms. Since users like to make thier comparisons against relatively specific reference groups, as well as against the general populations, IPAT has provided norm tables in three groups:

1. high school students (juniors and seniors).
2. university and college undergraduate students,
3. general adult population.

Within each group tables are available for men, women, and for men and women together. Other special groups may be added as it becomes desirable and feasible to do so. Thus , a large number of norm tables are available and it is accordingly necessary to select the proper one with some care, according to the logical and psychological definition of the use of which the scores will be put.

In order not to encumber this Manual unduly, and to permit periodic revisions of norms independently of Manual or Handbook revisions, these norm tables are published and available separetely as tabular supplements to the 16 PF Handbook. (Supplement No.1 contains for norms for Forms A and B. Norms for Forms C and D are given in Supplement No.2)

Test constructors realize that general adult standardizations are the most difficult to obtain: but in this case, a substantial attempt has been made to obtain a stratified representation of various educational levels, geographical areas, ages, and occupations as they occur in the U.S.A (see Handbook). The present norms are correct for the last four or five years, over which they were gathered, and actually no cultural period trends in personality factors have yet been demonstrated to upset them. The standardizations of the most recent revisions of the four forms of the test rest upon more than 15,000 individual cases.

The sizes of samples, the means and standard deviations of raw scores, and the appropriate titles are given in each table. The values within each table (i.e. in the body of the table) are "raw scores" the values obtained with the scoring stencils. To convert these raw scores into standard ten-point scores, i.e., sten scores, one finds the raw score for Factor A in the "A" line and reads the corresponding sten score above it. One then proceeds likewise for the other factors. The procedure is quite simple and is further explained on the norm tables themselves.

Personality factor scores have slight age trends (not so strongly as intelligence in children, nor necessarily in one direction). Researchers, and those doing very exact analyses, may wish to allow for these, in which case they should consult the full tables and discussions in the Tabular Supplements. However, the majority of users will not have the

time for these fine modifications, and moreover, in most situations are more concerned with comparing people as they stand today, not Jim Smith ten years hence with Harry Jones when he was a boy. The norms given for the general adult population are centered upon and corrected to 30 years of age, the high school population centered upon and corrected to 17 years of age, and the college population centered upon and corrected to 20 years of age. To repeat, age corrections are sometimes of critical importance in research, but of negligible significance in routine use of the test, and for this reason their extensive discussion is relegated to the Handbook and to the Tabular Supplements.

#### 5. INTERPRETATION OF THE PRIMARY FACTORS

Predictions of scores on various criteria, and assignment of individuals to various diagnostic clinical groups, can be carried out actuarially, by computation from standard scorers, using methods discussed in detail in the Handbook and elsewhere. Where no correlations with criteria are known, knowledge of the psychological nature of the factors must guide initial prediction until empirical studies can be done in a particular situation. Moreover, even where correlational, actuarial evidence about a certain criterion is available, it is desirable to add psychological judgement to immediate statistical computations to allow for changes of personality with learning, maturation, etc., or for anticipated changes in life situation.

Each of the Primary factors measured by the 16 PF has an alphabetic designation (A through Q<sub>4</sub>), a technical title (which is given in parentheses in the following descriptions), and a brief, less technical title, (given here in boldface), which the practitioner will most commonly use.

The definitions and interpretations of the factors, as given below, are short, non-technical, and, of course, less exact than the more intensive discussions available in the Handbook and elsewhere (see Handbook References and the list of supplementary references given in Section 8 of this Manual). Furthermore, the large number of profiles given in the Handbook for well-defined occupational and clinical groups provides the psychologist with additional insights into the meaning and operation of the factors.

CAPSULE DESCRIPTIONS OF THE SIXTEEN PRIMARY PERSONALITY FACTORS

FACTOR A

Low Score Direction

RESERVED, DETACHED, CRITICAL, COOL vs  
(Sizothymia)

The person who scores low (sten of 1 to 3) on Factor 'A' tends to be stiff, cool, skeptical, and aloof. He likes things rather than people, working alone, and avoiding compromises of viewpoints. He is likely to be precise and "rigid" in his way of doing things and in personal standards, and in many occupations these are desirable traits. He may tend, at times, to be critical, obstructive, or hard.

High Score Direction

OUTGOING, WARMHERATED, EASY-GOING, PARTICIPATING  
(Affectothymia)

The person who scores high (sten of 8 to 10) on Factor A tends to be goodnatured, easy-going, emotionally expressive (hence naturally Affectothymia), ready to cooperative, attentive to people, softhearted, kindly, adaptable. He likes occupations dealing with people and socially impressive situations. He readily forms active groups. He is generous in personal relations, less afraid of criticism, better able to remember names of people.

FACTOR B

LESS INTELLIGENT, Concrete-thinking  
(Lower scholastic mental capacity)

MORE INTELLIGENT, Abstract-thinking, Bright  
(Higher scholastic mental capacity)

Vs

The person scoring low on Factor B tends to be slow to learn and grasp, dull, given to concrete and literal interpretation. His dullness may be simply a reflection of low intelligence, or it may represent poor functioning due to psychopathology.

The person who scores high on Factor B tends to be quick to grasp ideas, a fast learner, intelligent. There is some correlation with level of culture, and some with alertness. High scores contraindicate deterioration of mental functions in pathological conditions.

FACTOR C

AFFECTED BY FEELINGS, Emotionally Less

EMOTIONALLY STABLE- Faces reality, calm, mature  
The person who scores high on Factor C tends

Vs

Stable, Easily upset  
(Lower ego strength)  
The person who scores low on Factor C tends to be low in frustrations tolerance for unsatisfactory conditions, changeable and plastic, evading necessary reality demands, neurotically fatigued, fretful, easily emotional and annoyed, active in dissatisfaction, having neurotic symptoms (phobias, sleep disturbances, psy-

to be emotionally mature, stable, realistic about life, unruffled, possessing ego strength better able to maintain solid group morale. Sometimes he may be a person making a resigned adjustment to unsolved emotional problems.  
\* Shrewd clinical observers have pointed out that a good C level sometimes enables a person to achieve effective adjustment despite an underlying psychotic potential.

chomatic complaints, etc). Low Factor C score is common to almost all forms of neurotic and some psychotic disorders.

FACTOR E

HUMBLE, Mild, Accomodating, Vs ASSERTIVE, Independent, Aggressive, Competitive,

Conforming Stubborn

(Submissiveness) (Dominance)

The person who scores low on Factor E tends to give way to others, to be docile, and to conform. He is often dependent, confessing, anxious for obsessional coreectness. This passivity is part of many neurotic syndromes.

The person who scores high on Factor E is assertive, self-assured, and independent-minded. He tends to be austere, a law to himself, hostile, or extrapunitive, authoritarian (managing others), and disregards authority.

FACTOR F

SOBER, PRUDENT, SERIOUS, TACTFUL, vs  
(DESURGENT)

The person who scores low on Factor F tends to be restrained, reticent, introspective. He is sometimes dour, pessimistic, unduly deliberate, and considered smug and primly correct by observers. He tends to be a sober, dependable person.

HAPPY-GO-LUCKY, IMPULSIVELY LIVELY,  
ENTHUSIASTIC (SURGENT)

The person who scores high on this trait tends to be cheerful, active, talkative, frank, expressive, effervescent, carefree. He is frequently chosen as an elected leader. He may be impulsive and mercurial.

FACTOR G

EXPEDIENT, EVADES RULES, FEELS  
FEW OBLIGATIONS  
(WEAKER SUPEREGO STRENGTH)

The person who scores low on Factor G tends to be unsteady in purpose. He is often casual and lacking in effort for group undertakings and cultural demands. His freedom from group influence may lead to anti-social acts, but at times makes him

CONSCIENTIOUS, PERSISTENT, STABLE, RULE-BOUND  
(STRONGER SUPEREGO STRENGTH)

The person who scores high on Factor G tends to be exacting in character, dominated by sense of duty, persevering, responsible, playful, "fills the unforgetting minute". He is usually conscientious and moralistic, and he prefers hard-working people to witty companions.

more effective, while his refusal to be bound by rules causes him to have less somatic upset from stress.

The inner "categorical imperative" of this essential superego (in the psychoanalytic sense) should be distinguished from the superficially similar 'social ideal self' of Q<sub>1</sub> .

FACTOR H

SHY, RESTRAINED, DIFFIDENT, TIMID  
(THRECTIA)

VS VENTURESOME, SOCIALLY-BOLD, UNINHIBITED,  
SPONTANEOUS (PARMIA)

The person who scores low on this trait tends to be shy, withdrawing, cautious sociable, bold, ready to try new things, spontaneous, a "wallflower". He usually has inferiority feelings. He tends to be slow and intended in speech and in expressing himself, dislikes occupations with personal contacts, prefers one or two close friends to large groups, and is not given to keeping in contact with all that is going on around him. The person who scores high on Factor H is aneous, and abundant in emotional response. His "thick-skinnedness" enables him to face wear and tear in dealing with people and grueling emotional situations, without fatigue. However, he can be careless of detail, ignore danger signals, and consume much time talking. He tends to be "pushy" and actively interested actively interested in the opposite sex.

FACTOR I

TOUGH-MINDED, SELF-RELIANT, REALISTIC, vs TENDER-MINDED, DEPENDENT? OVER-

NO-NONSENSE  
(Harrisa)

The person who scores low on Factor I tends to be practical, realistic, masculine, independent, responsible, but skeptical of sometimes unmoved, hard, cynical, smug. He tends to keep a group operating on a practical and realistic "no-nonsense" basis.

PROTECTED, SENSITIVE  
(Premisa)

The person who scores high on Factor I tends to be tender-minded, day-dreaming, artistic, fastidious, feminine. HE is sometimes demanding of attention and help, impatient, dependent, impractical. He dislikes crude people and rough occupations. He tends to slow up group performance, and to upset group morale by unrealistic fussiness.

FACTOR L

TRUSTING, ADAPTABLE, FREE OF JEALOUSY, vs SUSPICIOUS, SELF-OPIONATED, HARD TO

EASY TO GET ON WITH  
(Alaxia)

FOOL  
(Protension)

The person who scores low on Factor L tends to be free of jealous tendencies, adaptable, cheerful, un-competitive, concerned about other people, a good team worker.

The person who scores high on Factor L tends to be mistrusting and doubtful. He is often involved in his own ego, is self opionated, and interested in internal, mental life. He is usually deliberate in his actions, unconcerned about other people a poor team member.

N.B. This factor is not necessarily paranoia. Infact, the data on paranoid not clear as to typical Factor L value to be expected.

FACTOR M

PRACTICAL, CAREFUL, CONVENTIONAL,  
REGULATED BY EXTERNAL REALITIES,

PROPER (Praxernia)

The person who scores low on Factor M tends to be anxious to do the right things, attentive to practical matters, and subject to the dictation of what is obviously possible. He is concerned over detail, able to keep his head in emergencies, but sometimes unimaginative.

IMAGINATIVE, WRAPPED UP IN INNER URGENCIES  
CARELESS OF PRACTICAL MATTERS, ABSENT-MINDED

(Autia)

The person who scores high on Factor M tends to be unconventional, unconcerned over everyday matters, Bohemian, self-motivated, imaginatively creative, concerned with "essentials", and oblivious of particular people and physical realities. His inner directed interests sometimes lead to unrealistic situations accompanied by expressive outbursts. His individuality tends to cause him to be rejected in group activities.

FACTOR N

FORTHRIGHT, NATURAL, ARTLESS, vs SHREWD, CALCULATION, WORLDLY, PENETRATING  
SENTIMENTAL vs ~~PENETRATING~~  
(ARTLESSNESS) (SHREWDNESS)

The person who scores low on Factor N tends to be unsophisticated, sentimental, and simple. He is sometimes crude and awkward, but easily pleased and content with what comes, and is natural and spontaneous

The person who scores high on Factor N tends to be polished, experienced, wordly, shrewd. He is often hardheaded and analytical. He has an intellectual, unsentimental approach to situations, an approach akin to cynicism.

FACTOR O

PLACID, SELF-ASSURED, CONFIDENT vs APPREHENSIVE, WORRYING, DEPRESSIVE,  
SERENE vs TROUBLED  
( UNTROUBLED ADEQUACY) ( GUILT PRORNRSS)

The person who scores low on Factor O tends to be placid, with unshakable nerve. He has a mature, unanxious confidence in himself and his capacity to deal with things..

The person who scores high on Factor O tends to be depressed, moody, a worrier, full of foreboding, and brooding. He has a child like tendency to anxiety in difficulties. He does not feel accepted in groups or free to participate.

He is resilient and secure, but to the point of being insensitive of when a group is not going along with him, so that he may evoke antipathies and distrust. High Factor O score is very common in clinical groups of all types ( see handbook)

#### FACTOR Q1

CONSERVATIVE, RESPECTING ESTABLISHED IDEAS, TOLERANT OF TRADITIONAL DIFFICULTIES (CONSERVATION) vs EXPERIMENTING, CRITICAL, LIBERAL, ANALYTICAL FREE - THINKING (RADICALISM)

The person who scores low on Factor Q1 is confident in what he has been taught to believe, and accepts the "tried and true", despite inconsistencies, when something else might be better. He is cautious and compromising in regard to new ideas. Thus, he tends to oppose and postpone change, is inclined to go along with

The person who scores high on Factor Q1 tends to be interested in intellectual matters and has doubts on fundamental issues. He is skeptical and inquiring regarding ideas, either old or new. He tends to be more well informed, less inclined to experiment in life generally, and more tolerant of inconvenience and change.

tradition, is more conservative in religion and politics, and tends not to be interested in analytical "intellectual" thought.

FACTOR Q<sub>2</sub>

GROUP - DEPENDENT, A "Joiner", and vs

SOULD FOLLOWER

(GROUP ADHERENCE)

The person who scores low on Factor Q<sub>1</sub> Prefers to work and make decisions with other people, likes and depends on social approval and admiration. He tends to go along with the group and may be lacking in individual resolution. He is not necessarily gregarious by choice; rather he needs group support.

SELF-SUFFICIENT, PREFERS OWN DECISIONS, RESOURCEFUL (SELF-SUFFICIENCY)

The person who scores high on Factor Q<sub>2</sub> is temperamentally independent, accustomed to going his own way, making decisions and taking action on his own. He discounts public opinion, but is not necessarily dominant in his relations with others (see Factor E). He does not dislike people but simply does not need their agreement or support.

FACTOR Q<sub>3</sub>

UNDISCIPLINED SELF-CONFLICT, CARELESS OF vs CONTROLLED, SOCIALLY PRECISE, FOLLOWING  
PROTOCOL, FOLLOWS OWN URGES SELF-IMAGE

(Low integration)

The person who scores low on Factor Q<sub>3</sub> will not be bothered with will control and regard for social demands. He is not overly considerate, careful, or painstaking. He may feel maladjusted, and many maladjustments (especially the affective, but not the paranoid) show Q<sub>3</sub>.

(High self-concept control)

The person who scores high on Factor Q<sub>3</sub> tends to have strong control of his emotions and general behavior, is inclined to be socially aware and careful, and evidences what is commonly termed "self - respect" and regard for social reputation. He sometimes tends, however, to be obstinate. Effective leaders, and some paranoids, are high on Q<sub>3</sub>.

FACTOR Q<sub>4</sub>

RELAXED, TRANQUIL, TORPID, UNFRUSTRATED vs  
(Low ergic tension)

The person who scores low on Factor Q<sub>4</sub> tends to be sedate, relaxed, composed, and satisfied (not frustrated). In some situations, his oversatisfaction can lead to laziness and low performance, in the sense that low motivation produces little trial and error. Conversely, high tension level may disrupt school and work performance.

TENSE, FRUSTRATED, DRIVEN, OVERWROUGHT  
(High ergic tension)

The person who scores high on Factor Q<sub>4</sub> tends to be tense, excitable, restless, fretful, impatient. He is often fatigued, but unable to remain inactive. In groups he takes a poor view of the degree of unity, orderliness, and leadership. His frustration represents an excess of stimulated, but undischarged, drive.

APPENDIX - V

FACTOR A

Q.No.	A	B	C
3	2	1	0
26	0	1	2
27	0	1	2
51	0	1	2
52	2	1	0
76	0	1	2
101	2	1	0
126	2	1	0
151	0	1	2
176	2	1	0

FACTOR C

Q.No.	A	B	C
4	2	1	0
5	0	1	2
29	0	1	2
30	2	1	0
55	2	1	0
79	0	1	2
80	0	1	2
104	2	1	0
105	2	1	0
129	0	1	2
130	2	1	0
154	0	1	2
179	2	1	0

FACTOR F

Q.No.	A	B	C
8	0	1	2
33	2	1	0
58	2	1	0
82	0	1	2
83	2	1	0
107	0	1	2
108	0	1	2
132	2	1	0
133	2	1	0
157	0	1	2
158	0	1	2
182	2	1	0
183	2	1	0

FACTOR H

Q No	A	B	C
10	2	1	0
35	0	1	2
36	2	1	0
60	0	1	2
61	0	1	2
85	0	1	2
86	0	1	2
110	2	1	0
111	2	1	0
135	2	1	0
136	2	1	0
161	0	1	2
180	2	1	0

FACTOR G

Q.NO.	A	B	C
9	0	1	2
34	0	1	2
59	0	1	2
84	0	1	2
109	2	1	0
134	2	1	0
159	0	1	2
160	2	1	0
184	2	1	0
185	2	1	0

FACTOR J

Q.NO.	A	B	C
11	0	1	2
12	2	1	0
37	2	1	0
62	0	1	2
87	0	1	2
112	2	1	0
137	0	1	2
138	2	1	0
162	0	1	2
163	2	1	0
163	2	1	0

FACTOR M

Q.NO.	A	B	C
14	0	1	2
15	0	1	2
39	2	1	0
40	2	1	0
65	2	1	0
90	0	1	2
91	2	1	0
115	2	1	0
116	2	1	0
140	2	1	0
141	0	1	2
165	0	1	2
166	0	1	2

FACTOR D

Q.NO.	A	B	C
18	2	1	0
19	0	1	2
43	2	1	0
44	0	1	0
68	0	1	2
69	2	1	0
93	0	1	2
94	2	1	0
118	2	1	0
119	2	1	0
143	2	1	0
144	0	1	2
168	0	1	2

FACTOR Q<sub>2</sub>

Q.NO.	A	B	C
22	0	1	2
47	2	1	0
71	2	1	0
72	2	1	0
96	0	1	2
97	0	1	2
121	0	1	2
122	0	1	2
146	2	1	0
171	2	1	0

FACTOR Q<sub>4</sub>

Q.NO.	A	B	C
25	0	1	2
49	2	1	0
50	2	1	0
74	2	1	0
75	0	1	2
99	2	1	0
100	0	1	2
124	2	1	0
125	0	1	2
149	2	1	0
150	0	1	2
714	2	1	0
175	0	1	0

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FACTOR L

Q.NO.	A	B	C
13	0	1	3
38	2	1	0
63	0	1	2
64	0	1	2
88	2	1	0
89	0	1	2
113	2	1	0
114	2	1	0
139	0	1	2
164	2	1	0

FACTOR N

Q.NO.	A	B	C
16	0	1	2
17	2	1	0
41	0	1	2
42	2	1	0
66	0	1	2
67	0	1	2
92	0	1	2
117	2	1	0
142	2	1	0
167	2	1	0
167	2	1	0

FACTOR Q<sub>1</sub>

FACTOR Q<sub>3</sub>

Q.NO.	A	B	C	Q.NO.	A	B	C
20	2	1	0	23	0	1	2
21	0	1	2	24	0	1	2
45	0	1	2	48	2	1	0
46	2	1	0	73	2	1	0
70	2	1	0	98	2	1	0
95	0	1	2	123	0	1	2
120	0	1	2	147	0	1	2
145	2	1	0	148	2	1	0
169	2	1	0	172	0	1	2
170	0	1	2	173	2	1	0

-20

FACTOR B

FACTOR E

Q.NO.	A	B	C	Q.NO.	A	B	C
28	0	1	0	6	0	1	2
53	0	1	0	7	2	1	0
54	0	1	0	31	0	1	2
77	0	0	1	32	0	1	2
78	0	1	0	56	2	1	0
102	0	0	1	57	0	1	2
103	0	1	0	81	0	1	2
127	0	0	1	106	0	1	2
128	0	1	0	131	2	1	0
152	2	0	0	155	2	1	0
153	0	0	1	156	2	1	10
173	1	0	0	180	2	1	0
178	1	0	0	181	2	1	0

COLLEGE STUDENTS

FEMALE - FORCE A

BASED ON AGE 20 YEARS N = 2166.

Fac'tors	1	2	3	4	5	6	7	8	9	10	Mean	σ
A	0-5	6	7-8	9-10	11	12-13	14	15-16	17	18-20	11.77	3.25
B	0-4	5	6	7	8	9	10	11	12	13	8.83	1.89
C	0-7	8-9	10-11	12-13	14-15	16-17	18-19	20	21-22	23-26	15.31	3.89
E	0-3	4-5	6-7	8-9	10-11	12-13	14-16	17-18	19-20	21-26	11.93	4.36
F	0-6	7-9	10-12	13-14	15-16	17-19	20	21-22	23	24-26	16.81	4.31
G	0-3	4-5	6-7	8-9	10-11	12-13	14-15	16	17-18	19-20	11.81	3.69
H	0-2	3-4	5-6	7-10	11-13	14-16	17-19	20-22	23	24-26	13.41	5.81
I	0-6	7-8	9-10	11-12	13	14-15	16	17	18	19-20	14.10	2.98
L	0-1	2	3-4	5	6-7	8-9	10	11-12	13-14	15-20	7.79	3.31
M	0-5	6-7	8-9	10	11-12	13-14	15-16	17-18	19	20-26	12.92	3.58
N	0-3	4	5	6-7	8	9-10	11	12	13	14-20	9.25	2.82
O	0-3	4-5	6-7	8-9	10	11-12	13-14	15-16	17-18	19-20	11.22	3.78
Q <sub>1</sub>	0-1	2-3	4	5	6-7	8-9	10-11	12	13-14	15-20	8.14	3.28
Q <sub>2</sub>	0-2	3-4	5	6-7	8-9	10-11	12-13	14-15	16	17-20	9.87	3.61
Q <sub>3</sub>	0-4	5-6	7	8-9	10-11	12	13-14	15	16-17	18-20	11.68	3.28
Q <sub>4</sub>	0-4	5-6	7-9	10-11	12-14	15-16	17-18	19-20	21-22	23-26	14.08	4.70