

**ASSERTION OF TRADITIONAL YOGA IN HUMAN
HEALTH AND VALUE EDUCATION**

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Abstract

Ageing changes are of physical, psycho-physiological and biochemical nature. In ageing all aerobic organisms are exposed to oxidative stress and gradually the functioning abilities of almost all organs are reduced. This in fact leads to reduce one's immunity power and as a result overall health related fitness declines. In old age since body does not permit for vigorous activities, one can think of yoga - a healthy lifestyle. The claims of traditional Yoga texts and supportive research evidences indicate that Yoga is a powerful way of life not only to improve one's health related fitness but also show path to live healthy in delaying old age.

Value Education is a process of education which involves working on the total personality of the individual keeping in view all aspects of personality development, the intellectual, social and emotional, will and character (Education in Values, N.C.E.R.T., 1992, pp.22- 30). The humane values viz., honesty, tolerance, justice, self-control, compassion, freedom etc enable man for self-control than other animal, so that he cultivates certain ideals, which are available in plenty in our rich cultural heritage. When human values are inculcated through curriculum to transcend cognitive, conative and psychomotor level for conducive development of individual, social, national and international understanding, it is called value education. In fact, Dhyana- yoga and Karma-yoga lead to wisdom and proper spiritual development that makes individuals to understand real values in human.

The Indian concept of education is more inclined towards spiritual development, receiving knowledge and disciplining the mind as well. Swami Vivekananda viewed

education as “***manifestation of divine perfection already existing in man*** .” He said, we want that education by which character is formed, strength of mind is increased, and the intellect expounded and by which one can stand on one’s own feet.

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INTRODUCTION

Although **Education** is an instrument as well as a catalyst of social transformation and expected to bring about qualitative change in man's perception, attitudes, habits, priority and goals, the real sense of values in recent days somewhere missing. Moreover, the present system of education is information-oriented not character-based. It is consumerist in nature and makes one *selfish, self-centered, irreverent and cynical*. It sharpens reasons but hardens the heart. It lays little or no emphasis on such basic values as truth, love, honesty, humility, compassion, forbearance and justice. It makes one conscious about one's rights not duties. The net result is that a strongly individualistic and materialistic culture has taken birth, which promotes self-aggrandizement, nurtures opportunism and chicanery, and generates tension in society.

The Renaissance in Europe did not bring about a renaissance of human values. The Reformation altered man's perception of the sacred and the sacrosanct but did not do away with his inner vices such as lust, greed, anger and the like.

The ghost of technological power unwittingly released by man can be contained only by the right kind of education which combines science with spirituality, fitness with health, reasons with faith, **prajna with karuna**, empirical knowledge with intuition and insight; which keeps both progress and peace as its goals and is helpful in mitigating social evils.

Thus, to impart real education for retaining the human health and values in the way of peaceful life, various claims of traditional Yoga - which is an essence of Indian culture - need systematic verification. This piece of research, therefore, may be of imminent significance for reforming real education in the society.

Need of Value Education in Modern Era

Values are the concepts that describe human behavior. They are desirable ideals and goals, which are intrinsic and when achieved, in fact, evoke a deep sense of the fulfillment.

These days in continuous changing conditions, values are left far behind and there is gross erosion of values of individual to keep pace with the society in order to fulfill one's desire to be at the top. The erosion of human values of truth, co-operation, non violence, peace, love, respect for parents, elders, authority and hard work is

leading to the decay of moral and social fabric of society at a speed never witnessed in the history of civilization. Our stress is too much on standards of living and not on standards of life. Though the problem of decreasing values extends to the whole range of human activities, education field is regarded as the proper place to inculcate positive values.

The Indian culture is deeply rooted in spiritual and ethical values, unless these values find their way into the life of students, education will lose its significance and will not fulfill its aim. Though we have made progress in knowledge but still we are not above the levels of our past generations in ethical and spiritual life. In some, we have declined from their standards. Today we have been successful in making professionals but not the human beings.

Thus, inculcation of human values is to be stressed up on in our system of modern education to prevent and combat world terrorism, tension, diversities, self-centered vision and violence. Through quality education restoring of humane values (viz., Social, Moral, Spiritual, Environmental, Economical, Political and Work values) is possible. The main aim of value education is to reform attitude and behaviour, to promote healthy lifestyle, to shape the high moral character and to develop refined personality of younger generation, who can prove themselves as the best citizen of a nation.

Need of Health and Fitness in Modern Era

Radioactivity and radiation existed long before the evolution of the life on the earth, excessive radiation exposure is, no doubt, harmful and can cause genetic disorder, which may even be fatal. Further the slew of free radical production is conventionally attributed to too much urbanization, pollution and junk food. Apart from radioactive exposure and oxygen free radicals, many wrong habits and irregularity in lifestyles may lead to poor state of fitness and ultimately results in various health hazards. Therefore, there is a need to develop systematic strategy to educate the common people and making them conscious to prevent their fitness and health.

Rationale of Yoga for Promotion of Health, Fitness and Values

Yoga is of great relevance to mind-body medicine because of the way it looks at life. The yogic view of life is the best prescription even written for lasting peace and joy, which are independent of external events and circumstances.

Emotion is a *Rajas guna of Prakriti*, which is responsible for many types of disease. Psychophysiologically, emotions act upon our body through hypothalamus which controls ANS (Autonomic Nervous System) and the endocrine systems. Negative emotions like anger, fear, greed, jealousy give rise to somatic illness where on the other hand positive emotions like love, compassion, friendship, affection etc. give the strength to combat the stress. Illness due to negative emotions includes hyper acidity, hypertension, insomnia, menstrual disturbances, loss of appetite etc.

Yoga plays a vital role as the ancient Indian healing art. Classical Yoga is a science of human psychology. It works on three-facet viz. mental, physical & social states resulting in improved health, lesser greed for possession & efficient management of human life.

In traditional parlance, holistic health was called fulfillment of four *Purusharthas*, viz., *Dharma, Artha, Kaama, and Moksha* through practice of

Swadharama. *Dharma* refers to accuracy in perception, affect and conation. This leads to *Artha* i.e., acquisition of material gains, followed by *Kaama* i.e., satisfaction of the mundane desires (which are not against the *Dharma* i.e., principles of global welfare) *Kaama* is followed by *Moksha* i.e., liberation from all sorts of bonds.

Thus, it must be appreciated that for most of us holistic health refers to ever increasing and appropriate satisfaction of physical, instinctual, emotional, intellectual needs and fulfillment and happiness arising from it.

For years, the health related status of physical fitness was thought to be normal for school going children. Several studies, however, indicate that the school going students are inclined towards obesity which affects adversely the normal improvement of physical fitness and associated variables (Alexander and Peterson, 1972; Burwell, *et al.*, 1956; Fox and Mathew, 1981; Stamler *et al.*, 1978).

To meet the normal improvement of factors of physical fitness in growing age, various researchers investigated the effects of different physical activities on performance and associated variables of physical fitness (MacRaw, 1989; Sherwood and Selder, 1979; Spirduso, 1975; Spirduso and Clifford, 1978; Spirduso *et al.* 1988). Similar studies in the area of Yoga exercises also revealed that Yoga may prove to be a better intervention for improving physical fitness variables of school students (Bera and Rajapurkar, 1993; Ganguly, 1981; Gharote, 1976 a; Gharote, 1976 b; Moorthy, 1983).

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Value Education is a process of education which involves working on the total personality of the individual keeping in view all aspects of personality development, the intellectual, social and emotional, will and character (Education in Values, N.C.E.R.T., 1992, pp.22- 30). The humane values viz., honesty, tolerance, justice, self-control, compassion, freedom etc enable man for self- control than other animal, so that he cultivates certain ideals, which are available in plenty in our rich cultural heritage. When human values are inculcated through curriculum to transcend cognitive, conative and psychomotor level for conducive development of individual, social, national and international understanding, it is called value education. In fact, Dhyana- yoga and Karma-yoga lead to wisdom and proper spiritual development that makes individuals to understand real values in human.

The Indian concept of education is more inclined towards spiritual development, receiving knowledge and disciplining the mind as well. Swami Vivekananda viewed education as “**manifestation of divine perfection already existing in man** .” He said, we want that education by which character is formed, strength of mind is increased, and the intellect expounded and by which one can stand on one's own feet.

In the light of the above goal of education, it becomes relevant to assign the role to Yoga to fulfill this goal.

In modern time, the education is much inclined towards Western bent of “**Learn only to earn**.” But education can't become only the source to livelihood,

because human life has more precious and gracious purpose. The value-based education leads us steadily towards that purpose. The basic **Sanskaras** of *Ahimsa*, *Satya*, *Asteya*, *Aparigraha*, and *Bramhamacharya* form the foundation of values which are the part of Ashtanga Yoga.

The **Yama- Niyama** concept, if deeply rooted in **early primary education** would mould the soil to the desired shape at the right time. The *Asanas*, *Pranayamas*, *Kriyas*, *Bandhas*, *Mudras* are not only beneficial for body but also for the mind. The healthy mind resides in healthy body. When integration of body, mind and spirit is achieved, one's personality blossoms. The number of such personalities can be created with the help of Yoga education.

In fact, Yoga is a bridge between body, mind and spirit. Since its practices smoothly coordinate the functions of the bones, muscles, blood, brain etc., which help to improve health, and as they train human mind, which is immaterial and intangible, for modifying proper attitude, behaviour and values may establish mental peace. Thus, investigation in this direction has significant relevance to our society.

Statement of the Problem

While the primary task of education is the total development of human personality in all its aspects - physical, mental, vital, aesthetic, ethical and psychic, the fact remains that students, overburdened with lengthy and abstruse syllabi and fearful of the spectra of examinations and an uncertain future, find little time to make use of their ratiocinate faculties, to acquire moral virtues or to explore their creative potential. The paradigms of education in 21st century ought to be creative not superficial knowledge, soul-consciousness not body-consciousness, and cosmo-centricity not egocentricity. Each must be taught to see himself as a part of the cosmic self.

At this juncture, we can think of "Yoga" as an alternative means to achieve perfect health and can consider it as an appropriate "Syllabus" for value based education to establish peace and harmony in the human society.

Modern educational system seems to fail in the integrated development of the body, mind and spirit. The emphasis continues on imparting information, but the cultivation of values is neglected. Highest emphasis in our educational system must be laid on cultivation of values appropriate to the modern society. In the New Education Policy (1986) it has been emphasized how the transformation of values, based on our traditions, is absolutely necessary. Yoga encompasses all the perspectives of value education. Patanjali has presented an excellent scheme for value education through his two-pronged approach, one from psychological side and other from the physiological side by suggesting the practice of Yamas, Niyamas, Asanas and Pranayama. Hathayogic practices like Kriyas, Asanas, Pranayamas, Mudras and Bandhas establish emotional balance, health and fitness by tackling the autonomic nervous system. The views of Patanjali and Holy Gita are also illustrated to prove the fact that yoga is a stage of the union of Self and almighty God through its act of Chitta Vritti Nirodha so that one can make life valuable, physically, mentally and spiritually. It is, perhaps, the substitute of moral, spiritual and heavenly values.

Although it is high time to introduce Yoga in the educational system for implementing value education to young student generation, its real implication needs research-based evaluation. Moreover, formulation of appropriate syllabus for improving health and value education is the need of the day. It was, therefore, thought desirable to undertake this study entitled, "**Assertion of Traditional Yoga in Human Health and Value Education.**"

Objectives of the Study

- To identify the major dimensions of human health and values;
- To critically study the traditional Yogic texts and to identify various "**means and/or techniques of Yoga,**" which claim to achieve human health and values;
- To examine, based on systematic review of research literature as well as logical interpretations, the real implications of the "**identified yoga practices**" in achieving each dimension of health and values;
- To evaluate "**Traditional Yoga**" as a system of Health and as a process of Value Education;
- To develop separate "Schedules of Yoga" and "Chart of Yogic Diet" for human individuals (age-wise) for achieving "health and Fitness" and "Syllabi of Yoga" for implementing "value education" in school education.

Assumptions

- Since the investigator intends to collect research data by consulting all traditional Yoga texts, it is assumed that this study will ensure scripture-based valid information about human health and value education.
- As this study will systematically review both the scripture and research-based literature, it is assumed that formulation of "Syllabi for Health and Value Education" will be appropriate.

Hypotheses

- H₁: Patanjali Yoga would be more useful than Hathayoga to promote health in tackling psychosomatic ailments and in establishing humane values;
- H₂: Hathayoga would be more significant than Patanjala Yoga to improve fitness and to prevent health in tackling homeostasis in body constituents;
- H₃: "Schedules of Yoga," to be developed on the basis of traditional scriptures, would be appropriate for maintaining health and fitness;
- H₄: "Syllabi of Yoga," to be developed in this study, would be appropriately useful as "Guidelines for Value Education" in our modern system of Formal Education for improving human health and values.

Delimitation of the Study

- There are various schools of Yoga e.g., Raja Yoga (Patanjala Yoga), Hatha Yoga, Kundalini Yoga, Tantra Yoga, Bhakti Yoga etc. Since all the components of different schools of Yoga and their aims are satisfying by Raja Yoga and Hathayoga, the present researcher delimited her study to these two systems of traditional yoga only.
- The study delimits the dimensions of Health as per the suggestion of W.H.O. Similarly, the Humane Values were delimited to six dimensions as suggested by (Ojha, 1959).¹

¹ R.K. Ojha, Study of Values. (Agra: National Psychological Corporation, Rajamandi, 1959).

- This is an analytical study of different traditional yogic literature and the meta-analysis of their content was made logically sound with supportive research literature.

Limitations of the Study

- Since this study has been confined to “Traditional Yoga Texts” the outcomes of it did not agree with the implications of “Modern schools of yoga” which has not scriptural base.
- Since this study considers only “Yoga Texts related to Classical Yoga and Hathayoga”, the researcher did not consider all traditions irrespective of all human culture.

Significance of the Study

The present study has great significance in the society in the following ways:

- Since there is no **tradition-based** as well as **research-verified** “Programme of Yoga” as a process of Value Education, this study may be of immense implication in our present system of formal education;
- Various experimental studies indicate that Yoga is useful for maintaining one’s health and fitness. However, “age-wise” appropriate “programme of yoga” is the need of the day. This study, therefore, may have justifiable significance.
- This study may highlight the real significance of “Traditional Yoga” in every age of life for promoting health and fitness and for securing humane values for social peace.

Operational Definitions of Terms Used

The following terms pertinent to the study are defined for the clarification of succeeding discussion:

Values

The word value has been derived from the Latin root-Value which means valor/valiant, strong or vigorous. Values such as truth, love, honesty, humility, compassion, forbearance, justice etc are the integrating or unifying dimension of self. They make one conscious about one’s rights as well as duties. They are build up slowly and they may change over time. We learn them through imitation, identification, examples and experiences. Age, education, family, school, colleges, profession and attitudes, all have influence on our values.

Value Education

“Education” in some form or other has existed since times immemorial and was generally referred to man’s behavior in society. In fact, education is a training process that comes about through the study of experiences and enables a person to better understand new experiences as well as improves power of adjustment. Thus, Value education is a training process that builds up truth, love, honesty, humility, compassion, forbearance, justice etc., which brings social harmony and peaceful living.

Health

WHO defines “Health” as not merely absence of disease, it is an overall state of feeling of well being at physical, mental, social and spiritual levels. According to Ayurveda, “Health” signifies functional equilibrium of all bodily systems, which brings pleasant state of mind and soul. Maharshi Patanjali explains “Health” as a state of mental balance. “Hathayoga” indicates “Health” as a state of homeostasis (balance) of “Vata,” “Pitta,” and “Kapha.” However, according to Classical Yoga, “Health” signifies the balanced function of body, mind and soul.

Health Related Fitness

In general, physical fitness is the ability to do work without undue fatigue. However, such fitness abilities vary depending upon the types of work and they may not be concerned with one's health. Recently, therefore, the concept of Health-related-fitness has been evolved, which infers the fitness abilities signifying one's level of good health. AAHPERD (American Alliance of Health, Physical Education, Recreation and Dance) evolved four major factors of Health-related-fitness viz., cardiovascular endurance, abdominal muscle strength-endurance, flexibility and body fat%.

Traditional Yoga

Vedic Tradition can be confidently said to approve of the yogic discipline. The word yoga (or its variations) occurs in *katha*, *Brhadaranyaka*, *Maitrayani*, *Svetasvatara Upanishads* etc. The word yoga has different connotations as may be found in lexicons. Also in different *darsanas* the word has been used to mean different set of actions as means to what they propound as the ultimate *purusartha*, i.e., *Moksa*. When the word yoga is used under the category of action, normally the word signifies the set of 8 limbs called *astanga yoga*. The yogic actions were codified by Patanjali (500BC-200BC) and is called as yoga sutras. The eight limbs are: *Yama*, *Niyama*, *Asana*, *Pranayama*, *Pratyahara*, *Dharana*, *Dhyana*, and *Samadhi*. Patanjala Yoga is known as "Raja Yoga" or "Classical Yoga." According to this Yoga philosophy, *Kaivalya* (liberation) is attained by a type of self-realisation and the latter is attained by the practice of Yoga. When *purusa* as the conscious power (*citisakti*) remains in its own nature, as distinct from *buddhi* and so to say *prakriti*, it attains *kaivalya*.

Hathayoga

Hathayoga consists of two words i.e., Hatha and Yoga. Here the term "Hatha" represents two terms i.e., "ha" and "tha" symbolically represent 'sun' and the 'moon' respectively. The equilibrium of "ha" and "tha" is known as "Hathayoga". The content of this yoga combines the study of ten mudras, six kriyas and eight kumbhakas and eighty four asanas.

METHODOLOGY

Research design

This is a literary research, where the Indian Traditional Scriptures and standard Yoga Texts were critically analyzed and evaluated in the context of the health and value education. The extracts of Scriptures and Classical Yoga Texts were deduced scientifically and the contribution of them towards human health, fitness and value education was established. The study was conducted in considering the following steps:

1) Systematic Review of Scriptures, Traditional Yogic Texts & Research Literature

The ancient as well as modern literature were reviewed systematically to identify the major dimensions of human health, health related fitness and values.

2) Preparation of Checklist

Based on the attributes of the major dimensions, separate Checklist was prepared for human health, health related fitness and values. Objectivity, reliability and validity of the Checklist were established scientifically.

3) Source of data & Data Collection

Each of the selected *Yogic Texts* (i.e., Patanjala Yoga, Hathayoga etc.), *Upanishads* and *modern research reports* were verified by using different Checklists being developed in this study and data related to the contribution of each of the literatures towards health, health related fitness and values were collected.

DATA ANALYSIS

The details of data analysis has been presented in Chapter-III, however, they have been summarized as follows:

- Important Yoga practices that claim to achieve human health, health-related-fitness and values, were identified, accumulated and categorized according different age groups.
- Data were organized through various tables and were interpreted logically with scientific reasoning. Graphical representations provide visual understanding of the logical interpretations.
- Different “Schedules of Yoga” were prepared as a curative (treatment) strategy for different psychosomatic disorders to promote proper health care.
- Different “Schedules of Yoga (Age-wise)” were prepared as a preventive strategy for retaining proper Health and Health-related fitness.
- Different “Syllabi of Yoga” for implementing Value Education were framed for the students of Pre-Primary to Secondary Education.

RESULTS

The results, as presented in Chapter-IV, have been arranged in Tabular and Graphical forms and were properly discussed “with reference to” and “in contrast with” past and recent references, and the conclusion as well as suggestions / recommendations have been made accordingly.

1) Results of Systematic Review of Scriptures, Traditional Yogic Texts & Research Literature

The ancient as well as modern literature as reviewed systematically have revealed the major dimensions of human health, health related fitness and values as follows:

Dimensions of Human Health

Human health represents four dimensions viz., Physical, Mental, Social & Spiritual dimensions. Literature suggested some Yoga practices to attain health are –

Asanas:

Sarvangasana, Matsyasana, Halasana, Bhujangasana, Dhanurasana, Paschimottanasana, Ardha-Matsyendrasana, Supta-Vajrasana, Mayurasana (to be avoided for women), Parvatasana, Yoga mudra.

Pranayamas:

Ujjayi, Anuloma-Viloma, Bhastrika.

Bandhas, Mudras & Kriyas:

Uddiyana, Brahma Mudra, Kapalabhati, Vamana Dhauti, Jala Neti.

Other Practices:

Shavasana, Omkar recitation, Dhyana, Participation in religious functions, strictly following Yamas and Niyamas.

Dimensions of Health Related Fitness

Health Related Fitness considers four factors viz., Cardiovascular efficiency, Abdominal Muscles Strength & Endurance, Flexibility and Body Fat%. Literature suggested some Yoga practices to attain health related fitness are –

Yoga Practices	Intensity
1. Sirshasana	1/4 min. to 12 mins., adding 1/2 min. per week.
2. Sarvangasana	1/2 min. to 6 mins., adding 1 min./ week.
3. Matsyasana	1/4 min. to 3 mins., adding 1/4 min. per week.
4. Halasana	1 min. to 4 mins., for all stages put together, adding 1 min. per week.
5. Bhujangasana	3 to 7 turns of each, the pose
6. Salabhasana	being maintained for 10 seconds.
7. Dhanurasana	adding one turn every fortnight to each.
8. Ardha-Matsyendrasana	1/4 min. to 1 min., for each side, adding 1/4 per week.
9. Paschimattanasana	1/4 min. to 1 min., adding 1/4 per week.
10. Mayurasana	1/6 min. to 2 mins., adding 1/4 min. per week.
11. Savasana	2 mins. to 10 mins., adding 2 mins. per week.
12. Uddiyana Bandha	3 to 7 turns, adding 1 turn per week.
13. Yoga-Mudra	1 min. to 3 mins., adding 1min. per week.
14. Nauli Kriya	3 to 7 turns, adding 1 turn per week.
15. Kapalabhati Kriya	3 rounds of 11 to 121 expulsions each, adding 11 expulsions to each round every week.
16. Ujjayi Pranayama	7 to 28 rounds, adding 3 rounds every week.
17. Bhastrika	3 rounds of 11 to 121 expulsions each, adding 11 expulsions to each round every week. Every round to be followed by a suitable Kumbhaka

Dimensions of Human Values

Literature suggested some Yoga practices to enrich the values are –

- Reading holy books e.g., Puranas, Vedas, Bhagwatgita, Koranas, Bible etc. and implementing the principles in day to day life.
- Observing Yamas & Niyamas in social life.
- Listening religious songs, music, prayers etc.
- Attending religious lectures, spiritual activities, collective prayers etc.
- Practicing Omkar recitation, Dhyana etc.

2) Results of Yoga Modules to promote Health Care

The schedules yoga as suggested by the Traditional Texts for treatment of various major psychosomatic disorders have been presented as follows:

a) Yoga Modules for Diabetes Mellitus

Morning (1hr.): Utkshepa Mudra, Pavana Muktasana, Karmasana, Janushirasana, Agnisara Kriya, Uddiyana Bandha, Kapalabhati, Brahma Mudra, Chandrabhedan Pranayama, Om recitation.

Evening (1hr.): Sarvangasana / Viparita Karani, Matsyasana, Halasana, Bhujangasana, Yoga Mudra, Ardha Matsyendrasana, Paschimottanasana, Bhastrika Pranayama, Om recitation, Dhyana.

Exercise (1hr.): 3-5 Km walking (slow to medium intensity), jogging in between and jumping jack are suggested. Running (fast) is prohibited.

Diet: Vegetarian and nutritious food (e.g., peanut), fruits especially ripe bananas, vegetable (like patol, okra, dhundula, palta etc. having alkaline properties), plantain soup, lemon juice etc. are suggested. Non-vegetarian food is strictly prohibited.

Precaution: Consult diabetologist. One can practice the above along with medicine; the physician should adjust dosages of medicine gradually.

b) Yoga Modules for Hypertension

Morning (1hr.): Yoga mudra, Pavana Muktasana, Padahastasana, Brahma Mudra, Chandrabhedan Pranayama (without kumbhaka), Crocodile postures, Om recitation, Dhyana.

Evening (1hr.): Shavasana Relaxation, Parvatasana, Chin & Chinmaya Mudra, Ardha Halasana, Yoga Mudra, Niralambasana, Padahastasana, Chandrabhedan Pranayama (without kumbhaka), Om recitation, Dhyana.

Exercise (1hr.): 1-2 Km walking (slow to medium intensity) as suggested by cardiologist.

Diet: Very small quantity, but several times. Vegetarian and nutritious food, alkaline fruits, curd water, little boiled rice, leafy vegetable (easily digestible, non-constipating) etc. are suggested. Non-vegetarian food is strictly prohibited. Maintain breath flow through right nostril before and after meal.

Precaution: Consult cardiologist. One can practice the above along with medicine; the physician should adjust dosages of medicine gradually. Don't drink too much of water, don't eat full stomach and don't add salt in food. Avoid over-working of heart, late night sleep (go to bed: 8:00-8:30 p.m.) and dinner invitations.

c) Yoga Modules for Asthma

Morning (1hr.): Shavasana Relaxation, Sarvangasana / Viparita Karani, Matsyasana, Pavana Muktasana, Dhanurasana, Yoga mudra, Ushtrasana, Kapalabhati, Brahma Mudra, Suryabhedan Pranayama (with kumbhaka), Crocodile postures, Om recitation, Dhyana. Kriyas (Danda dhauti, Vastra dhauti, & Neti) suggested once in a week.

Evening (1hr.): Shavasana Relaxation, Sarvangasana / Viparita Karani, Matsyasana, Pavana Muktasana, Dhanurasana, Parvatasana, Chin & Chinmaya Mudra, Niralambasana, Suryabhedan Pranayama (with kumbhaka), Crocodile postures, Om recitation, Dhyana.

Exercise (1hr.): 3-5 Km walking (slow to medium intensity) as suggested by physician. After dinner walk a mile.

Diet: Very small quantity, but several times and finish dinner during 7:30-8:00 p.m., and never completely fill the stomach. Milk should be the main drink. Vegetarian and nutritious food, alkaline fruits, little boiled rice / chapati, curd water, leafy vegetable (easily digestible, non-constipating) etc. are suggested. Non-vegetarian food is strictly prohibited. Maintain breath flow through right nostril before and after meal.

Precaution: Consult physician. One can practice the above along with medicine; the physician should adjust dosages of medicine gradually. Don't eat full stomach. Avoid tea, sweet, fried foods, late night sleep and dinner invitations.

3) Results of Yoga Modules (Age-wise) to retain Health Related Fitness

List of yoga practices suitable for each stage of human growth and development as prepared on the basis of textual search has been presented below:

a) Yoga for Prenatal Stage (Before birth)

Pregnant mother should practice:

- **Yoga:** Bhadrasana, Vajrasana, Brahma Mudra, Vrikshasana, Crocodile postures, Shavasana, Ujjayi and Anuloma-Viloma pranama (without Kumbhaka), Omkar recitation, dhyana, observing the principles of Yamas and Niyamas and taking yogic diet.
- **Garbha Sanskar:** A spiritual programme with recitation of Vedic hymns, shlokas for pleasing God and for purification of the mind of mother.
- **Reading holy books** e.g., Puranas, Vedas, Bhagwatgita, Koranas, Bible etc. and implementing the principles in day to day life.
- **Listening religious** songs, music, prayers, vedic hymns etc.
- **Attending religious** lectures, programmes, spiritual activities, collective prayers etc.

b) Yoga for Infancy Stage (0-5 yrs.)

- **Listening religious** songs, music, prayers, vedic hymns etc.
- Imitations, story plays, story from Upanishads & mimeties.
- Free Movements (joints) like animals (informal types).

c) Yoga for childhood Stage (6-12 yrs.)

- **Listening religious** songs, music, prayers, vedic hymns etc.
- Imitations, story plays, story from Upanishads & mimeties.
- Swastikasana, Ardhapadmasana or Virasana, Bhujangasana, Ardhashalabhasana, Utkatasana, Tadasana, Vrikshasana, Naukasana, Padahasthasana, Shavasana, and Om recitation.

d) Yoga for Adolescent Stage (13-19 yrs.)

- **Listening religious** songs, music, prayers, vedic hymns etc.
- Imitations, story plays, story from Upanishads & mimeties.
- *Padmasana, Dhanurasana, Vakrasana, Vajrasana, Supta Vajrasana, Parvatasana, Chakrasana, Shavasana, Baddha Padmasana, Yoga Mudra, Matsyasana, Gomukhasana, Viparitarani, Sarvangasana, Tolangulasana, Hamasana, Marakasana, Ujjayi without Kumbhaka, Halasana, Ardha-Matsyendrasana, Paschimattanasana, Gomukhasana, Bhadrasana, Tolasana, Uddiyana Bandha, Agnisara, Ugrasana, Dhanurakarshana, Simhasana, Uttanamandukasana, Kukkutasana, Nauli, Kapalabhati, Shavasana, Shirshasana, Shalabhasana, Bakasana, Mayurasana, Uttanakurmasana, Anuloma-Viloma prayer, Vedic hymns, Anuloma-Viloma pranayama, dhyana Om recitation, prayer, Vedic hymns.*

e) Yoga for Adult Stage (20-30 yrs.)

Sirshasana, Sarvangasana, Matsyasana, Halasana, Bhujangasana, Salabhasana, Dhanurasana, Ardha-Matsyendrasana, Paschimattanasana, Mayurasana, Savasana, Uddiyana Bandha, Yoga-Mudra, Nauli Kriya, Kapalabhati Kriya, Ujjayi Pranayama, Bhastrika pranayama.

f) Yoga for Adulthood Stage (31-49 yrs.)

Bhujangasana, Ardha-Salabhasana, Dhanurasana, Halasana, Ardha-Halasana, Paschimattana, Ardha-Matsyendrasana, Yoga-Mudra or Uddiyana, Viparita Karani, and Ujjayi.

g) Yoga for Old Stage (50 yrs. & above)

Ujjayi, Bhujangasana, Ardha-Salabhasana, Ardha-Halasana, Vakrasana, Chakrasana, Paschimattana, and Yoga-Mudra.

4) Results of YOGA SYLLABI for VALUE EDUCATION in Schools

a) Yoga Syllabi for School Children (Standard-I, II, III, IV,V)

This is the basic and compulsory for imbibing value education. It should cover –

1. Free Movements (joints) like animals (informal types)	Class I to IV
2. Rhythmics yoga	Class I to IV
3. Imitations, story plays, story from Upanishads & mimeties	Class I to IV
4. Yoga practices (10 periods) (<i>Swastikasana, Ardhapadmasana or Virasana, Bhujangasana, Ardhashalabhasana, Utkatasana, Tadasana, Vrikshasana, Naukasana, Padahastasana, Shavasana, Om recitation</i>).	Class V

b) Yoga Syllabi for School Children (Standard-VI, VII, VIII, IX, X)

This is the basic and compulsory (10 periods) for imbibing value education. Each Class should cover the followings–

Class VI

1. Repeat Yoga practices learnt in Class-V
2. Introduce new yoga practices
(*Padmasana, Dhanurasana, Vakrasana, Vajrasana, Supta Vajrasana, Parvatasana, Chakrasana, Shavasana, Om recitation*)
3. Imitations, Mythological story plays, Story from Upanishads, Bhagwadgita, Ramayana, Mahabharata, Koran, Bible, **Listening religious** songs, music, prayers, vedic hymns etc.
4. Teaching Yamas & Niyamas

Class VII

1. Introduce new yoga practices
(*Baddha Padmasana, Yoga Mudra, Matsyasana, Gomukhasana, Viparitarani, Sarvangasana, Tolangulasana, Hamasana, Marakasana, Ujjayi without Kumbhaka, Shavasana, Om recitation, prayer, Vedic hymns*).
3. Lead up Yoga (other activities like yoga), Mythological story plays, Story from Upanishads, Bhagwadgita, Ramayana, Mahabharata, Koran, Bible, **Listening religious** songs, music, prayers, vedic hymns etc.
4. Teaching Yamas & Niyamas

Class VIII

1. Introduce new yoga practices
(*Halasana, Ardha-Matsyendrasana, Paschomatanasana, Gomukhasana, Bhadrasana, Tolasana, Uddiyana Bandha, Agnisara, Shavasana, prayer, Vedic hymns, Anuloma-Viloma pranayama, dhyana*).
3. Mythological story plays, Story from Upanishads, Bhagwadgita, Ramayana, Mahabharata, Koran, Bible, **Listening religious** songs, music, prayers, vedic hymns etc.
4. Teaching Yamas & Niyamas

Class IX

1. Introduce new yoga practices

(Ugrasana, Dhanurakarshana, Simhasana, Uttanamandukasana, Kukkutasana, Nauli, Kapalabhati, Shavasana, prayer, Vedic hymns, Anuloma-Viloma pranayama, dhyana).

3. Mythological story plays, Story from Upanishads, Bhagwadgita, Ramayana, Mahabharata, Koran, Bible, **Listening religious** songs, music, prayers, vedic hymns etc.

4. Teaching Yamas & Niyamas

Class X

1. Introduce new yoga practices

(Shirshasana, Shalabhasana, Bakasana, Mayurasana, Uttanakurmasana, Anuloma-Viloma, Shavasana, Shavasana, prayer, Vedic hymns, Bhastrika pranayama, dhyana).

3. Mythological story plays, Story from Upanishads, Bhagwadgita, Ramayana, Mahabharata, Koran, Bible, **Listening religious** songs, music, prayers, vedic hymns etc.

4. Teaching Yamas & Niyamas

DISCUSSION

The entire text of Patanjala Yoga Sutra reflects different means to tackle psychosomatic disorders and establishes procedures humane values. This text also describes the methods of enriching one's mental health. Similarly, Hatha yoga texts are dealing with the basics of musculoskeletal functions along with enriching value education. Logical interpretations reveal that Patanjala Yoga is superior to Hathayoga so far as health and human values are concerned. Thus, the hypothesis- *H₁: Patanjali Yoga would be more useful than Hathayoga to promote health in tackling psychosomatic ailments and in establishing humane values,* has been retained logically;

Different Hathayogic texts have different understanding about human health, fitness and homeostasis in body constituents. Hathayogic texts deal more with one's musculoskeletal functions that in fact help to enrich almost all the physiological functions leading to improved health and fitness. Thus, the hypothesis-*H₂: "Hathayoga would be more significant than Patanjala Yoga to improve fitness and to prevent health in tackling homeostasis in body constituents"* has been sustained.

Various literature have been reviewed systematically, which indicate that the traditional scriptures validate the real information about proper method of practicing yoga. Our ancestors have experienced these methods have tremendous benefits in maintaining one's health and fitness. On the basis of these reviews, the researcher has developed so many "Yoga Modules," which are found appropriate to enrich health and fitness. Thus, the hypothesis-*H₃: "Schedules of Yoga," to be developed on the basis of traditional scriptures, would be appropriate for maintaining health and fitness"* has been accepted.

Yoga syllabi are the real need of our modern civilization with special reference to the students of primary and secondary education. Literature revealed that the yoga syllabi as suggested from the standard 1 to X seem to be beneficial to imbibe value education. Thus, the hypothesis-*H₄: "Syllabi of Yoga," as developed in this study, would be appropriately useful as "Guidelines for Value Education" in our modern system of Formal Education for improving human health and values,* has been logically accepted.

MAJOR FINDINGS

- The **major dimensions** of human health and values have been identified. The findings indicate that the dimensions of human health are physical, mental, social and spiritual, whereas Theoretical, Economical, Aesthetics, Social, Political and Religious

attributes are representing the values. Similarly, the dimensions viz., cardiovascular efficiency, strength and endurance of abdominal muscles, flexibility and fat percentage represent one's level of health related fitness.

- Critical study of the traditional Yogic texts helped to gather different claims of various yoga practices to achieve human health and values. Literature suggested some Yoga practices to attain health are *11 Asanas, 3 Pranayamas, 1 Bandha, 1 Mudra, 3 Kriyas* and *6 other practices*. Similarly, the literature suggests *11 Asanas, 2 Pranayamas, 1 Bandha, 1 Mudra and 2 Kriyas* to attain health related fitness.
- Literary survey suggested some Yoga practices to enrich the values are –
 - Reading holy books e.g., Puranas, Vedas, Bhagwatgita, Koranas, Bible etc. and implementing the principles in day to day life.
 - Observing Yamas & Niyamas in social life.
 - Listening religious songs, music, prayers etc.
 - Attending religious lectures, spiritual activities, collective prayers etc.
 - Practicing Omkar recitation, Dhyana etc.
- The **schedules yoga** including diet, do's and don'ts as suggested by the Traditional Texts for treatment of various **major psychosomatic disorders** viz., Diabetes, Hypertension, and Asthma have been explicitly presented. These are found authentic.
- **Age-wise modules of Yoga** (based on traditional literature) suitable to enrich and maintain health and fitness have also been suggested.
- Yoga syllabi that contribute Value Education suitable for the students of primary and secondary education have been framed.

CONCLUSION

Within limitations, the present investigation draws following conclusions:

- Yoga contributes to maintain one's Health Related Fitness.
- Yoga can be used as a therapy to control different psychosomatic disorders.
- Literature based **Yoga Modules**, as presented in this study, for enriching one's Health, Health Related Fitness, and Value Education seem to be authentic.
- Patanjala Yoga is more inclined towards enriching one's health and value education, whereas Hathayoga practices are found useful to enrich one's health related fitness.
- Thus, "**Traditional Yoga**" is a system of Health for enriching Health Related Fitness and Value Education.

RECOMMENDATIONS

On the basis of the results and conclusions presented above, this investigation recommends that –

- The "Yoga Modules" as suggested on the basis of literary research can be authentically implemented for enriching one's health, health related fitness and value system.
- Repeatedly controlled experiments may be conducted further to establish the experimental authenticity, reliability and validity of the "Yoga Modules."
- Similar "Yoga Modules" as alternative therapy for treating other psychosomatic disorders may be undertaken through future studies.
- Suggested "Yoga Modules" may be incorporated in the curriculum of Primary and Secondary system of school education.

CONTRIBUTION TO THE KNOWLEDGE OF GLOBAL EDUCATION

- This study has contributed to the literature of global education about the relevant “Syllabus” of Yoga, which is an Indian traditional system of education, for achieving true value education.
- Suggestive “Schedules of Yoga Practices,” in this study seems to be useful to promote health related fitness and health in establishing preventive as well as curative values for all ages.

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CHAPTER I

INTRODUCTION

1.1 The Problem

Technological excellence in the new millennium helps us to live more luxurious life, which in turn made us mechanical dependence that results into material gain and economic prosperity, but we lost the moral and spiritual realms. It gives birth of social inequality, horrendous wars, persecutions, atomic devastation, and of late, ecological crisis.

Man probed the mysteries of the universe but ignored the mystery of his own self. From necessities he moved to comforts and from comforts to luxuries in forgetting the supreme source of comfort and bliss. The man, therefore, becomes the victim of tremendous stress and strain that, in fact, leads towards intensive health complications.

Although *Education* is an instrument as well as a catalyst of social transformation and expected to bring about qualitative change in man's perception, attitudes, habits, priority and goals, the real sense of values in recent days somewhere missing. Moreover, the present system of education is information-oriented not character-based. It is consumerist in nature and makes one *selfish, self-centered, irreverent and cynical*. It sharpens reasons but hardens the heart. It lays little or no emphasis on such basic values as truth, love, honesty, humility, compassion, forbearance and justice. It makes one conscious about one's rights not duties. The net result is that a strongly individualistic and materialistic culture has taken birth, which promotes self-aggrandizement, nurtures opportunism and chicanery, and generates tension in society.

The Renaissance in Europe did not bring about a renaissance of human values. The Reformation altered man's perception of the sacred and the sacrosanct but did not do away with his inner vices such as lust, greed, anger and the like.

The ghost of technological power unwittingly released by man can be contained only by the right kind of education that combines science with spirituality, fitness with health, reasons with faith, *prajna with karuna*, empirical knowledge with intuition and insight; which keeps both progress and peace as its goals and is helpful in mitigating social evils.

Problems in School Education

- Although **School Education** is an instrument as well as a catalyst of social transformation and expected to bring about qualitative change in children's perception, attitudes, habits and personality, the real sense of values in recent days somewhere missing.
- The present system of education is information-oriented not character-based. It has become consumerist in nature and makes one's personality so poor so that the students become *selfish, self-centered, irreverent and cynical* in their future lives.
- Today's school education lays little or no emphasis on such basic values as truth, love, honesty, humility, compassion, forbearance and justice. It makes one conscious about one's rights not duties.
- To keep pace with the fast changing society and in order to fulfill one's desire to be at the top, our system of school education is somewhere compromising with the gross erosion of values.
- Improper implementation of physical activity or some how increasing status of physical inactivity in schools causing poor health and fitness in students.
- The tendency of exam fever, suicidal attempts, emotional imbalance, juvenile addictions are increasingly evident among school students. This in fact signifies intensive personality problems.

The net result is that a strongly individualistic and materialistic culture has taken birth, which promotes self-aggrandizement, nurtures opportunism and chicanery, and generates lust, greed, anger and the like causing tension in society.

Thus, to impart real education for retaining the human health and values in the way of peaceful life, various claims of traditional Yoga - which is an essence of Indian culture - need systematic verification. This piece of research, therefore, may be of imminent significance for reforming real education in the society.

1.2 Need of Value Education in Modern Era

Values are the concepts that describe human behavior. They are desirable ideals and goals, which are intrinsic and when achieved, in fact, evoke a deep sense of the fulfillment.

These days, in 21st Century, technological evolution contributes to globalization of knowledge-based education, which has changed human lifestyle. Such continuous changing condition in daily life situations jeopardizes our inner homeostasis and results into tremendous stress-related-immuno-deficient disorders, where values are left far behind. In fact there is gross erosion of values of individual to keep pace with the society in order to fulfill one's desire to be at the top. The erosion of human values of truth, co-operation, non violence, peace, love, respect for parents, elders, authority and hard work is leading to the decay of moral and social fabric of society at a speed never witnessed in the history of civilization. Our stress is too much on standards of living and not on standards of life. Though the problem of decreasing values extends to the whole range of human activities, education field is regarded as the proper place to inculcate positive values.

The Indian culture is deeply rooted in spiritual and ethical values, unless these values find their way into the life of students, education will lose its significance and will not fulfill its aim. Though we have made progress in knowledge but still we are not above the levels of our past generations in ethical and spiritual life. In some, we have declined from their standards. Today we have been successful in making professionals but not the human beings.

Thus, inculcation of human values is to be stressed up on in our system of modern education to prevent and combat world terrorism, tension, diversities, self-centered vision and violence. Through quality education restoring of humane values (viz., Social, Moral, Spiritual, Environmental, Economical, Political and Work values) is possible.

The main aim of value education is to reform attitude and behaviour, to promote healthy lifestyle, to shape the high moral character and to develop refined personality of younger generation, who can prove them as the best citizen of a nation.

1.3 Need of Health and Fitness in Modern Era

Radioactivity and radiation existed long before the evolution of the life on the earth, excessive radiation exposure is, no doubt, harmful and can cause genetic disorder, which may even, be fatal.

Medical interest in free radicals is very recent, but chemists have been studying them closely for about 50 years. Disease cannot be wished away. In recent two decades, scientific studies have shown that ageing – in a biological sense – is due to what are called *free radicals*. Not only do we ingest food that gives rise to them but also does our body produce them. They interfere with the body's basic metabolic processes adversely. Free radicals are the by-product of many chemical reactions in the human body and need to be managed to protect the body from their ill effects. They are considered to contribute chiefly for many diseases in general and cancer in particular. The slew of free radical production is conventionally attributed to too much urbanization, pollution and junk food.

Radioactive particles enter in the body through inhalation, ingestion, and injection. Man can receive radiation doses internally and externally. External radiation exposure can be reduced by conventional methods such as time, distance and shielding. Whereas internal exposure that is more hazardous to the human body, as the radioactive particle may get sequester in the organs.

Apart from radioactive exposure and oxygen free radicals, many wrong habits and irregularity in lifestyles may lead to poor state of fitness and ultimately results in various health hazards.

Therefore, there is a need to develop systematic strategy to educate the common people and making them conscious to prevent their fitness and health.

1.4 Rationale of Yoga for Promotion of Health and Values

1.4.1 Yoga as a Medicine to Promote Health

After much research, Larry Dossey has reached the conclusion that around 1950, scientific medicine transcended the mechanistic approach of physical medicine

and entered the era of mind-body medicine. The scientific basis of mind-body medicine resides in psychoneuroimmunology. There is now ample evidence to show that depression and despair impair the function of the immune system, while peace, love, hopes and joy enhance immuno-competence. Yoga is of great relevance to mind-body medicine because of the way it looks at life. The yogic view of life is the best prescription even written for lasting peace and joy, which are independent of external events and circumstances.

Emotion is a *Rajas guna of Prakriti*, which is responsible for many types of disease. Psychophysiologically, emotions act upon our body through hypothalamus, which controls ANS (Autonomic Nervous System) and the endocrine systems. Negative emotions like anger, fear, greed, jealousy give rise to somatic illness where on the other hand positive emotions like love, compassion, friendship, affection etc. give the strength to combat the stress. Illness due to negative emotions includes hyper acidity, hypertension, insomnia, menstrual disturbances, loss of appetite etc.

Yoga plays a vital role as the ancient Indian healing art. Classical Yoga is a science of human psychology. It works on three-facet viz. mental, physical & social states resulting in improved health, lesser greed for possession & efficient management of human life.

The salubrious psychological effects of yoga reduce the possibility of illness. However, if illness does occur, the same psychological effects assist self-healing and relieve symptoms. If even that fails, as it sometimes must, yoga guarantees that ever when afflicted with an incurable or painful disease, the person is not miserable. Concepts of mind-body medicine are being used effectively in the Integral Health Clinic (IHC) of All India Institute of Medical Sciences. IHC uses yoga as the foundation of psycho-spiritual transformation required for using the powers of the mind to heal the body. Yoga has now become an integral part of scientific medicine. Mankind has everything to gain from this creative synthesis of the old and the new.

A myriad of remedial measures was suggested in the form of modern medicine and naturopathy to neutralize the free radicals that are produced in the body. It is taken for granted that there is no way to avoid free radical production. However, the number and their consequent damage could be reduced. Yogic kriyas emphasize to accelerate elimination of the foreign particles from the body. Yoga can

be an effective measure to combat the effect of internal radiation exposures. Moreover, the cleansing process in yoga can be effectively utilized for removal of inhaled /ingested radioactive particles. Further, Yoga practices viz., *Asanas*, *Pranayamas*, *Bandhas*, *Mudras* etc can be practiced to improve body resistance, which indirectly reduce the fatality in case of excessive exposure.

Yoga is a scientific system, which brings harmony in body and mind. It is very rational and scientific method by which a state of equilibrium in mind and body is achieved. Self-perfection or state of divinity is yoga. The yogic concept refers to the working of body and mind for a homeostatic mechanism, which contributes to a balanced integrated functioning in both external and internal stimulants. The psychological blocks, such as stress, tension, lack of attitude, motivation etc., are factors of internal imbalances and are not due to any external factors. The primary concern of yoga is to identify the elements causing ill health. Appropriate techniques i.e. *Asanas*, *Pranayama*, *Mudras* and *Bandhas* meet the specific health problems such as asthma, arthritics, back pain etc. Yoga is both preventive and curative. If yogic principles and techniques are used in proper way all types of ailments can be cured. This yogic system is *Yogapathy*. Yoga, being both static and dynamic in nature, improves the cardio-vascular efficiency in a healthy person as well as in a sick person. *Pranayama* is the function of the *pranic* energy, where mind and *prana* are interdependent. The flow of pranic energy through the *nadis* is responsible for health and vitality of the physical body. Yogic techniques are also designed for the child and for pregnant women, to enhance the natural development of children with special needs. Yoga therapy emphasizes on cultivation of correct psychophysiological functions.

Holistic health in adult human beings is nothing else but ongoing movement towards increasingly accurate perception, appropriate feelings and precise actions with increasing pleasure, power, prosperity and profundity, perception, feelings and actions, which have been also expressed by terms *Cognition*, *Affection* and *Conation* respectively. In traditional parlance, this was called fulfillment of four *Purusharthas*, viz., *Dharma*, *Artha*, *Kaama*, and *Moksha* through practice of *Swadharama*. *Dharma* refers to accuracy in perception, affect and conation. This leads to *Artha* i.e., acquisition of material gains, followed by *Kaama* i.e., satisfaction of the mundane desires (which are not against the *Dharma* i.e., principles of global welfare) *Kaama* is followed by *Moksha* i.e., liberation from all sorts of bonds.

Thus, it must be appreciated that for most of us holistic health refers to ever increasing and appropriate satisfaction of physical, instinctual, emotional, intellectual needs and fulfillment and happiness arising from it.

1.4.2 Yoga Promotes Health Related Fitness

For years, the health related status of physical fitness was thought to be normal for school going children. Several studies, however, indicate that the school going students are inclined towards obesity which affects adversely the normal improvement of physical fitness and associated variables (Alexander and Peterson, 1972; Burwell, *et al.*, 1956; Fox and Mathew, 1981; Stamler *et al.*, 1978).

To meet the normal improvement of factors of physical fitness in growing age, various researchers investigated the effects of different physical activities on performance and associated variables of physical fitness (MacRaw, 1989; Sherwood and Selder, 1979; Spirduso, 1975; Spirduso and Clifford, 1978; Spirduso *et al.* 1988). Similar studies in the area of Yoga exercises also revealed that Yoga might prove to be a better intervention for improving physical fitness variables of school students (Bera and Rajapurkar, 1993; Ganguly, 1981; Gharote, 1976 a; Gharote, 1976 b; Moorthy, 1983).

It estimated, recently, that there are about more than 50 million people in India above 60 years of age and 4-5 million suffer from dementia. The care of the old has become a challenging and complex task, particularly in a country like India. Ageing is a natural process. Although old age is inevitable, it could be made bearable and pleasurable. Ageing changes are of physical, psycho-physiological and biochemical nature. In ageing all aerobic organisms are exposed to oxidative stress and gradually the functioning abilities of almost all organs are reduced. This in fact leads to reduce one's immunity power and as a result overall health related fitness declines.

In old age since body does not permit for vigorous activities, one can think of yoga - a healthy lifestyle. The claims of traditional Yoga texts and supportive research evidences indicate that Yoga is a powerful way of life not only to improve one's health related fitness but also show path to live healthy in delaying old age.

1.4.3 Relevance of Yoga for Value Education

Value Education is a comprehensive process. In its full range of connotation, it covers the entire domain of learning, cognitive, affective and psychomotor and includes knowledge, understanding and appreciation of our culture, moral, aesthetic and spiritual values i.e. the values springing from our nationalistic aspirations and universal perceptions. Thus value education is a process of education which involves working on the total personality of the individual keeping in view all aspects of personality development, the intellectual, social and emotional, will and character (Education in Values, N.C.E.R.T., 1992, pp.22-30).

a) Yoga as a System of Value Education

Philosophers and educationists over the ages have identified goodness, truth and beauty as an ultimate value, which do not change fundamentally from generation to generation, society to society and culture to culture. The humane values viz., honesty, tolerance, justice, self-control, compassion, freedom etc enable man for self-control than other animal, so that he cultivates certain ideals, which are available in plenty in our rich cultural heritage. In Indian modern education, number of commissions and committees recommended character formation, religious education, and moral education. However, recent recommendation emphasizes on value-based education that covers various factors of environment and nation with reference to international understanding.

When human values are inculcated through curriculum to transcend cognitive, conative and psychomotor level for conducive development of individual, social, national and international understanding, it is called value education.

In fact, Dhyana-yoga and Karma-yoga lead to wisdom and proper spiritual development that makes individuals to understand real values in human.

The Indian concept of education is more inclined towards spiritual development, receiving knowledge and disciplining the mind as well. Swami Vivekananda viewed education as “*manifestation of divine perfection already existing in man.*” He said, we want that education by which character is formed, strength of mind is increased, and the intellect expounded and by which one can stand on one’s own feet.

In the light of the above goal of education, it becomes relevant to assign the role to Yoga to fulfill this goal.

Yoga, the ancient treasure of our nation has stood the test of time. The various definitions of Yoga, - “*Yoga Karmasu Kausalam,*” “*Yoga Samatvam uchyate,*” “*Yoga citta vritti Nirodha,*” etc. teach us-

- What we should derive from life; and
- What should we give to others.

In modern time, the education is much inclined towards Western bent of “*Learn only to earn.*” But education can’t become only the source to livelihood, because human life has more precious and gracious purpose. The value-based education leads us steadily towards that purpose. The basic *Sanskaras* of *Ahimsa, Satya, Asteya, Aparigraha, and Bramhamacharya* form the foundation of values, which are the part of *Ashtanga Yoga*.

The *Yama- Niyama* concept, if deeply rooted in *early primary education* would mould the soil to the desired shape at the right time.

The *Asanas, Pranayamas, Kriyas, Bandhas, Mudras* are not only beneficial for body but also for the mind. The healthy mind resides in healthy body. When integration of body, mind and spirit is achieved, one’s personality blossoms. The number of such personalities can be created with the help of Yoga education.

b) Yoga – The Basis of Spirituality

There is a gap between what we expect and what we actually get. This gap widens day by day and inner dissatisfaction grows along with it. A dissatisfied and unhappy person likes to bring out his anger, frustration and bitterness. While doing so, he may get into crimes, atrocities, coercion, sexual assaults, frauds, corruption, accidents etc. When this type of people grows in number, such incidents occur more frequently. That is precisely what is happening in modern times. Daily newspapers are flooded with such stories.

In modern times, there is abundant material prosperity on one hand and extreme poverty on the other. Understandably, there is a growing dissatisfaction among the poor and underprivileged that they cannot afford such prosperity. Interestingly, those who have every thing in plenty also suffer from dissatisfaction. This is called real spiritual impoverishment. Spiritually poor cannot differentiate between the means and an end. They run after material wealth at the cost of spiritual awakening. Such material wealth is extremely harmful to the person and the society

in which he lives. Material wealth without spiritual wealth is the real cause of all human suffering.

The Ancient Science and Art of Yoga is the real, time tested, comprehensive, long-term solution to all human problems. The greatest advantage of Yoga lies in the fact that it addresses human problems at individual and collective levels. It helps create harmony within the person and the society in which he lives. It integrates body, mind, intellect, emotions and spirit. Integration brings harmony and harmony brings happiness. Happiness brings peace. A happy and peaceful person knows the real meaning of spiritual wealth.

c) Yoga – A Cognitive Approach for Moral Development

Morality is equivalent to the principles used to make judgements about actions that have an impact on human life and welfare. The cognitive development approach makes an important distinction between the structure of moral reasoning and the content of moral thoughts. In 1971 Kohlberg pointed that moral development follows an invariant six stages in sequence. The six stages are organized into three levels:

Level-I: Pre-conventional stage (Stage-1: Heteronomous morality, Stage-2: Individualism, instrumental purpose and exchange);

Level-II: Conventional stage (Stage-3: Mutual interpersonal expectations, relationships and conformity and Stage-4: Social contract or utility and the individual rights); and

Level - III: Post conventional or principles (Stage-5: Social contract or utility and individual rights and Stage-6: Universal Ethical Principles).

Patanjali enumerates eight limbs or stages at Yoga. Among eight limbs of yoga, the first of these is *yama*. Ethical disciplines - *ahimsa*, *satya*, *asteya*, *brahmacharya* and *aparigraha* are the rules of morality for society and the individual, which if not obeyed bring chaos, violence, untruth, stealing, dissipation and covetousness. The roots of these evils are the emotions of greed, desire, attachment, which may be mild, medium or excessive. They only bring pain and ignorance. *Patanjali* strikes at the root of these evils by changing the direction of one's thinking along the five principles of *Yama*.

A regular practitioner of yoga can achieve all the six stages of moral development, which was described by Kohlberg. In fact, a Yogi is much above the sixth stage of moral development, which is described here. He is naturally moral. He does things right and stays away from wrong in a natural and spontaneous manner.

He is the real ambassador of morality. His value system is an outward expression of inner equilibrium.

d) Yoga – A tool for Modification of Behaviour, Emotion & Personality

Patanjali Yoga explains the real significance of emotional intelligence by way of complete cessation of modification of behaviour (P.Y.S.-I:2).¹ In fact, yoga practices work at the visceral and the emotional level in following psycho-physiological principles and tackles functional disturbances of the neuro-vegetative system and emotional disturbances.

Relaxative *asanas* are claimed to give rise to *chitta vishranti* i.e. tranquility and peace. Corrective asanas are supposed to develop stability, steadiness and lightness of the body. Emphasis on relaxation taking help of gravity to ensure eternal effects of tackling emotional aspects of the individual has been indicated.

Asanas, Bandhas, Mudras, Kriyas and Pranayamas could be special beneficial effects on autonomic nervous system, brain and the mind. Along with yoga practices, yogic diet comprising of simple vegetable proteins, low in salt content and moderately rich in cereals, vegetables and fruits and adequate minerals and vitamins seem to have been prescribed for better health. Such type of food influences the awareness and overall feeling, thinking, being and behavior. Yoga aims at improving the emotional control and overcoming of the imbalance rhythm. Yoga ultimately enriches our emotions, value systems and attitude to life as a whole and influences our personality.

In fact, Yoga is a bridge between body, mind and spirit. Since its practices smoothly coordinate the functions of the bones, muscles, blood, brain etc., which help to improve health, and as they train human mind, which is immaterial and intangible, for modifying proper attitude, behaviour and values may establish mental peace. Thus, investigation in this direction has significant relevance to our society.

1.5 Statement of the Problem

While the primary task of education is the total development of human personality in all its aspects - physical, mental, vital, aesthetic, ethical and psychic,

¹ P.V. Karambelkar, "Patanjala Yoga Sutra." (Lonavla: Kaivalyadhama S.M.Y.M. Samiti, 1984), p.3.

the fact remains that students, overburdened with lengthy and abstruse syllabi and fearful of the spectra of examinations and an uncertain future, find little time to make use of their ratiocinate faculties, to acquire moral virtues or to explore their creative potential. The paradigms of education in 21st century ought to be creative not superficial knowledge, soul-consciousness not body-consciousness, and cosmo-centricity not egocentricity. Each must be taught to see himself as a part of the cosmic self. Since the same Self embodies all one can view the other as one's own self in a different brotherhood that posts two entities and can neutralise a person's negative feelings toward his fellow beings. The artificial barricades that separate man from man, community from community and continent from continent would also come to an end.

Education must tame the beastly instincts in man if a better society is to be created. Since one can be both angelic or devilish deepening on one's inner environment, value based education can help to restrain the senses, the mind, the intellect and imagination from going astray, provide a blueprint from the art of disciplined living, inculcate scientific temper and a sense of social responsibility and transform juvenile delinquents into responsible citizens.

Educational curriculum must be assimilative in character having the best of science and technology and spirituality and of modernity and tradition. It should be rooted in the heritage, seasoned with advanced knowledge and prepared with a futurist perspective in mind. It must be for all and not for the privileged few who can afford it. It should be used as a lever to uplift the masses. The Renaissance of the higher values of life through Education would help in overcoming the crisis of character, resolve tensions and conflicts in society and stem the mad race of human for pelf and power. It would teach how to harmonize with one's own being, with the people around and with nature. *Swami Vivekananda* said; "*man is a combination of animality, humanity and divinity.*" The task of education in 21st century ought to be to help him to take a plunge from the animal to the divine state while remaining active in the world.

At this juncture, we can think of "Yoga" as an alternative means to achieve perfect health and can consider it as an appropriate "Syllabus" for value based education to establish peace and harmony in the human society.

As Swami Vivekananda says, "To me the very essence of education is concentration of mind, not the collecting of facts. If I had to do my education all over again, and had any voice in that matter, I would not study facts at all. I would develop the power of concentration and detachment, and then with a perfect instrument I could collect facts at will."

It seems perfection in man is the state of harmony and balance between his attitude, action, behaviour, character and thinking patterns. The genesis of value education lies in exploring and examining each value concept in terms of *Satyam, Shivam and Sundaram*.

Modern educational system seems to fail in the integrated development of the body, mind and spirit. The emphasis continues on imparting information, but the cultivation of values is neglected. Highest emphasis in our educational system must be laid on cultivation of values appropriate to the modern society. In the New Education Policy (1986) it has been emphasized how the transformation of values, based on our traditions, is absolutely necessary. Yoga encompasses all the perspectives of value education. *Patanjali* has presented an excellent scheme for value education through his two-pronged approach, one from psychological side and other from the physiological side by suggesting the practice of *Yamas, Niyamas, Asanas and Pranayama*. *Hathayogic* practices like *Kriyas, Asanas, Pranayamas, Mudras and Bandhas* establish emotional balance, health and fitness by tackling the autonomic nervous system. The views of *Patanjali* and *Holy Gita* are also illustrated to prove the fact that yoga is a stage of the union of Self and almighty God through its act of *Chitta Vritti Nirodha* so that one can make life valuable, physically, mentally and spiritually. It is, perhaps, the substitute of moral, spiritual and heavenly values.

Although it is high time to introduce Yoga in the educational system for implementing value education to young student generation, its real implication needs research-based evaluation. Moreover, formulation of appropriate syllabus for improving health and value education is the need of the day. It was, therefore, thought desirable to undertake this study entitled, "*Assertion of Traditional Yoga in Human Health and Value Education.*"

1.6 Objectives of the Study

Keeping in view the need, background and purpose of the study, Investigator has listed the following major objectives.

- To identify the major dimensions of human health and values;

- To critically study the traditional Yogic texts and to identify various “**means and/or techniques of Yoga**,” which claim to achieve human health and values;
- To examine, based on systematic review of research literature as well as logical interpretations, the real implications of the “**identified yoga practices**” in achieving each dimension of health and values;
- To evaluate “**Traditional Yoga**” as a system of Health and as a process of Value Education;
- To develop separate “Schedules of Yoga” and “Chart of Yogic Diet” for human individuals (age-wise) for achieving “health and Fitness” and “Syllabi of Yoga” for implementing “value education” in school education.

1.7 Assumptions

The researcher, being a student of yoga as well as education, has made following assumption:

- Since the investigator intends to collect research data by consulting all traditional Yoga texts, it is assumed that this study will ensure scripture-based valid information about human health and value education.
- As this study will systematically review both the scripture and research-based literature, it is assumed that formulation of “Yoga Syllabi for Health, Fitness and Value Education” will be appropriate.

1.8 Hypotheses

On the basis of assumptions made and literature reviewed, the present investigator has formulated the following hypotheses:

- H₁: Patanjali Yoga would be more useful than *Hathayoga* to promote health in tackling psychosomatic ailments and in establishing humane values;
- H₂: Hathayoga would be more significant than *Patanjala* Yoga to improve fitness and to prevent health in tackling homeostasis in body constituents;
- H₃: “Schedules of Yoga,” developed on the basis of traditional scriptures, would be appropriate for maintaining health and fitness;
- H₄: “Syllabi of Yoga,” developed in this study, would be appropriately useful as “Guidelines for Value Education” in our modern system of Formal Education for improving human health and values.

1.9 Delimitation of the Study

This study has large scope for different states, age groups, genders, games etc. It has, therefore, been decided to delimit study as follows:

- There are various schools of Yoga e.g., *Raja Yoga (Patanjala Yoga)*, *Hatha Yoga*, *Kundalini Yoga*, *Tantra Yoga*, *Bhakti Yoga* etc. Since all the components of different schools of Yoga and their aims are satisfying by *Raja Yoga* and *Hathayoga*, the present researcher delimited her study to these two systems of traditional yoga only.
- The study delimits the dimensions of Health as per the suggestion of W.H.O. Similarly, the Humane Values were delimited to six dimensions as suggested by (Ojha, 1959).²
- This is an analytical study of different traditional yogic literature and the meta-analysis of their content was made logically sound with supportive research literature.

1.10 Limitations of the Study

Although the present study is totally new in the field of research in Education, the researcher recorded the shortcomings, which appeared during data collection, were as follows:

- Since this study has been confined to “Traditional Yoga Texts” the outcomes of it did not agree with the implications of “Modern schools of yoga” which has not scriptural base.
- Since this study considers only “Yoga Texts related to Classical Yoga and *Hathayoga*”, the researcher did not consider all traditions irrespective of all human culture.

1.11 Significance of the Study

The present study has great significance in the society in the following ways:

- Since there is no *tradition-based* as well as **research-verified** “Programme of Yoga” as a process of Value Education, this study may be of immense implication in our present system of formal education;
- Various experimental studies indicate that Yoga is useful for maintaining one’s health and fitness. However, “age-wise” appropriate “programme of yoga” is the need of the day. This study, therefore, may have justifiable significance.

² R.K. Ojha, Study of Values. (Agra: National Psychological Corporation, Rajamandi, 1959).

- This study may highlight the real significance of “Traditional Yoga” in every age of life for promoting health and fitness and for securing humane values for social peace.

1.12 Operational Definitions of Terms Used

The following terms pertinent to the study are defined for the clarification of succeeding discussion:

Values

The word value has been derived from the Latin root-Value which means valor/ valiant, strong or vigorous. Values such as truth, love, honesty, humility, compassion, forbearance, justice etc are the integrating or unifying dimension of self. They make one conscious about one’s rights as well as duties. They are build up slowly and they may change over time. We learn them through imitation, identification, examples and experiences. Age, education, family, school, colleges, profession and attitudes, all have influence on our values.

Value Education

“Education” in some form or other has existed since times immemorial and was generally referred to man’s behavior in society. In fact, education is a training process that comes about through the study of experiences and enables a person to better understand new experiences as well as improves power of adjustment. Thus, Value education is a training process that builds up truth, love, honesty, humility, compassion, forbearance, justice etc., which brings social harmony and peaceful living.

Health

WHO defines “Health” as not merely absence of disease, it is an overall state of feeling of well being at physical, mental, social and spiritual levels. According to *Ayurveda*, “Health” signifies functional equilibrium of all bodily systems, which brings pleasant state of mind and soul. *Maharshi Patanjali* explains “Health” as a state of mental balance. “*Hathayoga*” indicates “Health” as a state of homeostasis (balance) of “*Vata*,” “*Pitta*,” and “*Kapha*.” However, according to Classical Yoga, “Health” signifies the balanced function of body, mind and soul.

Health Related Fitness

In general, physical fitness is the ability to do work without undue fatigue. However, such fitness abilities vary depending upon the types of work and they may not be concerned with one’s health. Recently, therefore, the concept of Health-

related-fitness has been evolved, which infers the fitness abilities signifying one's level of good health. AAHPERD (American Alliance of Health, Physical Education, Recreation and Dance) evolved four major factors of Health-related-fitness viz., cardiovascular endurance, abdominal muscle strength-endurance, flexibility and body fat%.

Yoga and its Tradition

Yoga has been evolved from Indian soil. The term 'Yoga' is derived from Sanskrit word 'Yuj' which means 'to join.' According to Bhagwad Gita "*Samatva Yoga Uchhyate*" i.e., everything equals is Yoga. According to Patanjali "*Yogascha Chittavritti nirodhah*" i.e., yoga brings complete cessation of modification mind. *Yogyavalkya* has defined it "*Jivatma paratmano yogoyoga*" i.e., to join *Jivatma and Paratma* is Yoga. While in *Yogvashistha* it is said that "*manah prasanno pranah yoga.....*".

But the definition given by *Maharshi Vyas* seems to be very practical "*Yoga samadho*" i.e., Yoga to collect and integrate all the power to attain the state of '*samadhi*'. *Maharshi Vyas* has described the word '*samadhi*' as -

Sam + ma + dha	=	To collect
Samam + ma + dha	=	To systematize
Samyak + ma + dha	=	To integrate.

First two meaning of '*samadhi*' are involved in third meaning. So *Samadhi* shows integration. '*Samtva*' (equality) word of '*Bhagwad Gita*' clearly describes the notion of Yoga very clearly. This very definition of Yoga is parallel to '*samadhi*'. Internal integration of a person is the motto of Yoga. We can attain balance at physical, mental and spiritual level through Yoga. The part of aphorism "*Chittavrittinirodhah*" of *Patanjali* states that unless '*chitta*' is stable, a person cannot be integrated. This concept of Yoga is the nearer to '*Samadhi*'.

It means stability of '*chitta*' is possible due to the stability of mind and body. In fact, our 'Karmas' are closely related with stability of *chitta*. To reach this stage *Maharshi Patanjali* has suggested '*Astangayoga*' i.e., eight-fold Yoga viz., *Yama, Niyama, Asana, Pranayama, Pratyahara, Dharana, Dhyana and Samadhi*. Here five steps are external and three are internal.

Vedic Tradition can be confidently said to approve of the yogic discipline. The word yoga (or its variations) occurs in *katha, Brhadaranyaka, Maitrayani, Svetasvatara Upanishads* etc. The word yoga has different connotations as may be found in lexicons. Also in different *darsanas* the word has been used to mean different set of actions as means to what they propound as the ultimate *purusartha*, i.e., *Moksa*. When the word yoga is used under the category of action, normally the word signifies the set of 8 limbs called *astanga yoga*. The yogic actions were codified by *Patanjali* (500BC-200BC) and are called as yoga sutras. The eight limbs are: *Yama, Niyama, Asana, Pranayama, Pratyahara, Dharana, Dhyana, and Samadhi*. These eight might

undergo changes by way of addition or deletion, or both, or in their connotation etc. in various systems as per their approach (logical/epistemological) to the *parama purusartha*, i.e., *Moksa*. In *Advaita* the *moksa* is said to be through the identification of the *Atman* with the *Brahman*, as the *mahavakya* puts it succinctly '*Aham Brahmasmi*'. Even if the *ananta ananda* (infinite bliss) to be obtained in the state of *moksa* is realizable only through the *jnana*, which is achievable through yogic action as *sadhana*.

Patanjala Yoga is known as "*Raja Yoga*" or "*Classical Yoga*." According to this Yoga philosophy, *Kaivalya* (liberation) is attained by a type of self-realisation and the latter is attained by the practice of Yoga. When *purusa* as the conscious power (*citisakti*) remains in its own nature, as distinct from *buddhi* and so to say *prakriti*, it attains *kaivalya*. Yoga is restraining of the mind-stuff from taking various forms. Yoga means *samadhi* which is of two types: *samprajnata* and *asamprajnata*. There are some means for the attainment of *samprajnata samadhi* after the *Yoga-sutra*. The highest stage is *asamprajnata samadhi*. In this connection, Vivekananda speaks of *Rajayoga*, success of which is not possible without the practice of *Hathayoga*.

Hathayoga

Hathayoga consists of two words i.e., *Hatha* and *Yoga*. Here the term "*Hatha*" represents two terms i.e., "*ha*" and "*tha*" symbolically represent 'sun' and the 'moon' respectively. The equilibrium of "*ha*" and "*tha*" is known as "*Hathayoga*". The content of this yoga combines the study of *ten mudras*, *six kriyas* and *eight kumbhakas* and *eighty-four asanas*.

Spirituality

Spirituality is the awakening of this inquiry into oneself. Spirituality is not a practice, is not a belief; it has nothing to do with torturing oneself in the name of austerities; it is not a philosophy, has nothing to do with organized religions; it has nothing to do with social morality and ethics. Spirituality is an aspiration, an urgency to discover, to know, to realize oneself, one's true nature. Yoga is the key to spirituality. Yoga is the awakener. Values are the by-products of this awakening. Spirituality is the source, Yoga is the way and Values are the flowers.

CHAPTER II

REVIEW OF RELATED LITERATURE

Yoga is an ancient traditional science and it has deep root in Indian culture and traditional education. In recent days, yoga has been accepted as an applied science in maintaining good health, fitness and peaceful life. Such an acceptance of yoga among the people of world wide nations is based on the findings of scientific researches. Many of the recent research findings, which our scientists found true today, are already claimed in many of the Indian Traditional texts. *Kaivalyadhama Yoga Institution* (Lonavla, India) is the first in the world, which brought traditional yoga in to a scientific laboratory under the guidance of *Swami Kuvalayananda* (the founder Director of Kaivalyadhama) and has been scientifically studying since 1924 its favourable effects for human health, fitness, education, life and living. Today many scientists around the globe are conducting researches and some of the glimpses of research findings have been presented in this Chapter to justify this piece of research.

2.1 Review of Yoga Research on Health and Allied aspects

Although there are many reports available today in this direction, however, the researcher has discriminated the followings as supportive evidence:

Modern science now believes that the cause of health degeneration, decay and premature ageing lies in free radicals in the body. In fact, the products of free radicals are highly reactive called *reactive oxygen species* (ROS) viz., Superoxide anion radical (O_2^-), hydroperoxyl radical (HOO^{\cdot}) etc. In this experiment Superoxide anion radical (O_2^-), Glycosylated Haemoglobin and blood glucose levels of 40 clinically confirmed diabetics were assessed (Bera, Mahapure & Shete, 2006)¹ and they were then divided into two equal matched groups viz., experimental and control. The experimental subjects underwent a specially designed yoga programme along with regular anti-diabetic medicines, whereas the control group was taking anti-diabetic medicines only. Result of 2 x 2 x 3 Factorial ANOVA followed by Scheffe's post hoc test revealed that Yoga training for the period of six weeks

¹ T.K. Bera, H.H. Mahapure, & S.U. Shete, "Effect of Yoga on Super Oxide Dismutase Levels in Diabetics." Report of Scientific Research Department, Kaivalyadhama (Lonavla), India, 2006.

significantly accelerates Super Oxide dismutase, reduced Glycosylated Haemoglobin and Blood glucose levels as compared to the controls. The findings suggest that Yoga helps to enhance antioxidant defense mechanism of the body along with controlling degenerative changes in diabetics.

Dalal (2002)² reveals emotion is a motive power, which helps in evolution. In yogic terminology, emotion is a *Rajas guna of Prakriti*, which exists in everyone. Excitement or upsurge of emotion is responsible for many types of disease. Psychophysiological, emotions act upon our body through hypothalamus, which controls ANS and the endocrine systems. Negative emotions like anger, fear, greed, jealousy give rise to somatic illness where on the other hand positive emotions like love, compassion, friendship, affection etc. give the strength to combat the stress. Illness due to negative emotions includes hyper acidity, hypertension, insomnia, menstrual disturbances, loss of appetite etc. Daily yoga *sadhana* of eight-fold path with a proper balanced diet helps one to act against stressful threshold situations by increasing the threshold of tolerance. The beauty of yoga therapy is that it treats the individual as a whole. An observation was made on 287 *sadhakas* (male=133 and female=154). Their financial condition, family background and environment were noted. Different symptoms of the subjects were tabulated and studied for every 2 months with the help of physical check-up and psychological testing with different questionnaires related to anxiety, depression, positive and negative outlook towards life. All the findings were again tabulated in details. The variables stated above were tested before and after the programmes viz., *Pratipakshabhavana*, *Anityabhavana* and *Sakshibhavana* respectively. These practices were done daily for a period of 2 months. The favourable results suggest that Yoga leads to *Samadhi*, *kaivalya*, *eternal bliss*, which aim to maintain physical fitness, mental stability, emotional quietness and spiritual elevation.

Oak *et al.*, (2006)³ evaluated a 30-day yoga programme, followed by monthly follow-ups for the subsequent six months on obese Indian. Residential Yoga Group (RYG) showing a consistently, though statistically not- significant, decreasing trend in all the four factors of anxiety, enunciated in IPAT's A.S.Q Test. Non-residential Yoga Group (NRYG), Aerobic Group (AG) and Control Group (CG) have shown consistently high scores denoting the trait of apprehension. All the four groups have shown a normal-range score in factor C (emotional instability), L (suspiciousness) and Q3 (low self control) hinting at absence of neurotic tendencies in Indian obese. The study is indicative of an ample scope for long term interventions of yoga in rehabilitation programmes for the obese, in general & for the Indian obese, in particular.

² Geeta Dalal, "Positive health through yoga." Paper presented in the International Conference on "Yoga Research and Value Education" held at Kaivalyadhama, Lonavla (India), Dec. 28-31, 2002.

³ J.P. Oak, R.S. Bhogal, D.D. Kulkarni, M.M. Gore, and T.K. Bera, "Effect of a month long yoga programme on anxiety in obese Indians – A qualitative study. Yoga-Mimamsa (in press), 2006.

To test the hypothesis “*yogasanas which help in the treatment of diabetes act by releasing insulin from the pancreas,*” Manjunatha, Vempati, Ghosh and Bijlani (2002)⁴ conducted a study on 10 healthy young volunteers (9 male, 1 female; age 19-30 years, mean \pm SD, 24.3 \pm 4.2 years). Each volunteer performed four sets of asanas in random order for 5 consecutive days each. The four sets of asanas were: (I) *dhanurasana + matsyendrasana*, (II) *halasana + vajrasana*, (III) *naukasana + bhujangasana*, and (IV) *setubandhasana + pavanmuktasana*. Of these, only the first three sets of asanas have been reported to be specifically effective in reducing fasting and postprandial glucose in previous studies. The volunteer performed a set of asanas from Monday through Friday. After a two-day gap (Saturday and Sunday), s/he started with the next set of asanas. Blood samples were collected on day 4 and 5 (Thursday and Friday) of each set of asanas for measurement of glucose and insulin levels before the asanas, within 10 min after performing the asanas, and 30 min after ingestion of 75 g glucose, which in turn was ingested immediately after the second blood sample. There was a consistent fall in glucose values after the asanas in all the four sets. The fall was significant only in case of set II ($p = 0.03$) and approached statistical significance in case of set I. The fall is likely to be due to utilisation of glucose during the half hour spent doing asanas. There was no significant difference in the 30-minute postprandial levels between the four sets of asanas. The insulin levels immediately after the asanas were lower than those before the asanas. The difference was statistically significant in all sets except set III, in which case also it was close to the significance level ($p = 0.09$). The lower glucose levels after the asanas may be responsible for the lower insulin levels. Improvement in insulin sensitivity as a result of physical activity also has contributed to the lower insulin levels after the asanas. The results suggest that, in the fasting state, there is no release of insulin by any of the asanas studied.

Pranic Healing is one of the energy-based therapies gaining popularity. Jaisri *et al.*, (2002)⁵ compared the effect of *Pranic* Healing on a group of elderly healthy individuals was compared with a group of hypertensive patients already on treatment. The blood pressure and pulse of both the groups were measured before the onset of therapy. *Pranic* Healing was done on alternate days and the blood pressure and pulse were measured at the end. A significant decrease ($p < 0.05$) was found in the systolic blood pressure in both the groups. A significant decrease was seen in the diastolic blood pressure of the hypertensive patients while a trend towards decrease was observed in the elderly normal individuals. It can be concluded that *Pranic* Healing is very effective adjuvant to mainstream therapy in the management of Hypertension.

⁴ S. Manjunatha, R.P. Vempati, D. Ghosh and R.L. Bijlani, “Glucose tolerance and insulin levels immediately after selected yogasanas.” Paper presented in the International Conference on “Yoga Research and Value Education” held at Kaivalyadhama, Lonavla (India), Dec. 28-31, 2002.

⁵ Jaisri, J.P. Vrunda, Kanaka Rani, M.S. Roopakala, and Rajeev Sharma, “Effect of pranic healing on hypertension.” Paper presented in the International Conference on “Yoga Research and Value Education” held at Kaivalyadhama, Lonavla (India), Dec. 28-31, 2002.

To test the hypothesis that *pranic Healing can improve the cardiac performance in-patients with IHD, Lung functions and Bioenergy field in all patients*, Vrunda, Sundaram, Das, Jaisri and Kanaka (2002)⁶ have undertaken this study. First attempt studied the improvement in cardiac, lung functions and human Bio-energy field in Pre and post Healing in patients as documented by cardiovascular Cartography and aura photography. To document the efficacy of Pranic Healing for various specific disorders using cardiovascular Cartography, Heartmath, Lung function tests and Aura photography. Diagnosed patients were studied for the impact of Pranic healing, administered by trained healers in addition to their conventional treatment . Clinical symptoms, ECG, echocardiogram, cardiovascular cartography, PFT and aura photography were documented before and at the end of the course of healing and were compared. We found that *Pranic* Healing significantly improves cardiac and lung functions in addition to the clinical features. From these, studies we conclude that Pranic Healing has a favourable influence on clinical status, quality of life, cardiovascular and lungs functioning and human bio-energy field.

Kulkarni, Gore, Bhogal, Oak and Bera (2002)⁷ derived lipid profile and cardiovascular risk ratio on the subjects of both sexes (Age range 15 to 70 years) followed by the intervention of yoga training to residential (male: 9, female: 28), nonresidential (M=9,FM=19), groups as well as aerobic exercise group (male: 37, female: 44). The intervention of an hour a day, total of 30 days with six months follow-up. The overall trend of results in both groups of yoga showed nonsignificant change in lipid profile. However non-residential group was better in magnitude of change. In aerobic group, lipid profile fluctuation with occasional significant change in both the directions was noticed, particularly in HDL and other lipoproteins. The cardiovascular risk ratio in males of both yoga groups remained moderate in pre, post, I and III follow-up tests. The aerobic group showed normal risk ratio in pre and in all follow-up tests. However a high-risk ratio was seen in posttest. The female residential group had a moderate risk in pre, post, I and II follow-up tests, and remained normal throughout all the follow-up tests. The nonresidential group had moderate risk ratio in pre test and remained normal in post and in all follow-up tests. The reverse was seen in aerobic group, having normal risk ratio in pre and follow-up tests and a high-risk ratio in the posttest. The study concludes that the cumulative effect of yoga practice along with physical activity is more effective in lowering the lipid profile as compared to residential yoga and aerobic exercise groups, apart from the role of diet control towards balanced energy expenditure. This implies that underlying biochemical mechanism of yoga practice is instrumental in lipid profile reduction as against usual fat burning mechanism in exercise mode of intervention.

⁶ J.P. Vrunda, C. Sundaram, Swarna Das, G. Jaisri and Rani Kanaka, "The efficacy of pranic healing in specific diseases as documented by cardiovascular cartography, heartmath, lung function tests and aura photography." Paper presented in the International Conference on "Yoga Research and Value Education" held at Kaivalyadhama, Lonavla (India), Dec. 28-31, 2002.

⁷ D.D. Kulkarni, M.M. Gore, R.S. Bhogal, J.P. Oak, and T.K. Bera, "Effect of yogic practices and aerobic exercises on lipid profile and cardiovascular risk ratio." Unpublished report, Scientific Research Department, Kaivalyadhama SMYM Samiti, Lonavla-410 403 (Pune), India.

Hassanagas *et al.*, (2002)⁸ aim to evaluate the influence of yoga techniques at the overall respiratory function and to present it as a way of primary prevention of asthma and other lung diseases. The first phase of this research has been based on the data derived from the answers of 341 yoga practitioners who filled our questionnaire before they started and after they completed the course. The questionnaire referred to various aspects of respiratory diseases (frequent colds, breathing difficulties, coughs, bronchitis and other respiratory diseases) and the practitioners had an opportunity to report the subjective improvements they noticed. The subjective improvements described in the first phase of the research necessitated objective spirometric measurements before and after the completion of the courses for basic breathing re-education. This phase was based upon a healthy population of 20 practitioners who took part in a specialised yoga programme for respiratory re-education, prepared by the yoga teacher Pavlos K. Hassanagas in cooperation with yoga instructors, doctors and psychologists. This programme concentrates on an integral re-education of all elements connected with breathing. The course went on for a period of three months. The classes lasted between 60 and 75 minutes and were held twice a week under a professional guidance of a yoga instructor. The practitioners were asked to repeat the same programme daily. The course content comprises of preparatory psychophysical exercises, asanas, pranayamas, bandhas, kriyas, and relaxation. The positive results of this research emphasize the significance and the importance of breathing as a physiological process. The process of prevention is mostly justified if it is applied to a healthy population, and the application of the yoga techniques enables a complete primary prevention. Our experience from working on an individual case of a patient suffering from asthma (1) and another patient with lung fibrosis (2) show that there were significant subjective improvements in both cases. Respiratory re-education does not have a positive effect only on the respiratory diseases, but also on the treatment and prevention of other diseases, such as cardio-vascular, digestive, endocrinal and various psychosomatic conditions. Respiratory re-education proved useful in the regular treatment of these diseases.

Majmundar (2002)⁹ explored the value of yoga in promoting postural control in elderly persons. Fall is a major risk factor in aging population. Nearly forty percent of elderly over the age of sixty-five experiences fall, creating serious public health problems. Loss of balance is caused by many disease processes and by physiological changes that occur in ageing. Loss of postural control results in an increased risk of falling. Balance training of elderly is frequently utilised in an attempt to improve day- to- day function and reduce the risk of falling.

⁸ K.P. Hassanagas, B. Gjorgijeski, Z. Handziski, P. Bogdanov, R. Naumoska, and V. Stefanovski, "Respiratory re-education through yoga techniques as prevention of asthma and other lung diseases." Paper presented in the International Conference on "Yoga Research and Value Education" held at Kaivalyadhama, Lonavla (India), Dec. 28-31, 2002.

⁹ Mantra Majmundar, "Yoga for postural control and fall prevention in elderly." Paper presented in the International Conference on "Yoga Research and Value Education" held at Kaivalyadhama, Lonavla (India), Dec. 28-31, 2002.

Yoga, a traditional Indian practice, consists of postural patterns (*Asanas*) and voluntary controlled breathing. The *yogic* postural patterns are initiated, maintained and released in steady and smooth manner against gravity. Voluntarily and controlled breathing promotes rhythmic co-ordination of subtle psycho-physiological processes. I will demonstrate through Accelerometry-a computerized balance testing instrument- recommended *Asanas* to improve and control balance in the elderly through multi-media presentation. An accelerometer is a small portable, lightweight computer one wears that gathers balance information from the accelerations of a person's head and trunk. Accelerometry, a balance assessment system developed by Rehabilitation Research and Development center, Department of Veterans affairs Medical Center, Palo Alto was used to assess objective balance testing. The presentation will also explain how these *Asanas* improves the stability and equilibrium in elderly persons.

Insomnia is a prevalent psychosomatic disorder for which hypnotic medications are commonly prescribed. Accordingly, many patients become dependent upon medications in order to maintain sleep quality. Preliminary results in our laboratory (Khalsa, 2002)¹⁰ have suggested that a regular daily yoga practice can generate improvements in insomnia. In a prospective case study we have evaluated whether yoga would be effective for resolving hypnotic-dependent sleep disorder. We studied a 36-year-old woman who began daily treatment of sleep maintenance insomnia with 50 mg of trazodone about 8 months prior. The subject reported no difficulties maintaining sleep, although prior attempts at medication withdrawal lead to resumption of multiple mid-sleep and terminal awakenings. After a 2-week baseline, the subject began a daily practice of a 30-minute set of *Kundalini Yoga* exercises (as taught by *Yogi Bhajan*) consisting of static asanas, pranayama and meditation, which are specifically targeted for sleep. Withdrawal from trazodone began during weeks 5 and 6 of the 8-week treatment phase and the subject was medication-free for the last 2 weeks. At end-treatment, only minimal decrements in sleep characteristics from daily sleep diaries and in scores on 3 insomnia questionnaires were observed. These results suggest that yoga treatment may be effective for hypnotic-dependent sleep disorder.

This Research (Harbans, 2002)¹¹ was carried out to study the comparison of Yoga Practice and Pharmacological therapy in treatment of Depression & Anxiety. To study the effect of Yoga on a patient suffering from Depressive disorder with Anxiety was the objective. The chief complaints of this patient were decreased self-confidence, hesitation in verbal communication, tension, sadness of mood, decreased interest in routine work from five years, which were increasing gradually. Sereraline 50 mg. for 6 months and Alprazolam 1 mg. for 1

¹⁰ Satbir Singh Khalsa, "Yoga as a treatment for hypnotic-dependent sleep disorder: A case study report." Paper presented in the International Conference on "Yoga Research and Value Education" held at Kaivalyadhama, Lonavla (India), Dec. 28-31, 2002.

¹¹ Harbans Singh, "A comparison of yoga practice and pharmacological therapy in treatment of depression and anxiety." Paper presented in the International Conference on "Yoga Research and Value Education" held at Kaivalyadhama, Lonavla (India), Dec. 28-31, 2002.

month was given to patient. Patient recovered fully and left the treatment. After some time the same symptoms reappeared. Patient requested some alternative method to the pharmacological therapy. As an alternative, patient was suggested to carry out Yogasan and Dhyan. Patient performed Yogasan and *Dhyana* for three months. The patient was found to be as much improved as after the Yogasan and *Dhyana*. The result of this study indicates that (1) Yoga Practice and *Dhyana* were as effective as Pharmacological therapy in treating Depression and Anxiety. (2) It was seen that Yoga Practice and Dhyan has the long-lasting effects if it is performed regularly. (3) The patient was saved from the side effects of the drugs.

The work of Hassanagas *et al.*, (2002)¹² contains results from the application of specialized courses of yoga therapy for the patients with myocardial infarction in the Institute for Cardiovascular Diseases in Ohrid. Application of yoga therapy as a part of integral rehabilitation started in May 1992 and is still going on. 1215 patients attended these courses. 448 of them have successfully finished these courses, and their results are elaborated in this study. The program of the courses contents: Vyayama - preparatory techniques for relieving tension in muscles and joints, Asanas, Pranayama, Kriyas and Relaxation. Lectures and conversations about the way of living, relaxation, stress, diet, walking, etc. are held regularly. Our results show the greatest influence of yoga on eliminating and alleviating of chronic psycho stresses, increasing of self-confidence and self-discipline which improve eliminating of other risk factors, gaining better relaxation and sleeping, decreasing the fear from the illness, improving physical condition and elasticity, decreasing of pain in joints and muscles. These changes and results have great influence to undertake the responsibility for improving of their own health and the quality of living, which provides favourable effects for a longer period in the sense of rehabilitation and secondary prevention of the coronary arterial disease.

Damle (2002)¹³ used yoga for the management of chronic respiratory diseases. It is assumed that the fourth step of astanga yoga namely *Pranayama* is related to respiratory system. The life "Pran" is indicated by breath in living beings. The technique of controlled breathing is called *Pranayama*. The yogic techniques known to have effect on respiratory system can be utilized in the therapy of respiratory disorders. As a general rule acute respiratory diseases causing distress make it impossible for the patient to perform any yogic procedures. It is in the management of chronic respiratory diseases that yoga therapy has a great role supporting the medical treatment. Aetiopathology of chronic respiratory diseases like bronchial asthma, bronchiectasis, C.O.P.D.; is discussed in short. The procedures utilized in chest physiotherapy and yoga therapy are as follows: **Chest physiotherapy:** Exercise (2) Postural drainage (3) Autogenic drainage (4) Chest thumping (5) FET (6) Breathing control.

¹² Pavlos K. Hassanagas, Marjan Kotlar, Irena Edrovska and Vancho Taseski, "Yoga as a complementary method in rehabilitation of patients after myocardial infarction." Paper presented in the International Conference on "Yoga Research and Value Education" held at Kaivalyadhama, Lonavla (India), Dec. 28-31, 2002.

¹³ B.S. Damle, "Yoga therapy for respiratory diseases." Paper presented in the International Conference on "Yoga Research and Value Education" held at Kaivalyadhama, Lonavla (India), Dec. 28-31, 2002.

Yoga therapy: Yogic techniques involved in the following parts of yoga are useful: (1) *Asana* (2) *Pranayama* (3) *Shuddhikriyas* (4) *Mudra* (5) *Bandha* (6) *Dhyan* (7) *Omkar japa*. The yogic techniques and the role played by them in the management of respiratory diseases are discussed in details.

Declined health and fitness status of school children has become a challenging problem of research. Many recent investigations indicate increasing trend of severity in health problems that affect overall work capacity of school children. Govindarajulu, Murugesan and Bera (2002)¹⁴ studied the status of work capacity of elite school players (n=75), age ranged 13-17 years, from some of the schools of Pondicherry (India), was evaluated. Work capacity of 13 years, 15 years and 17 years boys has been compared. Result of ANOVA and follow-up statistics revealed that work capacity varies as age increases. Regular participation in different exercise-regimes although helped to improve work capacity, however, the players habitually participating in yogic exercises along with exercise-regimes could show higher work capacity. The study suggests benefit in inclusion of yoga in the exercise regimes for exhibiting better performance in school sports.

Bera *et al.*, (2003)¹⁵ studied 153 obese patients, who were randomly divided into three equal groups. Group-I received Residential Yoga Training (subjects stayed in a hostel), Group-II undergone Non-Residential Yoga Training (subjects stayed in home), and Group-III acted as control (subjects stayed in home with normal day-to-day life). Duration of the experiment was 7 months (i.e., 1-month yoga training and 6 months Follow-Up). Health Related Fitness Factors (cardiovascular endurance, muscular strength, flexibility and body fat %) and selected morphological variables were measured at pre-test, post-test (after 1 month yoga training), and on completion of every one month for 6 follow-up months. Results on 2 x 3 x 8 Factorial ANOVA followed by Scheffe's post hoc test revealed that residential-yoga programme is more useful as a significant system of alternative medicine in treating obesity.

Pargaonkar and Bera (2002)¹⁶ hypothesized that Yoga practices may have positive effects in improving the factors of health related fitness of schoolgirls. A sample of 40 female subjects, age group of 18 to 20 years, was selected from *Ramabai Vavarange Adhyapika Vidyalaya, Gamdevi*, by considering Fisher's Random table technique. All subjects were equally divided into two groups, consisting of 20 students each, assigned into experimental and control groups. While the experimental group was practising selected yogic exercises, the control group followed their own regular practice. A set of 12 asanas were practised by the

¹⁴ N. Govindarajulu, R. Murugesan, and T.K. Bera, "Work capacity of elite school players practicing yoga in Pondicherry region." *Yoga-Mimamsa*, 34, 2, 2002, 129-136.

¹⁵ T.K. Bera, M.M. Gore, D.D. Kulkarni, R.S. Bhogal and J.P. Oak, "Residential and non-residential yoga training on health related physical fitness of obese patients." *Yoga-Mimamsa*, 34, 3&4, 2003, 166-

¹⁶ G.V. Pargaonkar and T.K. Bera, "Effect of selected yogic practices on health related physical fitness of the girls aged 18 to 20 years." Paper presented in the International Conference on "Yoga Research and Value Education" held at Kaivalyadhama, Lonavla (India), Dec. 28-31, 2002.

subjects of the experimental group 45 minutes daily for 5 days per week i.e., Monday to Friday, where Saturday and Sundays were observed as holidays. The duration of experiment was for a total period of 6 weeks. The result of 2 x 5 Factorial ANOVA followed by Duncan's Multiple Range Post Hoc test revealed that- 1) Experimental group showed significant superiority over the control group in 1.5 Mile Run test (LSR =0.08, $p<0.05$), Sit Up test (LSR =3.90, $p<0.01$), Sit and Reach Test (LSR =0.36, $p<0.05$), whereas significant reduction in Triceps skinfold (LSR =0.77, $p<0.05$) and Subscapular skinfolds (LSR = 0.70, $p<0.05$). These results inferred that experimental group could exhibit significant gain than the controlled one in Cardiorespiratory endurance, strength and endurance of abdominal muscles, and flexibility, whereas, significant reduction in body fat percentage was seen among the subjects of the experimental group than the controls. It is, therefore, concluded that selected Yogic exercise training was effective in improving overall level of Health-Related Physical Fitness in the Girls

Ganguly, Bera and Gharote (2003)¹⁷ examined the effects of three-year Yogic exercise programme on health related physical fitness and academic achievements of schoolboys, ages 10-13. Physical fitness variables tested were cardiovascular function, body fat percentage, abdominal muscle strength/endurance and flexibility, whereas the variables of academic achievement were the marks secured in theoretical subjects as per the school examination. The subjects participated in the selected Yogic exercise programme 3 days per week for 45 min. per day for consecutively three years. Results indicate that performance on all variables of physical fitness and academic achievement was improved significantly. A comparison of Yogic exercise subjects with a comparable control group revealed significant interaction between treatment and time on all variables. During three year period of experiment, pretest to posttest scores of the yogic exercise subjects tend to improve progressively with faster rate over the scores of control subjects. The results of Pearson correlation indicate that body fat % is inversely related to all the variables of academic achievement, whereas other attributes of physical fitness indicates a low but positive relationship with academic achievement.

Mishra and Bera (2002)¹⁸ reviewed the concept of health related fitness and proposed yoga for the people of old age. The review estimated that recently there are about more than 50 million people in India above 60 years of age and 4-5 million suffer from dementia. The care of the old has become a challenging and complex task, particularly in a country like India. Ageing is a natural process. Although old age is inevitable, it could be made bearable and pleasurable. Ageing changes are of physical, psycho-physiological and biochemical nature. In ageing all aerobic organisms are exposed to oxidative stress and gradually the functioning abilities of almost all organs are reduced. This in fact leads to reduce one's immunity power

¹⁷ S.K. Ganguly, T.K. Bera, and M.L. Gharote, "Yoga in relation to health related physical fitness and academic achievement of school going boys." *Yoga-Mimamsa*, 34, 3&4, 2003, 188-213.

¹⁸ Ramesh D. Mishra and T.K. Bera, "Yoga for health related fitness in old age." Paper presented in the International Conference on "Yoga Research and Value Education" held at Kaivalyadhama, Lonavla (India), Dec. 28-31, 2002.

and as a result overall health related fitness declines. Although declined state of ageing related health and fitness is considered as natural process, and since body does not permit for vigorous activities, one can think of yoga - a healthy lifestyle. The claims of traditional Yoga texts and supportive research evidences indicate that Yoga is a powerful way of life not only to improve one's health related fitness but also show path to live healthy in delaying old age.

2.2 Review of Yoga Research on Value Education

Experimental research on value education in relation to yoga is meager. Therefore, literatures related to philosophico-literary concepts available so far, which favours the contribution of Yoga towards enriching one's value education, have been reviewed and summarized below.

Vinod (2002)¹⁹ stated that there is a gap between what we expect and what we actually get. This gap widens day by day and inner dissatisfaction grows along with it. A dissatisfied and unhappy person likes to bring out his anger, frustration and bitterness. While doing so, he may get into crimes, atrocities, coercion, sexual assaults, frauds, corruption, accidents etc. When this type of people grows in number, such incidents occur more frequently. That is precisely what is happening in modern times. Daily newspapers are flooded with such stories. In modern times, there is abundant material prosperity on one hand and extreme poverty on the other. Understandably, there is a growing dissatisfaction among the poor and underprivileged that they cannot afford such prosperity. Interestingly, those who have every thing in plenty also suffer from dissatisfaction. This is called real spiritual impoverishment. Spiritually poor cannot differentiate between the means and an end. They run after material wealth at the cost of spiritual awakening. Such material wealth is extremely harmful to the person and the society in which he lives. Material wealth without spiritual wealth is the real cause of all human suffering. The Ancient Science and Art of Yoga is the real, time tested, comprehensive, long-term solution to all human problems. The greatest advantage of Yoga lies in the fact that it addresses human problems at individual and collective levels. It helps create harmony within the person and the society in which he lives. It integrates body, mind, intellect, emotions and spirit. Integration brings harmony and harmony brings happiness. Happiness brings peace. A happy and peaceful person knows the real meaning of spiritual wealth. He is naturally moral.

Isave (2002)²⁰ identified the main aim of value education is to shape the character of younger generation, who can prove themselves as the best citizen of the nation. Nowadays so

¹⁹ Samprasad Vinod, "Yoga – the basis of morality." Paper presented in the International Conference on "Yoga Research and Value Education" held at Kaivalyadhama, Lonavla (India), Dec. 28-31, 2002.

²⁰ Madhuri S. Isave, "Importance of value education in technological era." Paper presented in the International Conference on "Yoga Research and Value Education" held at Kaivalyadhama, Lonavla (India), Dec. 28-31, 2002.

many technological revolutions occur so that rapid changes are seen in society. Direction of social change has both positive as well as negative sides. Technology is helpful for human being and every member of society or every citizen of nation is enjoying the technological appliances and using them. For positive side of social change every member of society should know the proper use of technology. If not, then inculcate those values in the minds of people who shape the character of people and make them high moral and highly spiritual individual.

Gawande and Vidhale (2002)²¹ reviewed literature and revealed that philosophers and educationists over the ages have identified goodness, truth and beauty as an ultimate value, which do not change fundamentally from generation to generation, society to society and culture to culture. The humane values viz., honesty, tolerance, justice, self-control, compassion, freedom etc enable man for self-control than other animal, so that he cultivates certain ideals, which are available in plenty in our rich cultural heritage. In Indian modern education, number of commissions and committees recommended character formation, religious education, and moral education. However, recent recommendation emphasizes on value based education that covers various factors of environment and nation with reference to international understanding. When human values are inculcated through curriculum to transcend cognitive, conative and psychomotor level for conducive development of individual, social, national and international understanding, it is called value education. This paper explicitly classified the human values according to socio-cultural status, individualistic values and component of value education. Further, they have been logically correlated with Yoga-based value education. The authors conclude that there should be coordination between *Dhyana-yoga and Karma-yoga* that lead to wisdom and proper spiritual development makes individuals to understand real pleasure.

Literature reviewed by Waghchoure and Bera (2002)²² indicates that values of "*Karma*" and "*Sanskara*" are carried from one life to another considering "re-birth" cycle, the values regarding ones health and fitness as achieved through systematic physical activities in physical education can readily be experienced in this life. In physical education through movements like running, throwing and jumping alongwith team mates with play equipment like ball, stick, bat or racket, within the boundary of playground, the students achieve important values viz., a sense of disciplined behaviour, obedience of rules, cooperation to team mates, competition within healthy limits, quick decision, respecting decisions of officials, fair play and sportsman spirit, tolerance, sacrifice, faith in coach, which have tremendous impact for peaceful life. These values carry much significance in the later life in the society. However, today it is alleged that the spirit of unhealthy sports competition enters in the physical

²¹ Eknath Gawande and Suresh Vidhale, "Concept of value education with reference to yoga." Paper presented in the International Conference on "Yoga Research and Value Education" held at Kaivalyadhama, Lonavla (India), Dec. 28-31, 2002.

²² M.T. Waghchoure and T.K. Bera, "Value education through yoga and physical education." Paper presented in the International Conference on "Yoga Research and Value Education" held at Kaivalyadhama, Lonavla (India), Dec. 28-31, 2002.

education. Those professionals of physical education are recognised whose students are bringing more medals by any means. Physical education has become sports-focused competitive activity. In present situation, the real aim of physical education has been diverted from health and fitness of common mass. On the other hand, yoga leads to inculcate the human values viz., aesthetic, religious, social, moral and professional that are the need of the day and inclusion of yoga in physical education may enrich the profession and perhaps help to reinstate the real values of physical education.

Value Education is a comprehensive process as reviewed by Bodhe (2003).²³ *Swami Kuvalayananda's* contribution in this direction, towards the materialization and implementation of value education through Yoga has been evinced through his oft-quoted precept viz. Yoga has a complete message for human body, mind and soul. While addressing the issue of Value Education through Yoga, *Swamiji* has taken into consideration various aspects of Value Education - what does value education of an individual involve, the scope of value education through Yoga, what values should education seek to foster, how and to what extent Yoga can help in materializing the value education programme etc. *Swamiji's* contribution in this field is not only theoretical but concrete and practical. He states that Yoga is to be viewed as an attempt in value realization, development and education. He says: "The economic, political and communal conflicts that are today tearing the world to pieces, are mainly due to the fact that unessential parts of culture have become essential and the essential parts unessential. The object of Yoga is to train individuals well grounded in a cultural synthesis, so that in their after-life, they may strive to carry out the ideal of Yoga (Yoga Mimamsa, Vol.VI, No.1, p.88).

In-depth studies by Singh (2002)²⁴ regarding the views of *Patanjali, Gita, Swami Vivekananda, Swami Shivananda* revealed that yoga has to be distinguished from physiotherapy as it includes spiritualistic, moralistic and theistic elements along with value oriented education. Literature also indicates that education as such stands not only for physical or intellectual development, but also moral and spiritual upliftment. Inclusion of yoga would naturally facilitate the spiritual dimension of education, which is very much needed in the present age, as it is seen that the modern youth appears to be unconcerned with moral and spiritual value approach to life. If students are encouraged to practice yoga then they are bound to develop not only intellectually, by method of concentration but they are also bound to imbibe moral quality like self control and such other allied virtues. In this content it has been seen that the hundred students on whom the study was conducted were variably controlled. Two groups were formed. The first group was not taught yoga where as the group of students (2nd group), who were partially or fully practicing yoga like *pranayama* etc. showed better intellectual caliber as well as better character and respect for value.

²³ Ravindranath K. Bodhe, "Yoga, value education and Swami Kuvalayanandaji." Paper presented in the International Conference on "Yoga Research and Value Education" held at Kaivalyadhama, Lonavla (India), Dec. 28-31, 2002.

²⁴ Abhilasha Singh, "Yoga and value based education." Paper presented in the International Conference on "Yoga Research and Value Education" held at Kaivalyadhama, Lonavla (India), Dec. 28-31, 2002.

According to Gharote (2002),²⁵ value means a belief about what is desirable or undesirable. Values reflect the culture of society. Education is the manifestation of perfection already in man, says *Swami Vivekananda*. Perfection in man is the state of harmony and balance between his attitudes, action, behaviour, character and thinking patterns. The genesis of value education lies in exploring and examining each value concept in terms of *Satyam, Shivam and Sundaram*. Modern educational system seems to fail in the integrated development of the body, mind and spirit. The emphasis is on imparting information and the cultivation of values is neglected. Highest emphasis in our educational system must be laid on cultivation of values appropriate to the modern society. In the New Education Policy (1986) it has been emphasized how the transformation of values based on our traditions is absolutely necessary. Yoga encompasses all the perspectives of value education. Patanjali has presented an excellent scheme for value education through his two-pronged approach, one from psychological side and other from the physiological side by suggesting the practice of *Yamas, Niyamas, Asanas and Pranayama*. Emotional imbalance is controlled by tackling the autonomic nervous system through Hathayogic practices like *Kriyas, Asanas, Pranayamas, Mudras and Bandhas*. It is high time to introduce Yoga in the educational system for implementing value education to young student generation.

Five principles of *Panchashila – Ahimsa, Alobha, Brahmacharya, Satyavachana, Sura-panishedha*. “These five principles,” says *Dr. S. Radhakrishnan*,” are intended to develop in us wisdom, humility and selflessness.” Bhatt, Gandhi and Acharya (2002)²⁶ interpret these principles with intellectual touch. Obviously acquiring one value adds another value. Conversely, if one value is abandoned another may also be lost. Hence the need for building up a strong chain of values in Teacher as they are the models to the Student and to the Society. Writers found that most of the teachers either do not attend the moral instruction period or prefer to teach the subject they handle. The values can be effectively imparted through lectures, textbooks, epics and several co – curricular and extra-curricular activities and the young mind does catch them. But when they find elders, teachers and leaders in the society going the other way, they suffer from moral conflicts. This attitude among teachers and elders must change.

Mukerji (2002)²⁷ tried to synthesize the terms yoga with value education. She explained, Value-education is a term, which belongs to Sociology, and *Yoga* is essentially related to Spiritualism and Philosophy. How can they meet into one point is a question. The

²⁵ M.L. Gharote, “Value education and yoga.” Paper presented in the International Conference on “Yoga Research and Value Education” held at Kaivalyadhama, Lonavla (India), Dec. 28-31, 2002.

²⁶ M.A. Bhatt, D.H. Gandhi, and G.D. Acharya, “Values and teaching.” Paper presented in the International Conference on “Yoga Research and Value Education” held at Kaivalyadhama, Lonavla (India), Dec. 28-31, 2002.

²⁷ Rudrani Mukerji, “Role of yoga in promoting value education in educational system.” Paper presented in the International Conference on “Yoga Research and Value Education” held at Kaivalyadhama, Lonavla (India), Dec. 28-31, 2002.

concept of *value* refers to different aspects of the society viz., interests, pleasures, likes, preferences, duties, moral obligations, desires, wants, needs, aversions and attractions. To judge the standard and pattern whether it is acceptable or not; is valuation. Learning to evaluate certain behaviour or custom or relation, which would be correct or right, may be called Value Education. In mathematics, *Yoga* means addition. So by practicing *yoga* we increase something. What we increase is strength both physical and mental. There are five kinds of *Yoga* - *Jnana Yoga*, *Bhakti Yoga*, *Karma Yoga*, *Raja Yoga* and *Hatha Yoga*. In Sanskrit we say *Yogaschittavrittinirodhah* – it is also defined as *Yogah Karmasu Kausalam*. Value is related to utility. What is utility? Galiani in 1750 defined utility as “the capacity of a thing to procure us facility.” The word *yoga* occurs in *Rg Veda* in various senses, such as yoking, harnessing, achieving the unachieved, connection and the like. Gradually ideas of asceticism and self control grew. In *Paninis* time the word *yoga* had attained its technical meaning and he distinguished this root “*Yog Samadhau*” (*Yog* in the sense of concentration) from *Yugir Yoga* (root *yujir*) in the sense of connecting. *Yug* in the first sense is seldom used as a verb. It is more or less an imaginary root for the etymological derivation of *yoga*. *Karma yoga* increases alertness, concentration. *Bhakti yoga* means true love for God. True *Bhakti yoga* expands our heart. We try to see a *mother* in all women. And women learn to see *son* in every man. Our heart aches for the distressed that leads us to selfless service. In this way by practising *Karma yoga* and *Bhakti yoga* we can utilize our value education. Above all we know concentration is the source of knowledge, *Karma yoga* and *Bhakti yoga* increase our concentration, intelligence and humanity. Jesus Christ is the incarnation of *Bhakti*. Socrates is the incarnation of knowledge (*Jnana*). So value education and *yoga* are interrelated.

Udhaykumar (2002)²⁸ reviewed the concept of *yoga*, spirituality and values tried to interlink them for better education. Spirituality is not a practice, is not a belief; it has nothing to do with torturing oneself in the name of austerities; it is not a philosophy, has nothing to do with organized religions; it has nothing to do with social morality and ethics; it is not suppression of desires and drives; it has nothing to do with sexual repression; it is not self-hypnotism, nor is it magic; it is neither a gift for the elite nor something that can be got through bargaining; it has nothing to do with ‘self-improvement’; it is not an accumulation of merits; it is not trying to be selfless, which is another form of selfishness; it is not concepts, not ideas; it has nothing to do with change of clothes and costumes and nothing to do with organizations, be it religious, secular or otherwise. Spirituality is an aspiration, an urgency to discover, to know, to realize oneself, one’s true nature. Everything that takes one’s whole being towards this aspiration, this longing to know the truth about oneself is *Yoga*. *Yoga* is the key that will open our minds and hearts totally to our own Being, which is the Being of all and everything. *Yoga* is the awakener. Values are the by-products of this awakening. Values are the efflorescence of the great longing, the yearning to realize, know oneself, as one is, in reality.

²⁸ C.S. Udhaykumar, “*Yoga, values and spirituality*.” Paper presented in the International Conference on “*Yoga Research and Value Education*” held at Kaivalyadhama, Lonavla (India), Dec. 28-31, 2002.

Values are the natural, spontaneous outcome of this aspiration to realize oneself. Spirituality is the source, Yoga is the way and Values are the flowers.

Pendse, Malik, Nautiyal and Chauhan (2002)²⁹ are of opinion that Yoga, along with *pranayama*, *meditation*, *satvik* intellectual teaching, and experiential learning apart from the academic inputs is the approach followed to achieve this goal of value education. The approach here makes sure that the throbbing divinity inside of each one of us gets heard. Only silencing the din of the noises outside through meditation can do this. Yoga gives the students self-discipline, mental focus and integrity. Our studies indicate that yoga practices have brought about a positive change among students.

Bhogal, Oak and Bera (2002)³⁰ studied the effect of 9 months yoga training programme, on measures of Attitude towards Yoga, Neuroticism and Value system, was studied in 25 healthy student volunteers from G.S. College of Yoga (*Kaivalyadhama*), Lonavla. 14 students from local degree college acted as controls. The statistically significant changes in scores on Attitude scale ($p < 0.05$) and Neuroticism inventory ($p < 0.01$) indicate respectively, a favorable change in students' attitude towards yoga and a marked reduction in their neurotic tendencies. Responses on a Value test, taken in the beginning, middle and at the end, revealed an enhanced "social value", followed by "religious" and "aesthetic" values, in the order of degree of enhancement.

This chapter agreed that our modern medical science has only two-point programme – 1) to fight with infectious diseases viz., T.B., Malaria, Cholera, Small Pox, Diarrhoea, AIDS etc and 2) to restore good health in preventing health. WHO is worried about the drug resistance in Microbes since problems like viral fever, pneumonia, gonorrhoea, AIDS and other infectious diseases are coming back despite so much use of antibiotics and they are becoming more fatal than before. Similarly, world wide danger of Influenza, Hepatitis-B and Hepatitis-C etc. are jeopardizing the healthy atmosphere. AIDS has become a terror of infectious health hazards. HIV flourishes on toxic matter only. So instead of killing the HIV, it is better to remove the toxic matters or morbid materials from the body. Moreover, toxicity in mind also adds mental health problems, which are also to be eradicated.

Now the question arises – how these toxic matters or morbid materials are to be drained out from the body and mind. The literature as presented above suggests

²⁹ Dilip Pandse, Snigdha Malik, Shobhna Nautiyal, A.S. Chauhan, "Yoga and value inculcation." Paper presented in the International Conference on "Yoga Research and Value Education" held at Kaivalyadhama, Lonavla (India), Dec. 28-31, 2002.

³⁰ R.S. Bhogal, J.P. Oak, and T.K. Bera, "Effect of 9 months yoga training programme on measures of neuroticism, attitude towards yoga and value system." *Yoga-Mimamsa*, 34, 1, 2002, 1-12.

“Yoga” as the suitable means not only to fight against microbes, but also to prevent them and to restore good health with peaceful living.

People around the globe, nowadays, accept yoga not only as a means to improve health and fitness but also to consider as a system of value education for the school students, who are the future of our human society. In fact, the role of yoga for enhancing value education is a new and challenging concept in global education. Therefore, synthesis of real implication of yoga in favour of value education from traditional texts is the need of the day.

The present investigator, therefore, undertaken this literary research to locate and investigate the real claims and utility of yoga as mentioned in original traditional texts for health, fitness and value education. This study will contribute as a resource material for many researchers to undertaken further experiments for implementing yoga in real sense for enhancing human health, fitness and value education.

CHAPTER III

MATERIALS AND METHOD

3.1 Research Design

This is a literary research,¹ where the Indian Traditional Scriptures and standard Yoga Texts were critically analyzed and evaluated in the context of the health and value education. The extracts of Scriptures and Classical Yoga Texts were deduced scientifically and the contribution of them towards human health, fitness and value education was established. The study was conducted in considering the following steps:

1) Systematic Review of Scriptures, Traditional Yogic Texts & Research Literature

The ancient as well as modern literature were reviewed systematically to identify the major dimensions of human health, health related fitness and values.

2) Preparation of Checklist

Based on the attributes of the major dimensions, common Checklist was prepared for human health, health related fitness and values. For this, standard procedure was followed (Guilford & Fruchter, 1973).² The preliminary form of the checklist to assess the status of human health, health related fitness, and value education had 25 items respectively. These items (question / point) of each dependent variable had been sent to various experts of the field of medical science, physical education and education. After verification from the experts, checklist contained 17 items. Further, the checklist was given to five researchers who are directly involved in literary

¹ See details in Appendix-III.

²

J.P.Guilford, & B. Fruchter, Fundamental statistics in psychology and education. (New Delhi: McGraw Hill Book Co., 1973), pp.13-54.

research since last 20 years. Finally, the items were modified and amalgamated in such a way so that the checklist contained 12 items to identify the data on human health, health related fitness and value education (APPENDIX-I). This assures the objectivity and content validity of the Checklist.

3) Source of data & Data Collection

Each of the selected *Yogic Texts* (i.e., *Patanjala Yoga, Hathayoga* etc.), *Upanishads and modern research reports*, available in the Kaivalyadhama Library (Lonavla, India) were verified by using the Checklist as developed in this study and data related to the contribution of each of the literatures towards health, health related fitness and values were collected.

3.2 Variables

The dependent variables of this study were –

- Health;
- Fitness (i.e., Health related fitness);
- Value Education.

Similarly, the independent variables included were –

- Hathayoga; and
- Patanjala Yoga.

3.3 Procedure of Data Collection

Since this is a literary research, the investigator intended to collect information pertaining to this study from various libraries and websites. As per information from website, the researcher confirmed that no library in India has sufficient literature on yoga as compared to Kaivalyadhama, Lonavla (India). The researcher, therefore, fully concentrated on the literature as available in the Kaivalyadhama Library. However, prior to this, the researcher prepared a request letter and submitted to the Kaivalyadhama authority to seek permission to use its library for the purpose. After receiving the consent from the authority, the researcher conducted this literary research. A list of all the standard literature, traditional texts, Upanishads, manuscripts related to yoga – as available in the Library, was prepared carefully and

commentaries of many authors on Hatha Yoga and Patanjala Yoga have been reviewed in-depth. Further, related information (data) were collected as per the checklist.

3.4 Data Analysis

Although, detailed data analysis have been presented in Chapter-IV, the steps for the same are as follows:

- Important Yoga practices that claim to achieve human health, health-related-fitness and values, were identified, accumulated and categorized according different age groups.
- Data were organized through various tables and were interpreted logically with scientific reasoning. Graphical representations provide visual understanding of the logical interpretations.
- Different “Schedules of Yoga” were prepared as a curative (treatment) strategy for different psychosomatic disorders to promote proper health care.
- Different “Schedules of Yoga (Age-wise)” were prepared as a preventive strategy for retaining proper Health and Health-related fitness.
- Different “Syllabi of Yoga” for implementing Value Education were framed for the students of Pre-Primary to Secondary Education.

CHAPTER IV

DATA ANALYSIS AND INTERPRETATION OF RESULTS

The data, as presented in Chapter-IV, have been arranged in Tabular and Graphical forms and the results were properly discussed “with reference to” and “in contrast with” past and recent references, and the conclusion as well as suggestions / recommendations have been made accordingly.

The major tool used in this piece of research is “Checklist.” The data collected on this checklist have been interpreted. However, the item-wise interpretation has been presented below.

4.1 Analysis of Standard Literature & Texts

The ancient as well as modern literature, which had spiritual base, wider acceptability and popularity, were selected for review as follows:

- For Health, literature on WHO’s report, *Patanjala Yoga Sutras & Hathayoga* were studied.
- For Health Related Physical Fitness, literature of AAHPERD (American Alliance of Health, Physical Education, Recreation and Dance), *Patanjala Yoga Sutras and Hathayoga* were studied.
- For Value Education, traditional texts on *Patanjala Yoga Sutras & Hathayoga* were reviewed.

4.2 Dimensional Analysis of Health, Health Related Fitness and Values

The ancient as well as modern literature as reviewed systematically have revealed the major dimensions of human health, health related fitness and values as follows:

4.2.1 Dimensions of Human Health

Declined public health is a burning problem among the world wide nations. Public health is dedicated to the common attainment of the highest level of physical, mental and social well-being and longevity consistent with available knowledge and resources at a given time and place.

In the word of J.F. William,¹ “*Health is the quality of life that enables the individual to live most and serve best.*” According to World Health Organisation² “*Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.*” Health implies a sufficient reserve of physical strength, ability and endurance as well as mental equilibrium to meet the demands of life. And again it has been said, “*If wealth is lost, nothing is lost. If health is lost, something is lost. If character is lost, every thing is lost.*” A health mind rests only in a healthy body. Man’s happiness in life depends upon good health, vigour and vitality. Life without health is a misery - a virtual death.

Health problems becoming severe during 2000 A.D. Recently, the Americans Academy of Physical Education (Malina, 1987), The American Academy of Pediatrics Committee on Sports Medicine and School Health (1987)³ and American College of Sports Medicine (1988)⁴ have revealed that -

- at least 40% of American adults are extremely sedentary.

¹ Charles A. Bucher, “Foundation of physical education,” (St. Luis: The C.V. Mosby Co., 1975), p. 20.

² L. Breslow, “A health promotion primer for the 1990’s”, Health Affairs (Summer), 6-21.

³ American Academy of Pediatrics Committees on Sports Medicine and School Health, “Physical fitness and the schools”, Pediatric, 80, 1987.

⁴ American College of Sports Medicine, “Physical fitness in children and youth”, Medicine and Science in Sports and Exercise, 20, 1988.

- sedentary behaviour contributes substantially to the epidemic of cardiovascular and other chronic disorders.

Similar trend, even more poor status in public health is observed in recent years as reported by various "Health Survey and Development Committees, Govt. of India". Several other research reports (Berlin & Colditz, 1990;⁵ Lauer *et al.*, 1975;⁶ Paffenbarger *et al.*, 1986;⁷ Pate & Shephard, 1989;⁸ Powell, *et al.*, 1987⁹) have revealed that sedentary behaviour and physical inactivity are the major risk factors of cardiovascular diseases (CVD), obesity, serum cholesterol, blood pressure etc., which promote premature mortality. These results indicate that our modern civilization has provided the discomfort physically, mentally and socially. Such discomfort of our life situations produces tremendous stress, anxiety, depression etc., which in turn lead towards the sufferings from various newer Health problems including psychosomatic disorders. It appears from the data of current literature that the status of public health of adults and old aged people has been declined during last few decades even in India.

To improve declined status of public health, the world's leading institutions viz., American Academy of Physical Education (1987),¹⁰ The American Academy of Pediatrics Committee on Sports Medicine and School Health (1987)¹¹ and recent researchers (Berlin & Colditz, 1990;¹² Jopling, 1988;¹³ Sallis & McKenzie, 1991¹⁴) have suggested that -

⁵ J.A. Berlin and G.A. Colditz, "A meta-analysis of physical activity in the prevention of coronary heart disease". American Journal of Epidemiology, 132:253-287, 1990.

⁶ R.M. Lauer, W.E. Connor, P.E. Leaverton, M.A. Reiter, and W.R. Clarke, "Coronary heart disease risks factors in school children: The masculine study." Journal of Pediatrics, 86:697-706, 1975.

⁷ R.S. Paffenbarger, R.T. Hyde, A.L. Wing, and C.Hsieh, "Physical activity, all-cause mortality and longevity of college alumni". New England Journal of Medicine, 314:605-613, 1986.

⁸ R.R. Pate, and R.H. Shephard, "Characteristics of physical fitness in youth". In C.V. Gisolti & D.R. Lamb (Eds.), Perspectives in exercise science and sports medicine, vol.2. Youth, Exercise and Sport, (Indianapolis, IN: Benchmark, 1989), pp.1-46.

⁹ K.E. Powell, P.D. Thompson, C.J. Caspersen and J.S. Kendrick, "Physical activity and the incidence of coronary heart disease". Annual Review of Public Health, 8, 253-287.

¹⁰ Opcit., pp.449-450.

¹¹ Opcit., pp.422-423.

¹² Opcit., pp.253-287.

¹³ R.J. Jopling, "Health-related fitness and preventive medicine", Pediatrics in Review, 10:141-148, 1988.

¹⁴ J.F. Sallis, and T.L. McKenzie, "Physical education's role in public health". Research Quarterly for Exercise and Sport, 62:2, 1991.

- proper programme in physical education and its better policy can cover 97% of the population for better public health;
- appropriate physical activity in physical education can significantly reduce risk factors of stress-related diseases.

WHO's meaning of Human health has wider acceptance around the globe. Although absence of disease signifies one's health, inclusion of Physical, Mental, Social and Spiritual dimensions adds more significant meaning of health.

Patanjala Yoga Sutras (PYS)¹⁵ reflect root cause of ill health is mostly mental. The sutra PYS-I:31 indicates –

*Duhkhadaurmanasyangamejayatvasvasa-prasvasa
Viksepasahabhuvah* (PYS-I:31)

This means pain and misery, mental depression, trembling of the body parts and disturbances of inhalation and exhalation are the accompaniments of disturbances of *Chitta*. The disturbances of *Chitta* are internal and many not be easily perceptible. But their presence can be inferred from accompanying external symptoms. These are enumerated in the present sutra. One or more of these will always be present, when any *Chitta-viksepa* is there and so the presence and even intensity of the latter can be adjudged from the degree of activity of these external concomitant symptoms. Since these *sahabhauvah* (accompaniments) are the results of *Chitta-viksepas*, certain techniques, which can control the former, will be helpful in removing latter also.

The first two *sahabhuvah* are somewhat mental, yet they will have effect on the body, which would, therefore, serve as easy means for the detection of the hidden and subtler *Chitta-viksepas*. The latter two are directly changes occurring in the body and easily noticeable.

Duhkha means both physical pain as well as mental misery. The latter may often produce the former or at least lead to physical discomfort. Such bodily pains or discomforts can be easily detected by gestures of very frequent readjustment of posture of the person.

¹⁵ P.V. Karambelkar, "*Patanjala yoga sutras*." (Lonavla: Kaivalyadhama SMYM Samiti, 1984), pp.89-

Daurmanasya, i.e., mental depression, certainly leads to a rundown condition of the body to a lesser or greater degree. This again will be discernible by the gestures and adjustment of body postures.

Tremors in body parts and disturbances of breathing are quite objective signs. Any disturbance of *Chitta* and mind leads to a trembling of the body and some kind of modification or disturbance of the smooth normal breathing, which may affect either only the inhalation or only exhalation or body. Even temporary mental disturbances of emotions can lead to these two symptoms of *angamejayatva* (tremors) and disturbance of respiration (*svasaprasvasa*). The intensity of the trembling and the disturbance of breathing will be proportional to the intensity of the mental disturbance. In fact, breathing is so closely related to the state of mind and therefore also of *Chitta*, that a particular type of mental disturbance may lead to a characteristics change in the mode of breathing. It may even be possible to decide the type of mental disturbance or emotion by minutely observing the change produced in the breathing pattern. Thus, in anger the exhalation becomes dominant, very forcible and rapid. This change, when marked on account of intensity of the anger, is so peculiar that it has led to such idioms as 'a person is breathing like an angry bull.' Disappointment leads to a prolonged and slow exhalation. Anxiety leads to short and shallow inhalations and exhalations. Great shock occasionally leads to a short breath suspension. Joy also leads to similar change, but the breathing is not so shallow.

Tremors and respiratory disturbances are so intimately related with mental disturbances that they will occur without fail, every time, whenever there is any mental disturbance.

However, if the mental disturbance is not very powerful, these two symptoms will be very weak and may not be easily discernible, unless the observer is very minutely observing. On account of this intimate relationship, as said before, the *citta viksepas*, which are difficult to tackle, can be overcome by controlling and reducing these external symptoms by some means, which may be more practicable, as it is easy to control the body than the mind.

At least one objective of *Hathayogic Asanas* and *pranayama* is to gain an ability to control the *Chitta* and its activity through suppressing the trembling of the body and controlling breathing rhythm so that it remains smooth and normal.

Patanjali's asana and *pranayama* may also have such a purpose behind them. *Patanjali* in *sutras* I:33 to 39 mentions seven techniques or tricks for stabilization of mind and purification of *Chitta*. Out of these, at least that indicated in *sutra* 34 seems to work on this principle.

Thus, one's mind and *Chitta* are disturbed in the empirical world by such undesirable tendencies like jealousy, hatred, anger etc. So a peaceful condition of *Chitta* can be achieved only by counter-acting these evil or negative tendencies.

PYS-I:32 indicates that when *Chitta-viksepas* would be overcome, the result would be tranquillization of *Chitta*, which again would only be possible if the mind, which is a part of *Chitta*, is stabilized and tranquillized. Looking to this, the term *ekatattva* should be interpreted as one of principles (techniques, methods, tricks) mentioned in the subsequent seven *sutras* viz., I:33 to 39, recommended for achieving "*Chitta prasadana*" and "*manasthinibandhanam*." In PYS-I:32 *Patanjali* explains that by cultivating the attitude of friendship, compassion, participation in joy and indifference one can achieve the blissful and peaceful state of *Chitta*. In fact, the *Chitta-prasada* will be really established only if the positive ones, as mentioned above, replace the negative attitudes.

Though this technique is the best and really essential for achievement of *Chitta-prasadana* to perfection, it can be clearly seen that it is not easy to bring it into practice in actual life. These negative emotions of jealousy etc. cannot be easily curbed and uprooted. That is why this technique may not be suitable for most individuals and keeping this in view *Patanjali* has **recommended six other techniques**.

Pracchardanavidharanabhyam va pranasya (PYS-I:34), which indicates **one technique** i.e., through deep and forceful exhalation and controlled inhalation of prana. *Patanjali* is definitely not mentioning here about a *pranayamic* technique. In fact, he has suggested a preliminary technique involving breathing for achieving *Chitta-prasada*.

The **second technique** has been explained in PYS-I:35 “*visayavati va pravrttirutpanna manasasthitinibandhani*” which indicates that yoga practitioner should create an activity or tendency of the mind which is *visayavati* (i.e., possessing or full of the subject). To achieve this, he should sit in the squatting posture, if possible preferably a meditational posture e.g., *padmasana*, *siddhasana* etc and try to relax maximum. Then he should try to direct his attention to the tip of the nose and imagine that he is having that kind of odour from an actual flower say rose or jasmine, daily half an hour for few months. OR one can practice PYS-I:36 “*visoka va jyotismati*” (PYS-I:26) which brings about steadiness of mind. *Patanjali* isolates this particular phenomenon or experience of seeing a *jyoti* i.e., flame or light. This experience is usually spontaneous and when genuine it can be very facilitatory for helping in advancing in the process of meditation. This technique has recommended to create artificially the vision of a flame-like illumination by repeatedly telling the mind that it can see the *jyoti*. Once this result of *manasthitinibandhanam* is obtained, the practitioner should give up this practice, otherwise he will have an obsessional craving for this pleasure and his further progress on the path of yoga may be interfered with.

The PYS-I:37 “*vitaragavisayam va cittam*” and PYS-I:38 “*svapnanidrajnanalambanam va*” explain compositely about the **third and fourth techniques** to achieve *Chittaprasadanam*. PYS-I:37 directs the mind in telling it to give up the passions as they are trouble-producing and the mind may / does obey such instructions. Gradually, the result of steadiness would come up as the passions diminish and ultimately disappear. However, the PYS-I:38 explains the steadiness of mind taking place from the knowledge or experience gained through sleep and dream. For this, one must develop a capacity of having dreams or sleep i.e., dreamful and dreamless sleeps at order. Then only the working of the whole technique could be under one’s control.

Dhyana has been stressed up on as the **fifth technique** through PYS-I:39 “*yathabhimata Dhyanaad-va.*” Here the word ‘*Dhyana*’ has been used by *Patanjali* not as a technical word (not at seventh *anga of astangayoga*), but as a statement of fact that *Chittaprasadana* in its real sense is achieved only when one attained the stage of *Dhyana*.

Although the **sixth technique** has been explained in PYS-I:40 “*paramanuparamamahattvanto'sya vasikarah,*” however, this sutra is a mere extension of previous sutra “PYS-I:39.” Thus, there is complete control of almost all health problems which have psychological origin.

The above discussion regarding the interpretation of PYS revealed the usefulness of yoga for health and support major three dimensions (viz., physical, mental and spiritual), except social one. *Hathayoga*, simultaneously, gives importance to both physical and mental, where social factor is also silent. Although both the Yoga texts have given more importance to an individual's own-inner health, however, in reality an individual ultimately represents the society and contributes his support for the humanity as a social being. Therefore, WHO's inclusion of social dimension in defining health seems to be justified.

Thus, human health may be represented by Physical, Mental, Social and Spiritual dimensions.

4.2.2 Dimensions of Health Related Fitness

The principle - “Survival of the fittest”¹⁶ - is well known to all and has been accepted universally. The term fitness denotes the total fitness that includes - physical, mental, social and emotional aspects. It is impossible for all to be the fittest one and develop all these aspects to their top notch. Still everyone tries to be fitter, superior. This is better. Great philosophers, thinkers, physical educationists and educationists of the world have been advocating the importance of mankind and preaching to be fit at least. It is good to be fit than unfit. Unfit is good for nothing.

The great Greek philosopher - Aristotle - said “*the body is the temple of the soul and to reach the harmony of the mind, body and spirit the body must be physically fit.*”

The volumes of history have spoken that only fittest nation, fittest races and fittest civilizations have survived in the evolutionary process. Hence fitness is must for

¹⁶ V.L. Lekavale, “Establishing the standard norms for testing physical and motor abilities of college male students”, Doctoral Dissertation, University of Pune, India.

all. It is required to lead a happy life. We know the Greek popular saying - *Mens Sano Corpore Sano...* Various physical abilities would surely favour sound state of body.

According to Clarke¹⁷ physical fitness is the ability to carry out daily tasks with vigour and alertness, without undue fatigue and with ample energy to carry out leisure time pursuits and to meet unforeseen emergencies.

Physical fitness was identified as a positive quality extending on a scale from death to “abundant life.” All living individuals have some degree of physical fitness. Which is minimal in severely ill and maximal in highly trained athletes. It varies considerably in different people and in the same person from time to time.

The American Alliance for Health, Physical Education, Recreation and Dance (AAHPERD) has gone on record in support of physical fitness tests and programmes that emphasize the relationship between health and physical activity. According to AAHPERD,¹⁸ health-related physical fitness can be viewed, thus:

“Physical fitness is a multifaceted continuum extending from birth to death affected by physical activity; it ranges from optimal abilities in all aspects of life through high and low levels of different physical fitness, to severely limiting disease and dysfunction.”

According to current thinking in the physical education profession physical fitness is either health related or performance related. Physical fitness is concerned with the development of those qualities that offer protection against disease and frequently are associated with physical activity, e.g., certain physiological and psychological factors often affected by physical activity are thought to cause some degenerative diseases, such as obesity and coronary heart disease. Thus, Health-Related performance fitness is important to everyone.¹⁹

¹⁷ H.H. Clarke, “Application of measurement to health and physical education”, (New Jersey, Englewood Cliffs: Prentice Hall Inc., 1976), p. 41.

¹⁸ American Alliance for Health, Physical Education, Recreation and Dance (AAHPERD), “Health related physical fitness: AAHPERD technical manual”, (Washington, DC: AAHPERD, 1984).

¹⁹ M.J. Safrit, “Introduction to measurement in physical education and exercise science.” (St. Louise, Toronto, Boston: Times Mirror / Mosby College Publishing, 1998).

Perspectives of Health Related Physical Fitness

The concept of Health related physical fitness has been evolved by **AAHPERD** (American Alliance for Health, Physical Education, Recreation and Dance) during 1975 because AAHPERD Youth Fitness Test did not place enough emphasis on the health related aspects of physical fitness. A joint committee i.e., AAHPERD and ARAPCS (Association for Research and Professional Councils and Societies) in 1975 recommended that a physical fitness test should meet the following criteria:

- *That it measures an area which extends from severely limited dysfunction to high levels of functional capacity;*
- *That it can be improved with appropriate physical activity;*
- *That its changes in functional capacity are accurately reflected by changes in test scores.*

The joint committee's recommendations, consisting the fundamental components of health related fitness, were forwarded to the AAHPERD Board of Governors and in late summer, 1977, AAHPERD President, LeRoy Walker, appointed an AAHPERD Task Force on Youth Fitness. The Task Force was charged with following up on the joint committee's recommendations and achieving a revision of the Youth Fitness Test. Task Force members were Steven Blair, Harold B. Falls (Chair), B. Don Franks, Andrew S. Jackson, Michael L. Pollock, and Margaret J. Safrit, where Raymond A. Ciszek served as AAHPERD Staff Liaison.

However, the Task force was active for three years. Its work culminated in the publication of the Health Related Physical Fitness Test Manual in 1980. The AAHPERD Youth Fitness Test was not revised. Although the Task Force recommended that the Health Related Physical Fitness Test replace the Youth Fitness Test, the AAHPERD Board of Governors made a decision that the two tests would co-exist - at least for a limited evaluation period.

In fact, the responses to the Health Related Physical Fitness Test have varied since publication of the test manual in 1980. Even some national organizations have

been reluctant to accept the concept that health related physical fitness is of primary importance for citizens. On the other hand, other groups, many state level organisations, and numerous individuals have enthusiastically endorsed the new test and moved forward with its promotion and use. Illinois, for example, has developed an outstanding programme to provide workshops so that school personnel can learn about the concepts of health related fitness and the techniques of using the test. The test was included as one of the instructional modules in the 1982 by Post Cereals Forums on Youth Fitness. The University of Wisconsin, in a project by Margaret J. Safrit, has developed an instrument for evaluating the use of the test. The test has been adopted for use in the Boys Clubs of America Super-Fit All Stars programme.

The 1980 version of the AAHPERD Health Related Physical Fitness Test was not the final answer, nor was it purported to be. Early in its deliberations, the Task Force recognized the need for much additional research in this area. The concept of a technical manual to accompany the test manual was conceived in response to that perception. The Task Force realized that the mere act of publication of the new test would stimulate research. Indeed, various individuals and groups have undertaken a significant number of studies in the three ensuing years. However, more impetus was then felt necessary. The Task Force anticipates that publication of this Technical Manual would more clearly identify needed areas for research for the many investigators who might potentially conduct research on health related physical fitness.

In fact, publication of the Technical Manual represents a milestone of sorts. Physical fitness tests published in the past have not had an accompanying technical manual, even though provision of such information is considered by measurement specialists to be an important part of the total test development process. However, the test manual of Health Related Physical Fitness Test contains the following information:

- The rationale underlying the health related physical fitness approach;
- The rationale for selection of the items included in the test battery;
- Research support for reliability and validity of the test items;
- An explanation of the procedures utilized in obtaining the normative data; and

- An analysis of the effects of age, gender, height, and weight on performance of the test items.

AAHPERD, in fact, identified four factors viz., Cardiovascular efficiency, Abdominal Muscles Strength & Endurance, Flexibility and Body Fat% that represent one's health related fitness.

4.2.3 Dimensions of Human Values

Each human is governed by his own values. His personality, lifestyle and way of act depend upon his own inner value system. In fact, human value system can be imbibed in inculcating proper education. Value Education means inculcating in the children a sense of humanism, a deep concern for the well-being of others and the nation. Value Education has the capacity to transform a diseased mind into a very young fresh, innocent, healthy natural and attentive mind. Value Education in all its comprehensiveness involves developing sensitivity to values, an ability to choose the right values, interlining them, realizing them in one's life and living in accordance with them. Value inculcation can be done by directly, indirectly or incidentally. Direct value inculcation refers to deliberate systematic instruction gives during the time of formation. Indirect, value inculcation can be given through events and incidents related to good values occurring around us, thus relating value inculcation to concrete situations. Creativeness of the students is to be nurtured by cultivating a habit of concentration of mind on certain flashes of innovative idea or thought.

The main aim of value education is to shape the character of younger generation, who can prove themselves as the best citizen of the nation. Morality is equivalent to the principles used to make judgements about actions that have an impact on human life and welfare. The cognitive development approach makes an important distinction between the structure of moral reasoning and the content of moral thoughts. In 1971 Kohlberg pointed that moral development follows an invariant six stages in sequence. The six stages are organized into three levels: Level-I: Preconventional stage (Stage-1: Heteronomous morality, Stage-2: Individualism, instrumental purpose and exchange), Level-II: Conventional stage (Stage-3: Mutual interpersonal expectations, relationships and conformity and Stage-4: Social contract or utility and the individual rights) and Level - III : Post conventional or principles

(Stage-5: Social contract or utility and individual rights and Stage-6: Universal Ethical Principles).

Philosophers and educationists over the ages have identified goodness, truth and beauty as an ultimate value, which do not change fundamentally from generation to generation, society to society and culture to culture. The humane values viz., honesty, tolerance, justice, self-control, compassion, freedom etc enable man for self-control than other animal, so that he cultivates certain ideals, which are available in plenty in our rich cultural heritage. In Indian modern education, number of commissions and committees recommended character formation, religious education, and moral education. However, recent recommendation emphasizes on value-based education that covers various factors of environment and nation with reference to international understanding. When human values are inculcated through curriculum to transcend cognitive, conative and psychomotor level for conducive development of individual, social, national and international understanding, it is called value education.

Thus, value education is a process of education which involves working on the total personality of the individual keeping in view all aspects of personality development, the intellectual, social and emotional, will and character (Education in Values, N.C.E.R.T., 1992, pp.22-30).

Literature revealed many factors of human values. However, important dimensions of values have been recorded are Theoretical, Economical, Aesthetics, Social, Political and Religious values.

4.3 Evaluation of Yoga for Health, Health related Fitness & Value Education

4.3.1 Logical Evaluation of Yoga for promotion of Health

Medical interest in free radicals is very recent, but chemists have been studying them closely for about 50 years. Disease cannot be wished away. In recent two decades, scientific studies have shown that ageing – in a biological sense – is due to what are called *free radicals*. Not only do we ingest food that gives rise to them but also does our body produce them. They interfere with the body's basic metabolic

processes adversely. Free radicals are the by-product of many chemical reactions in the human body and need to be managed to protect the body from their ill effects. They are considered to contribute chiefly for many diseases in general and cancer in particular. The slew of free radical production is conventionally attributed to too much urbanization, pollution and junk food. A myriad of remedial measures was suggested in the form of modern medicine and naturopathy to neutralize the free radicals that are produced in the body. It is taken for granted that there is no way to avoid free radical production. However, the number and their consequent damage could be reduced.

Radioactivity and radiation existed long before the evolution of the life on the earth, excessive radiation exposure is no doubt, harmful and can cause genetic disorder, may even be fatal. Low-level radiation exposure did not show any observable effect on human body. Radioactive particles enter in the body through inhalation, ingestion, and injection. Man can receive radiation doses internally and externally. External radiation exposure can be reduced by conventional methods such as time, distance and shielding. Whereas internal exposure which is more hazardous to the human body, as the radioactive particle may get sequester in the organs. Biological and radiological processes govern the removal of radioactive particles. *Yogic kriyas* emphasize to accelerate elimination of the foreign particles sequestered in side the body. Yoga can be an effective measure to combat the effect of internal radiation exposures. In yoga various body internal cleansing *kriyas* can be effectively utilized for removal of inhaled /ingested radioactive particles. Further various *Asanas*, *Pranayama* etc can be practiced to improve body resistance, which indirectly reduce the fatality in case of excessive exposure.

After much research and reflection, Larry Dossey has reached the conclusion that around 1950, scientific medicine transcended the mechanistic approach of physical medicine and entered the era of mind-body medicine. The scientific basis of mind-body medicine resides in psychoneuroimmunology. There is now ample evidence to show that depression and despair impair the function of the immune system, while peace, love, hope and joy enhance immunocompetence. Yoga is of great relevance to mind-body medicine because of the way it looks at life. The *Yogic* view of life is the best prescription even written for lasting peace and joy, which are independent of external events and circumstances. The salubrious psychological

effects of yoga reduce the possibility of illness. However, if illness does occur, the same psychological effects assist self-healing and relieve symptoms. If even that fails, as it sometimes must, yoga guarantees that even when afflicted with an incurable or painful disease, the person is not miserable. Concepts of mind-body medicine are being used effectively in the Integral Health Clinic (IHC) of All India Institute of Medical Sciences. IHC uses yoga as the foundation of psychospiritual transformation required for using the powers of the mind to heal the body. Yoga has now become an integral part of scientific medicine. Mankind has everything to gain from this creative synthesis of the old and the new.

Emotion is a motive power which helps in evolution. In *Yogic* terminology, emotion is a *Rajas guna of Prakriti* which exists in everyone. Excitement or upsurge of emotion is responsible for many types of disease. Psychophysiologically, emotions act upon our body through hypothalamus which controls ANS and the endocrine systems. Negative emotions like anger, fear, greed, jealousy give rise to somatic illness where on the other hand positive emotions like love, compassion, friendship, affection etc. give the strength to combat the stress. Illness due to negative emotions includes hyper acidity, hypertension, insomnia, menstrual disturbances, loss of appetite etc.

Maharshi Patanjali says *Duhkha* (emotional disturbance) leads to ill-health and the cause of such *Duhkha* is *Samyoga* (PYS-II:17 i.e., *drastu=drsyayoh samyogo heya-hetuh*). *Samyoga* signifies the union of *Purusha* and *Prakriti*, which causes *Duhkha*. This linkage is according to the basic concept of *Samkhya-yoga*, not actual but is only an illusion or misconception. Obviously *Duhkha* occurs in its two forms viz., physical pain that can be on the body level and sorrow or mental pain which can be on mental level. But body and mind-*Chitta* both are *Prakritika*. So if the *Purusha-tattva* does not become linked with *Prakriti* at all, both and *Chitta* are also not linked with it any way. But the meaning of *Samyoga* has been interpreted differently in PYS-II:23 “*sva-svami-saktyoh sva-rupopalabdhi-hetuh Samyoga*”, which states that the purpose of *Samyoga* is the regainment of the awareness (by *Purusha*) of its nature and the unfoldment of powers in them both (*Purusha* and *Prakriti*). Thus, *Samyoga*, which is the cause of *Duhkha* (PYS-II:17), is here being looked upon most optimistically as a thing which can lead to *kaivalya* (i.e., *svarupa-pratistha*), which gives absolute liberation from suffering and absolute health is retained.

Patanjali also explains that one can achieve good health, if all the impurities (physical and mental) are removed (PYS-II:28: *yoganganusthanad-asuddhi-ksaye jnanadiptir-a-viveka-khyati*). In fact, *suddhi* (cleansing impurities) is possible through repeated daily *anusthana* (routine) of the limbs of the body. After discussing the basic philosophico-metaphysical background of *Samkhyayoga*, of which the understanding is necessary as pre-requisite for an efficient and successful practice of *yogangas*, *Patanjali* in this sutra opens the discussion of the systematic practical path of *astangayoga*.

Patanjali suggests regular practice of *astangayoga* through his sutra PYS-I:29 (“*yama-Niyamasana-pranayama-pratyahara-dharana-Dhyana-samadhayo*”). Thus, *Patanjali*’s practical system is divided into eight sections called limbs, which are ***Yamas*** (*ahimsa, satya, asteya, brahmacharya, and aparigraha*), ***Niyamas*** (*saucha, santosha, tapas, swadhyana, and isvarpranidhana*), ***asana, pranayama, pratyahara, dharana, Dhyana and samadhi***. It must be noted that although principles of practice of *Asanas* and *pranayamas* of *Hathayoga* and *Patanjala Yoga* are different, however, they are popularly practiced without considering the differences. Further, *Hathayoga* does not seem to give much importance to *yama-niyama* and so does not give any instruction or commandment for their observance. Out of the three most authentic texts of *Hathayoga* viz., *Hathapradipika*, *Gheranda Samhita* and *Siva Samhita*, the latter two also do not contain even the words *yama* or *niyama*. Although in *Hathapradipika* the word *yama* occurs only once (HP-I:38) and *niyama* only twice (HP-I:15 & 38), but the mention is just incidental.

Hathapradipika, in fact, does not belittles ***Yamas and Niyamas***, but declined to practice *yama* and *niyama*. This text clearly states the sequence of yoga practices from *Asanas*, various types of *kumbhakas* (=pranayama), *mudras* and *nadanusandhana* (HP-I:56). It also affirms that *asana* is the first anga of *Hathayoga* (HP-I:17).

Patanjali’s concept of the practice of ***asana*** is stable and comfortable (PYS-II:46: *sthira-sukham-asana*) considering some psycho-physical effort in such a way so that it ultimately leads towards infinite relaxation with merger of mind (PYS-II:47: *prayatna-saithilyananta-samapattibhyam*) in disappearing mental conflicts (PYS-II:48: *tatodvandvanabhighatah*). Really *Hathayogic Asanas* are not at all the thing, which

Patanjali had in his mind. In fact, *Hathayogic Asanas* would not be as relaxed and steady as would be desirable for further meditative practices. Thus, *Patanjali* did not mention name of any *asana*, but according to him *asana* can be only sitting posture with endless relaxation (*saithilyaananta*), having the characteristics described by *Bhagwadgita* also (BG-VI:11-13). No doubt, the *Hathayogic Asanas* helpful for meditation viz., *Padma* (lotus), *siddha* (perfect), *svastika* (benevolent), *sama* (equilibrated), *bhadra* (auspicious), *vajra* (adamantine) etc. Further, if *Hathayogasanas* are performed considering *Patanjali's* principle, the idle *Yogic* way, they will also lead to such an effect.

While being in such stage of *asana*, as mentioned above, voluntary pause of breathing (i.e., *kumbhaka*) is known as *pranayama* (PYS-II:49: *tasmin-sati svasa-prasvasa-yor-gati-vicchedah pranayama*). *Patanjali* stressed that *pranayama* should be practiced while sitting in *asana* only. Whereas *Hathayoga* does not seem to have this kind of obligatory relationship between its *asana* and *pranayama* (e.g., *Ujjayi* in HP-II:53 could be practiced while walking and standing). *Patanjali* does not subscribe to such a view. Thus, the consideration of the principle and the whole process of *pranayama*, as recommended in yoga traditions, show that one aim of the whole training of *pranayama* is to condition the respiratory control center to bear comfortably the highest possible concentrations of CO₂. If this principle is recognized, then it can be clearly understood that even when any one of the phases of breathing i.e., either inhalation or exhalation or both are made slow, there will be increased exchange of gases between the blood and lungs and the CO₂ concentration in the lungs would be higher than in the normal breathing. Obviously this concentration will be higher, the slower are the respiratory phases. The respiratory control centers will, therefore, be conditioned to tolerate concentrations higher than in normal breathing. Thus, the slow inspiration and still better, slow expiration would serve the same purpose as a *kumbhaka*, though to a lesser degree. However, the mechanism of *Kapalabhati* and *Bhastrika pranayama* in *Hathayogic* tradition is an exception. *Kapalabhati* and *Bhastrika* do not lead to any significant increase in the O₂ absorption or in CO₂ elimination, above those in normal resting state. Even both the absorption and elimination are slightly lower than in normal resting state. *Patanjali* described 4 varieties of *pranayama* (depending upon the prolonged nature of antara and bahya *kumbhaka*), whereas *Hathayoga* suggests 8 varieties of *kumbhaka* (HP-II:44: *suryabhedanamujjayi sitkari sitali*

tatha Bhastrika bhramari murccha plavinityastakumbhakah) viz., *Suryabhedana, Ujjayi, Sitkari, Sitali, Bhastrika, Bhramari, Murccha and Plavini*. In these, after end of complete inhalation one should adopt the *bandha* called *Jalandhara* (the chin-lock). *Uddiyana* should be performed at the end of *kumbhaka* as *rechaka* begins.

Pratyahara is the fifth anga of *astangayoga* and as per PYS-III:7, it is the last anga of the *Bahiranga* (extoric) yoga. It means “withdrawal of the senses inward towards their source viz., the mind and ultimately the *Chitta*” (PYS-II:54: *sva-visayasamprayoge citta-svarupanukara invendriyanam pratyaharah*).

Dharana is confining of *Chitta* on a spot within a limited conceptual sphere.

In the process of *Dharana*, a continuous attachment on the experience of one single subject is *Dhyana* (PYS-III:2: *tatra pratyayaika-tanata dhyanam*).

Further *Dhyana* itself is transformed into *Samadhi* when the subject is devoid of its original form (PYS-III:3: *tad-avartha-matra-nirbhasam sva-rupa-sunyam-iva samadhi*). According *Patanjali*, the three (i.e., *dharana, dhyana* and *samadhi*) at one spot (i.e., on one subject) together is called *Samayama*.

In fact, Yoga is a scientific system which brings harmony in body and mind. It is very rational and scientific method by which a state of equilibrium in mind and body is achieved. Self-perfection or state of divinity is yoga. The *Yogic* concept refers to the working of body and mind for a homeostatic mechanism, which contributes to a balanced integrated functioning in both external and internal stimulants. The psychological blocks, such as stress, tension, lack of attitude, motivation etc., are factors of internal imbalances and are not due to any external factors. The primary concern of yoga is to identify the elements causing ill health. Appropriate techniques i.e. *Asanas, Pranayama, Mudras* and *Bandhas* meet the specific health problems such as asthma, arthritics, back pain etc. Yoga is both preventive and curative. If *Yogic* principles and techniques are used in proper way all types of ailments can be cured. This *Yogic* system is *Yogapathy*. Yoga being both static and dynamic exercises which improve the cardio-vascular efficiency in a healthy person as well as in a sick person. *Pranayama* is the function of the pranic energy, where mind and prana are interdependent. The flow of pranic energy through the *nadis* is responsible for health and vitality of the physical body. *Yogic* techniques are also designed for the child and

for pregnant women, to enhance the natural development of children with special needs. Yoga therapy emphasizes on cultivation of correct psychophysiological functions.

Indicating therapeutic effects of individual yoga practice by specifying particular disease in terms of *Vata, Pitta and Kaphas* as well as physiological benefits, *Hathayoga* throws some of the highlights–

1. There is a mention of 42 diseases and 84 *Asanas*.
2. When *vayu* remains accumulated in the region of phlegm, diseases like cardiac asthma, hiccup (bronchial) asthma and headache develop because of a disturbance of the humours.
3. *Kriyas* have been given highest therapeutic value.
4. Texts have ascribed more therapeutic value to *Pranayama* in comparison to *Asanas*.
5. Proper functioning of Jatharagni (gastric fire) has also been given importance.

Yogic exercises, though effective against all the imbalanced humors, but *Vata* humor can be very effectively tackled through *Yogic* practices.

4.3.2 Logical Evaluation of Yoga for promotion of Health related Fitness

Ageing is a natural process. Although old age is inevitable, it could be made bearable and pleasurable. Ageing changes are of physical, psycho-physiological and biochemical nature. In ageing all aerobic organisms are exposed to oxidative stress and gradually the functioning abilities of almost all organs are reduced. This in fact leads to reduce one's immunity power and as a result overall health related fitness declines. Although declined state of ageing related health and fitness is considered as natural process, and since body does not permit for vigorous activities, one can think of yoga - a healthy lifestyle. The claims of traditional Yoga texts and supportive research evidences indicate that Yoga is a powerful way of life not only to improve one's health related fitness but also show path to live healthy in delaying old age.

Health Related Fitness is that fitness that has direct relation with one's health and it considers four major factors viz., Cardiovascular efficiency, Abdominal Muscles Strength & Endurance, Flexibility and Body Fat%.

Some scientific researches revealed that yoga has direct contribution in enhancing one's **cardiovascular efficiency** (Ganguly, 1981; Ganguly & Gharote, 1974). In fact, in topsy-turvy *Asanas* e.g., *Sarvangasana*, *Shirshasana*, *Viparitakarani* etc., our heart works against gravity to pump blood to carry nutrient and oxygen at the distant part of our body. Therefore, cardiac muscles become strong and healthy, which enhances stroke volume and ultimately the cardiac output. Moreover, yoga relaxative postures open up the micro-circulation that brings out impure blood from the cardiac muscles along with quick venous return that keeps the cardiac muscles healthy and ultimately enhances the overall cardiovascular efficiency.

Yoga research indicates that yoga practices have direct contribution to enrich **flexibility** level (Ganguly & Bhole, 1985; Joshi, 1990; Moorthy, 1982; Mosses, 1973). Some reports revealed that Yoga is comparatively better than exercises in improving flexibility level (Moorthy, 1982). In fact, one's flexibility level depends upon the range of motion around the joints, which has direct relationship with musculo-skeletal functions. Better musculo-skeletal function contributes enhanced flexibility. Physiological interpretation of flexibility is somewhat different, which indicates that brain secretes β -morphine in blood for releasing cholin esterase in the neuromuscular junction and in turn helping for better functioning of muscles around joints. Thus, brain activities have direct relation with one's flexibility. Perhaps yoga influences the brain functions that in turn enhance flexibility level.

Contribution of yoga towards improvement of **abdominal muscles strength and endurance** has some logical as well as scientific base. If we consider the nature of *yogasanas*, we find that most of them function through our spine and abdomen. Obviously, *yogasanas* improve elasticity of spine and functional ability of abdominal muscles. Many research reports are in agreement with such justification and revealed that yoga helps to improve one's abdominal muscles strength and endurance (Ganguly, Bera, & Gharote, 2003; Gharote, 1973; Gharote & Ganguly, 1975; Moorthy, 1983). Thus, it is clear that yoga contributes towards enhancement of abdominal muscle strength and endurance.

Obesity (excessive body fat) is the most common metabolic disorder in infants, children and adults in affluent societies. The importance of obesity requires

constant emphasis, not only because of its relation to morbidity and mortality, but also because of numerous complications it creates to common and potentially serious conditions such as Diabetes Mellitus, Coronary Heart Disease (CHD), Essential Hypertension etc. Many investigators (Ghala, 1997; George, Thorn, & Chhill, 1977; Simon & Johns, 1984) have revealed that-

- Fractures and severe limb injuries are much more common in the obese. It reduces the efficiency of those affected;
- Obesity is frequently associated with emotional and other psychological disturbances.
- Women are more prone to obesity than men. Use of oral contraceptive pills is also important factor noticed in causing obesity in women.
- Amongst executive people, chronic alcohol ingestion and lack of physical activity is the predominant cause.
- Familial / inherited tendencies towards food and behaviour are a cause and the excuse both, for the obesity.
- Lesions in the brain involving the hypothalamus may lead to obesity as the satiety centre in the ventro-medial nucleus of hypothalamus and feeding centre in the lateral hypothalamus area regulate the food intake. Here, derangement of the appetite controlling mechanisms may lead to obesity.

Obesity, in fact, is an excessive percentage of **body fat** (% fat) that is associated with increased risk for development of various health hazards e.g., hypertension, coronary heart disease, diabetes, and other chronic diseases. In addition, obesity often carries a negative social stigma that affects health and often reduces one's physical working capacity. Many participants in preventive and rehabilitative exercise programmes are found excessively fat. More specifically, Yoga training helps to control excessive levels of body fat and body weight (Dange, 1974; Divekar & Bhat, 1978; Gharote, 1977). In a recent study, Bera (2003)²⁰ reported that yoga is beneficial in reduction of excessive body fat not only for student population, but also for adults and old age people. In fact, yoga along with its stress releasing

²⁰ T.K. Bera, "Role yoga in obesity." A Report, Central Council for Research in Yoga & Naturopathy, Ministry of Health, Govt. of India, New Delhi, 2003.

mechanism, it gives gentle massage to all the organs of our body in such a way so that bodily organs regain energy to function better. Thus, functional activity of physiological organs enhances by yoga. Moreover, yoga brings the dietary management, which in turn controls excessive energy from food. Such mechanism might have been helping for reduction of excessive body fat and related health hazards.

The above literature and discussion help to interpret that yoga contributes to improve one's level of cardiovascular efficiency, flexibility, abdominal muscles strength and endurance and controls excessive body fat. Thus, yoga contributes overall level of health related fitness.

Traditional texts also claims that yoga purifies all cosmic (neural path) and physiological channels (blood vessels), which in turn helps to improve overall functional ability of one's body and the functioning efficiency of one's heart also:

Evamasanabandhesu yogindro vigatasramah !

Abhyasennadikasuddhim mudradipavanakriyam !! HP-I:55

(Yoga practitioner should practice purification of *nadis* for health benefits).

The text also suggests that only yoga practices have no impact on body and mind until we go for dietary management (*mitahara*). In fact, a yoga practitioner must intake *Yogic* diet along with regular yoga practice. Some principles of *Yogic* diet have been presented through some *shlokas*:

Bhojanamahitam vidyat punarapyusnikrtam ruksam !

Atukavabanankatyjtam kadAsanasakotkatam varjyam !! HP-I:60

(Food heater over again, dry, is excessively salty or sour, bad food, and food with excess of vegetable is to be avoided).

Varjayeddurjanaprantam vahnistripathisevanam !

Pratahsnanopavasadi kayaklesavidhim tatha !! HP-I:61 (Goraksha)

(wicked localities, fire, company of women, long journey, bathing early in the morning fasting are to be avoided).

Yuva vriddhotvrdho vavyadhito durbalopi va !

Abhyasat siddhimapnoti sarvayoges vatandritah !! HP-I:64

(He who untiringly practices yoga in all its aspects attains success even if he is young, old decrepit, diseased or weak).

HP also indicates, while eating, one should fill $\frac{1}{2}$ of stomach with solid food, $\frac{1}{4}$ with liquid or water and remaining $\frac{1}{4}$ is kept free for air.

Thus, regular practice of yoga helps to enrich one's health related physical fitness.

4.3.3 Logical Evaluation of Yoga for inculcating Human Values

Yoga is a way of life, an integrated system of education for the body, mind and inner spirit. The main aim of yoga is to remove ignorance and to achieve wisdom. It should be noted that practice of yoga not only helps in improving one's health but is also necessary for one's general progress. Yoga helps in concentration and introspection. Thus for inculcation of different values yoga education is necessary.

Patanjali enumerates eight limbs or stages at Yoga. Among eight limbs of yoga, the first of these is *yama*. Ethical disciplines - *ahimsa*, *satya*, *asteya*, *brahmacharya* and *aparigraha* are the rules of morality for society and the individual, which if not obeyed bring chaos, violence, untruth, stealing, dissipation and covetousness. The roots of these evils are the emotions of greed, desire, attachment, which may be mild, medium or excessive. They only bring pain and ignorance. *Patanjali* strikes at the root of these evils by changing the direction of one's thinking along the five principles of *Yama*. A yogi can achieve all the six stages of moral development which was described by Kohlberg. And the stage of Yogi is much above the sixth stage or moral development which is described here.

The Indian culture is deeply rooted in spiritual and ethical values, unless these values find their way into the life of students, education will lose its significance and will not fulfill its aim. Though we have made progress in knowledge but still we are not above the levels of our past generations in ethical and spiritual life. In some, we have declined from their standards. Today we have been successful in making professionals but not the human beings. The human values are being looked upon due to which the world is facing terrorism, tension, diversities, self-centered vision and violence. The time has come to introspect the very meaning of quality education.

Through education we can impart Personal, Social, Moral, Spiritual, Environmental and Work values. At our level we can see that students should not only be intellectually competent and technically skilled but also civilized in their emotions and refined in their purposes. Thus,

1. Yoga performs methodized efforts by which value would spontaneously grow and manifest.
2. Yoga gives the knowledge of values and methods of embodying values.
3. Educational Methodology seems to point to the need of a *Yogic* orientation in education.
4. Yoga provides the path to achieve greater perfection of the body, life and mind.
5. All disciplines of knowledge can made the vehicles of *Yogic* knowledge.
6. A complete *Yogic* education is a life long process. The secret of this process is a constant aspiration for progress perfection and self-development.
7. *Yogic* research takes us to a deeper perception and discovers the real power of healing our conflicts and integrating the fullness of all personalities.

Literature revealed many factors of human values. However, important dimensions of values have been recorded are Theoretical, Economical, Aesthetics, Social, Political and Religious values. Literature suggested some Yoga practices to enrich the values are –

- Reading holy books e.g., Puranas, Vedas, Bhagwatgita, Koranas, Bible etc. and implementing the principles in day to day life.
- Observing *Yamas & Niyamas* in social life.
- Listening religious songs, music, prayers etc.
- Attending religious lectures, spiritual activities, collective prayers etc.
- Practicing Omkar recitation, *Dhyana* etc.

4.4 Results on Yoga Modules

As stated earlier - Checklist has been prepared according to information available in the Indian Traditional Texts. The checklist was duly filled on the basis of review and then analyzed logically and critically. The results revealed a significant role of Yoga to promote one's health care.

Literature suggested some Yoga practices to attain health are –

Asanas:

Sarvangasana, Matsyasana, Halasana, Bhujangasana, Dhanurasana, Paschimottanasana, Ardha-Matsyendrasana, Supta-Vajrasana, Mayurasana (to be avoided for women), Parvatasana, Yoga mudra.

Pranayamas:

Ujjayi, Anuloma-Viloma, Bhastrika.

Bandhas, Mudras & Kriyas:

Uddiyana, Brahma Mudra, Kapalabhati, Vamana Dhauti, Jala Neti.

Other Practices:

Shavasana, Omkar recitation, Dhyana, Participation in religious functions, strictly following Yamas and Niyamas.

The modules of yoga as suggested by the Traditional Texts for treatment of some of the major psychosomatic disorders and for promotion of health related fitness and values have been presented as follows:

4.4.1 Yoga Modules to Promote Psychosomatic Health Care

Maharshi Patanjali, in his classical yoga *sutras*, clearly indicates that the root cause of almost all the psychosomatic disorders is mental and maintenance of good health is possible if the mental causes are eradicated from the root. *Patanjali* suggested some yoga techniques in favour of eradicating the root causes of illness. The yoga techniques useful for good health have been explained through the following *sutras*:

PYS-I:29 “*yama-Niyamasana-pranayama-pratyahara-dharana-dhyana-samadhayo.*”

PYS-II:17 “*drastu=drsyayoh samyogo heya-hetuh.*” PYS-II:23

“*sva-svami-saktyoh sva-rupopalabdhi-hetuh Samyoga.*”

PYS-II:28: “*yoganganusthanad-asuddhi-ksaye jnanadiptir-a-viveka-khyati.*”

PYS-II:46: “*sthira-sukham-asana.*”

PYS-II:47: “*prayatna-saithilyananta-samapattibhyam.*”

PYS-II:48: “*tatodvandvanabhigatah.*”

PYS-II:49: “*tasmin-sati svasa-prasvasa-yor-gati-vicchedah pranayama.*”

PYS-II:54: “*sva-visayasamprayoge citta-svarupanukara invendriyanam
pratyaharah.*”

PYS-III:2: “*tatra pratyayaika-tanata dhyanam.*”

PYS-III:3: “*tad-avartha-matra-nirbhasam sva-rupa-sunyam-iva samadhi.*”

PYS-III:7: “*trayam-antrangam purvebhyah.*”

The holy book “*Bhagwadgita,*” through its *shloka* “BG-VI:11-13” also supports the view of *Maharshi Patanjali* in favour of maintaining good health.

Hathayogic text viz., *Hathayoga Pradipika* supports the similar principles of Yoga to maintain good health, however, the path is different. The supportive *sutras* of *Hatha Pradipika* are as follows:

HP-I:15 *atyaharah prayasasca prajalpo niyamagrahah !
Janasangasca laulyam ca sadbhiryogo vinasyati !!*

HP-I:17 *hathasya prathamangatvadasanam purvamaucyate !
Kuryattadasanam sthairyamalogyam cangalaghavam !!*

HP-I:38 *yamesviva mitahara ahimsa niyamesviva !
Mukhyam sarvasanesvekam siddhah siddhasanam viduh !!*

HP-I:56 *brahmacari mitahari tyag yogaparayanah !
Abdadtirdhvam bhavet siddho natra karya vicarana !!*

HP-II:44 *suryabhedanamUjjayi sitkari sitali tatha !
Bhastrika bhramari murccha plavinityastakumbhakah !!*

HP.II:53 *sitkam kuryattatha vaktre ghranenaiva vijrmbhikam !*

Evamabhyasayogena kamadevo dvitivyakah !!

Hathayoga by *Svatmarama* in its vth chapter discussed prevention and cure of many disorders:

HP.V:2 *vayorurdhvam poravrttasya gatim jnatva prayatnatah !*
Kuryaccikitsam dosasya drutam yogi vicaksanah !!

(Noticing – a morbidity in the course of Vayu moving upward, the alert yogi should treat the disease immediately).

HP.V:5 *pramadadyogino vayurunmargena pravartitah !*
Tada margamanasadya granthibhutvavatisthate !
Tada nanavidha rogaroga jayante vighnakarakah !!

(By an error of the yogi the vayu goes astray and not finding its way forward, accumulates at one spot. Then develop several types of diseases which create obstacles in the path of yoga).

HP.V:10 *ekacittena taddhyatva purayet purakena tu !*
Nihsesarecakam kuryat yathasaktya prayatnatah !!

(With concentrated mind, one should meditate upon vayu and should fill the lungs by inhaling. Then a complete exhalation should be effortfully performed according to one's capacity).

HP.V:11 *bahudha recakam krtva purayitva punah punah !*
Jarsatet orajstgutan vatyn jarbatitanuvambuna !!

(After making repeated exhalations and inhaling again and again, one should pull out the previously abiding vayu as water remaining in the ear is pulled out by pouring more water).

HP.V:12 *kaphakosthe yada vayurgranthibhutvavatisthate !*
Hrtkasahikkaasvasasirahsuladayo rujah !
Jayante dhatuvaisamyattada kuryat pratikriyam !!

(When vayu remains accumulated in the region of phlegm, diseases like cardiac asthma, bronchial asthma and headache develop because of a disturbance of the humours).

Like wise, in this Vth Chapter of *Hatha Pradipika* (H.P.), there are total 25 *shlokas* (*sutras*) fully devoted to therapeutical aspects in implementing yoga techniques.

Thus, both the yoga texts, mentioned above, revealed the importance of yoga on human health.

In fact, impact of yoga varies from individual to individual, a generalized schedule of yoga practices may not provide accurate health cure, however, to begin with some generalized yoga practices may be practiced, which may add some health-benefits.

In this regard, review of above and other literature indicates the following yoga practices as a basic treatment stimulus for some selected psychosomatic disorders as follows:

a) Yoga Modules for Diabetes Mellitus

Morning (1hr.): *Utkshepa Mudra, Pavana Muktasana, Karmasana, Janushirasana, Agnisara Kriya, Uddiyana Bandha, Kapalabhati, Brahma Mudra, Chandrabhedan Pranayama, Om recitation.*

Evening (1hr.): *Sarvangasana / Viparita Karani, Matsyasana, Halasana, Bhujangasana, Yoga Mudra, Ardha Matsyendrasana, Paschimottanasana, Bhastrika Pranayama, Om recitation, Dhyana.*

Exercise (1hr.): 3-5 Km walking (slow to medium intensity), jogging in between and jumping jack are suggested. Running (fast) is prohibited.

Diet: Vegetarian and nutritious food (e.g., peanut), fruits especially ripe bananas, vegetable (like *patol, okra, dhundula, palta* etc. having alkaline properties), plantain soup, lemon juice etc. are suggested. Non-vegetarian food is strictly prohibited.

Precaution: Consult diabetologist. One can practice the above along with medicine; the physician should adjust dosages of medicine gradually.

b) Yoga Modules for Hypertension

Morning (1hr.): *Yoga mudra, Pavana Muktasana, Padahastanasana, Brahma Mudra, Chandrabhedan Pranayama (without kumbhaka), Crocodile postures, Om recitation, Dhyana.*

Evening (1hr.): *Shavasana Relaxation, Parvatasana, Chin & Chinmaya Mudra, Ardha Halasana, Yoga Mudra, Niralambasana, Padahastasana, Chandrabhedan Pranayama (without kumbhaka), Om recitation, Dhyana.*

Exercise (1hr.): 1-2 Km walking (slow to medium intensity) as suggested by cardiologist.

Diet: Very small quantity, but several times. Vegetarian and nutritious food, alkaline fruits, curd water, little boiled rice, leafy vegetable (easily digestible, non-constipating) etc. are suggested. Non-vegetarian food is strictly prohibited. Maintain breath flow through right nostril before and after meal.

Precaution: Consult cardiologist. One can practice the above along with medicine; the physician should adjust dosages of medicine gradually. Don't drink too much of water, don't eat full stomach and don't add salt in food. Avoid over-working of heart, late night sleep (go to bed: 8:00-8:30 p.m.) and dinner invitations.

c) Yoga Modules for Asthma

Morning (1hr.): *Shavasana Relaxation, Sarvangasana / Viparita Karani, Matsyasana, Pavana Muktasana, Dhanurasana, Yoga mudra, Ushtrasana, Kapalabhati, Brahma Mudra, Suryabhedan Pranayama (with kumbhaka), Crocodile postures, Om recitation, Dhyana. Kriyas (Danda dhauti, Vastra dhauti, & Neti) suggested once in a week.*

Evening (1hr.): *Shavasana Relaxation, Sarvangasana / Viparita Karani, Matsyasana, Pavana Muktasana, Dhanurasana, Parvatasana, Chin & Chinmaya Mudra, Niralambasana, Suryabhedan Pranayama (with kumbhaka), Crocodile postures, Om recitation, Dhyana.*

Exercise (1hr.): 3-5 Km walking (slow to medium intensity) as suggested by physician. After dinner walk a mile.

Diet: Very small quantity, but several times and finish dinner during 7:30-8:00 p.m., and never completely fill the stomach. Milk should be the main drink. Vegetarian and nutritious food, alkaline fruits, little boiled rice / chapati, curd water, leafy vegetable (easily digestible, non-constipating) etc. are suggested. Non-vegetarian food is strictly prohibited. Maintain breath flow through right nostril before and after meal.

Precaution: Consult physician. One can practice the above along with medicine; the physician should adjust dosages of medicine gradually. Don't eat full stomach. Avoid tea, sweet, fried foods, late night sleep and dinner invitations.

4.4.2 Yoga Modules (Age-wise) to Promote Health related Fitness

The dimension-wise interpretation indicates that health related fitness has four major components viz., cardiovascular efficiency, abdominal muscle strength and endurance, flexibility and body fat%.

Following literature revealed that Yoga has immense application to prevent and maintain one's level of health related fitness.^{21,22}

Gharote²³ tested efficacy of selected *Yogic* exercises and he found that they helped to increase the physical fitness index as derived from the Fleishman Battery of basic fitness test. The significant improvement was seen in extent flexibility, dynamic flexibility, soft ball, cable jump, pull ups, 600 yards run after the *Yogic* practice of the end of three weeks. The losing group showed significant reduction in all skinfolds included in this study.

Joshi,²⁴ studied on the effects of selected *Yogic Asanas* on flexibility of school girls. After the programme of 6 weeks of *Yogic* exercises he found a significant improvement in the flexibility of girls.

Gharote²⁵ also studied the effect of *Yogic* training on physical fitness such as speed, flexibility, strength, endurance etc. in an isolated manner. He used Fleishmen Battery of basic fitness test and tried to evaluate the effects of short term *Yogic* training on the adult males and females. Though general physical fitness index was seen to improve significantly all the test items of the battery could not be improved in this study.

Gharote²⁶ determined the effect of *Yogic* exercises on the strength and endurance of the abdominal muscles of the female. He reported a significant improvement in strength and endurance of the abdominal muscles of the females as a result of the systematic schedule of *Yogic* exercises. Most of his studies evaluated the effects of *Yogic* training having same set of *Yogic* exercises.

²¹ S.K. Ganguly, T.K. Bera, & M.L. Gharote, "Yoga in relation to health related physical Fitness and academic achievement of school boys." *Yoga-Mimamsa*, 34, 3&4, 188-213, Oct. 2002 & Jan.2003.

²² S.K. Ganguly, T.K. Bera, & M.L. Gharote, "Effect of long term yoga training on academic achievement of school boys." *Yoga-Mimamsa*, 34, 2,107-115, July 2002.

²³ M.L. Gharote, "Physical fitness in relation to the practice of selected *Yogic* exercises", *Yoga Mimamsa*, 1976, p. 14,23.

²⁴ N.Joshi, "Effect of selected *Yogic Asanas* on flexibility of school girl ", Masters' Thesis, Hanuman Vyayam Prasarak Mandal, Amaravati University, 1990.

²⁵ M.L. Gharote, "Effect of *Yogic* training on physical fitness," *Yoga Mimamsa*, 1973, p. 31-35.

²⁶ M.L. Gharote, "Effect of *Yogic* exercises on the strength and endurance of the abdominal muscles of the female," *Vyayam-Vidnyam*, 4:1:11-13, 1970.

Gharote and Ganguly,²⁷ evaluated the effects of nine weeks *Yogic* training programme on some aspects of physical fitness of physically conditioned young males. After *Yogic* training they proved significant improvement in the physical fitness test. Significant gain in extent flexibility and estimated body fat percentage was also observed.

Bera and Rajapurkar²⁸ studied 40 male high school student age 12-15 years in relation to their body composition, cardiovascular endurance and anaerobic process. The subject were placed into two groups viz. Yoga group and control group. Body composition, cardiovascular endurance, anaerobic power were measured using standard method. The duration of experimental was one year. The result of ANCOVA revealed that a significant improvement in ideal body weight, body density, cardiovascular endurance and anaerobic power was observed as a result of Yoga training. This study could not show significant changes in body fat (midaxillary), skeletal diameter and most of the body circumferences. It was evident that some of the fat folds (triceps, subscapular supriliac, umbilicus, thigh and calf) and body circumference (waist umbilical and trip) were reduced significantly.

Kulkarni and Datar,²⁹ studied the effect of Yoga (*Asanas* and *Pranayama*) in cardiac efficiency at randomly selected subjects of age group 16 to 24 years. The group consist of 48 male and 15 female of the age group 16 to 24 years. Their cardiac efficiency was tested before and after *Yogic* training. 10 males and 10 females acted as control. The experimental subject underwent *Yogasana* and *Pranayama* training for 21 days. Training included 60 minute/ day. The *Asanas* considered were *Chakrasana*, *Padahastasana*, *Trikonasana*, *Konasana* *Paschimottanasana*, *Ushtrasana*, *Yogamudra*, *Suptavajrasana* *Sarvangasana*, *Matsyasana*, whereas the *pranayamas* and other practices were *Kapalabhati*, *Bhastrika*, *Suryabhedana*, *Nadisuddhi*, *Ujjayi*, *Bhramari*, *Omkar*. It was concluded that practice could improve the cardiac efficiency of the subjects and enhanced physical fitness adding to healthy long life which is the need of modern time.

According to Moorthy,³⁰ *Yogic* exercises programmes help to retain their effects for a longer period of time and hence are more advantageous than non-*Yogic* exercises for boys and girls.

²⁷ M.L. Gharote and S.K. Ganguly, "Effect of nine weeks *Yogic* training programme on some aspects of physical fitness of physically conditioned young males," *Yoga Mimamsa*, 18:3-4:10, 1975.

²⁸ T.K. Bera and M.V. Rajapurkar, "Body composition cardiovascular endurance and anaerobic power of *Yogic* practitioner", *Indian Journal Physiology & Pharmacology*, 37:225-228, 1993.

²⁹ Kulkarni and Datar, "The effect of yoga on cardiac efficiency in randomly selected subjects of age groups 16 to 24 years," *Yoga Mimamsa*, 32:8,1997.

³⁰ A.M. Moorthy, "Detraining effects of *Yogic* and non-*Yogic* exercises minimum muscular fitness," *Yoga Mimamsa*, 1983, pp.49-54.

Saha and Bhole³¹ evaluated the effect of three weeks *Yogic* training programme on psychomotor performance and concluded that *Yogic* training programmes increased performances involving speed and accuracy.

Mosses,³² showed the effects of yoga on flexibility and respiratory measures such as vital capacity and breath holding time. He proved that yoga schedule also made greater improvements than non-yoga group in hip, trunk, flexibility in three of ten variation of breath holding and vital capacity. The result of the attitude questionnaire interprets that yoga student had better attitude about the benefits of yoga than the non-yoga students. The results as compared with the control group revealed no significance difference between the groups in the changes of ankle flexibility after full normal inhalation.

Prasad,³³ had given scholarly introduction to yoga in his doctorate thesis and evaluated the yoga system of the physical education on the basis of experts rating and concluded that *Asanas* make good contribution to flexibility, balance, endurance and only slight contribution to strength factor. He emphasised the inclusion of yoga physical culture in physical education programme.

Ganguly³⁴ studied daily one hour training in *Yogic* physical culture for 3 weeks as per N.F.C. Programme. The result revealed that this programme was effective significantly in improving cardiovascular endurance as measured by Harvard Step Test.

Gharote³⁵ studied the effect of *Yogic* training on physical fitness. He found significant increase in fitness index among 17 males and 12 females. This result was observed at the end of three weeks training programme in selected *Yogic* exercises. The physical fitness index was measured with the help of Fleishman Basic Fitness Test.

³¹ R.H. Shah and M.V. Bhole, "Effect of three weeks *Yogic* training programme on psychomotor performance," *Yoga Mimamsa*, 1983, p.59.

³² O.R. Mosses, "Effect of yoga on flexibility and respiratory measures of vital capacity and breath holding time," *Completed Research In Health Physical Education And Recreations*, 1973.

³³ R.L. Prasad, "An evaluation of the yoga system of the physical education," *Completed Ph.D. Thesis*, P.70,1960.

³⁴ S.K. Ganguly, "Effect of short term *Yogic* training programme on cardiovascular endurance" *SNIPES Journal*, 4:2:45-50, 1981.

³⁵ M.L. Gharote, "Effects of *Yogic* training on physical fitness", *Yoga-Mimamsa*, 15:4:31-35, 1973.

Ganguly and Gharote³⁶ conducted a study on the effect of long term *Yogic* training programmes for the improvement of cardiovascular efficiency. Male students of G.S. College of Yoga and Cultural Synthesis, Lonavla underwent *Yogic* training for nine months during which they did not engage in any other vigorous physical exercises. The Harvard Step test which is considered as one of the reliable tests for measuring cardiovascular endurance was administered to the students. The results of this indicate that daily one hour programme of *Yogic* practices significantly proved the cardiovascular fitness of the subjects.

In an experiment on school boys with mean age of 17 years when tested with the Fleishman Battery of Basic Physical Fitness Tests, Gharote³⁷ showed significant improvement with six weeks yoga training given for 6 days - a - week as well as for 3 days - a week in comparison to the control group.

The author, Hebbar,³⁸ conducted an experiment on strength. There were two groups of 20 subjects each. The yoga training consisted of a 6 week course in 25 *Asanas*. The result reveals a marginal yet beneficial influence on strength index.

Ganguly *et al.*,³⁹ undertook 15 male students of R.P.T.S. (Regional Police Training School), Khandala with a view to see the immediate effect of *Kapalabhati* on cardiovascular endurance as measured through Harvard Step Test. Significant improvement ($p < 0.01$) was seen in their cardiovascular endurance after performing one minute of *Kapalabhati* as compared to hyper-ventilation.

The present experiment conducted by Bera *et al.*,⁴⁰ evaluated the effect of a one-year *Yogic* exercises training programme on body density and its selected substantiate variables. Fatfolds were taken from the triceps, subscapular, post-suprailiac, chin and midaxillary sites by a Lange caliper in 20 experimental and 20 control male subjects before and after one year progressive training regimen. *Yogic* exercise training consisted of 17 practices. ANCOVA revealed significant increments in body density and ideal body weight ($p < 0.01$) for the experimental group as compared to the control group. However,

³⁶ S.K. Ganguly and M.L. Gharote, "Cardiovascular efficiency before and after *Yogic* training", Yoga-Mimamsa, 17:1:89-97, 1974.

³⁷ M.L. Gharote, "Effect of every day and alternate day yoga training on the physical fitness of school children," Ayurveda & Yoga, 7:9-15, July-Dec., 1987.

³⁸ K. Hebbar, "Yoga - its place in sports training," Yoga-Mimamsa, 27: 1&2: 25-26, 1988.

³⁹ S.K. Ganguly, M.L. Gharote, M.L., & S.R. Jolly, "Immediate effect of *Kapalabhati* on the cardiovascular endurance," Yoga-Mimamsa, 27: 1&2:8-9, 1988.

⁴⁰ T.K. Bera., M.V. Rajapurkar., & S.K. Ganguly, "Effect of yoga training on body density in school going boys," NIS Scientific Journal, 13: 2: 23-35, 1990.

significant gains in present body fat and absolute fat weight were observed in control group while compared with the experimental ($p < 0.01$). The results demonstrate that the conventional *Yogic* exercise does 1) preferentially reduce the present body fat and absolute fat weight, and 2) significantly increases the ideal body weight and body density.

The experiment of Lepicovska & Dostalek⁴¹ revealed that in a series of ten rounds of *nauli*, the reduction in heart rate went on increasing and monatomic ventricular bigeminy appeared on certain occasions which ceased spontaneously 40 seconds after the practice was over. Prolongation of A-V conduction was also observed as an after effect of *nauli*.

In the study of Sakthignanavel⁴² thirty normal male volunteers had undergone a 12 weeks training course of *pranayama*, *aerobic exercise* and *pranayama with aerobic exercise*. The results show that the *pranayama* group marked as higher degree in vital capacity ($p < 0.05$). The aerobic group shows greater cardiorespiratory endurance and muscular endurance than the other groups. But the combined *pranayama*-aerobic group shows a greater improvement in all aspects than the other three groups ($p < 0.05$).

The findings of the various research reports related to Yoga and allied sciences revealed that Yoga has tremendous ability to improve health and fitness. Majority of the works reported about the utility of Yoga for common man in relation to health and variables for physical fitness. Thus, scientific Research studies, conducted so far, indicate the usefulness of yoga for enriching one's health related fitness.

Thus, list of yoga practices suitable for each stage of human growth and development as prepared on the basis of textual search has been presented below:

a) Yoga for Prenatal Stage (Before birth)

Pregnant mother should practice:

- **Yoga:** *Bhadrasana*, *Vajrasana*, *Brahma Mudra*, *Vrikshasana*, Crocodile postures, *Shavasana*, *Ujjayi* and *Anuloma-Viloma pranama* (without *Kumbhaka*), *Omkar* recitation, *Dhyana*, observing the principles of *Yamas* and *Niyamas* and taking *Yogic* diet.

⁴¹ V. Lepicovska, & Dostalek, "Effect of *nauli* upon cardiovascular system," *Yoga Mimamsa*, 26: 3&4: 25-42, 1987-88.

⁴² D. Sakthignanavel, "Effect of *pranayama* with aerobic exercise on aerobic fitness," *Yoga-Mimamsa*, 32: 4: 1-12, Jan. 1998.

- **Garbha Sanskar:** A spiritual programme with recitation of Vedic hymns, *shlokas* for pleasing God and for purification of the mind of mother.
- **Reading holy books** e.g., Puranas, Vedas, Bhagwatgita, Koranas, Bible etc. and implementing the principles in day to day life.
- **Listening religious** songs, music, prayers, vedic hymns etc.
- **Attending religious** lectures, programmes, spiritual activities, collective prayers etc.

b) Yoga for Infancy Stage (0-5 yrs.)

- **Listening religious** songs, music, prayers, vedic hymns etc.
- Imitations, story plays, story from Upanishads & mimeties.
- Free Movements (joints) like animals (informal types).

c) Yoga for childhood Stage (6-12 yrs.)

- **Listening religious** songs, music, prayers, vedic hymns etc.
- Imitations, story plays, story from Upanishads & mimeties.
- *Swastikasana, Ardhapadmasana or Virasana, Bhujangasana, Ardhashalabhasana, Utkatasana, Tadasana, Vrikshasana, Naukasana, Padahastasana, Shavasana, and Om recitation.*

d) Yoga for Adolescent Stage (13-19 yrs.)

- **Listening religious** songs, music, prayers, vedic hymns etc.
- Imitations, story plays, story from Upanishads & mimeties.
- *Padmasana, Dhanurasana, Vakrasana, Vajrasana, Supta Vajrasana, Parvatasana, Chakrasana, Shavasana, Baddha Padmasana, Yoga Mudra, Matsyasana, Gomukhasana, Viparitarani, Sarvangasana, Tolangulasana, Hamasana, Marakasana, Ujjayi without Kumbhaka, Halasana, Ardha-Matsyendrasana, Paschomatanasana, Gomukhasana, Bhadrasana, Tolasana, Uddiyana Bandha, Agnisara, Ugrasana, Dhanurakarshana, Simhasana, Uttanamandukasana, Kukkutasana, Nauli, Kapalabhati, Shavasana, Shirshasana, Shalabhasana, Bakasana, Mayurasana, Uttanakurmasana, Anuloma-Viloma*

prayer, Vedic hymns, Anuloma-Viloma pranayama, Dhyana Om recitation, prayer, Vedic hymns.

e) **Yoga for Adult Stage** (20-30 yrs.)

Sirshasana, Sarvangasana, Matsyasana, Halasana, Bhujangasana, Salabhasana, Dhanurasana, Ardha-Matsyendrasana, Paschimattanasana, Mayurasana, Savasana, Uddiyana Bandha, Yoga-Mudra, Nauli Kriya, Kapalabhati Kriya, Ujjayi Pranayama, Bhastrika pranayama.

f) **Yoga for Adulthood Stage** (31-49 yrs.)

Bhujangasana, Ardha-Salabhasana, Dhanurasana, Halasana, Ardha-Halasanana, Paschimattana, Ardha-Matsyendrasana, Yoga-Mudra or Uddiyana, Viparita Karani, and Ujjayi.

g) **Yoga for Old Stage** (50 yrs. & above)

Ujjayi, Bhujangasana, Ardha-Salabhasana, Ardha-Halasanana, Vakrasana, Chakrasana, Paschimattana, and Yoga-Mudra.

Thus, literature suggested some Yoga practices to attain health related physical fitness for common people, in general, are –

Yoga Practices

1. *Sirshasana*
2. *Sarvangasana*
3. *Matsyasana*
4. *Halasana*
5. *Bhujangasana*
6. *Salabhasana*
7. *Dhanurasana*
8. *Ardha-Matsyendrasana*
9. *Paschimattanasana*
10. *Mayurasana*
11. *Savasana*
12. *Uddiyana Bandha*
13. *Yoga-Mudra*
14. *Nauli Kriya*
15. *Kapalabhati Kriya*

Intensity

- 1/4 min. to 12 mins., adding 1/2 min. per week.
 1/2 min. to 6 mins., adding 1 min./ week.
 1/4 min. to 3 mins., adding 1/4 min. per week.
 1 min. to 4 mins., for all stages put together, adding 1 min. per week.
 3 to 7 turns of each, the pose being maintained for 10 seconds.
 adding one turn every fortnight to each.
 1/4 min. to 1 min., for each side, adding 1/4 per week.
 1/4 min. to 1 min., adding 1/4 per week.
 1/6 min. to 2 mins., adding 1/4 min. per week.
 2 mins. to 10 mins., adding 2 mins. per week.
 3 to 7 turns, adding 1 turn per week.
 1 min. to 3 mins., adding 1min. per week.
 3 to 7 turns, adding 1 turn per week.
 3 rounds of 11 to 121 expulsions each, adding

16. *Ujjayi Pranayama*
17. *Bhastrika*

11 expulsions to each round every week.
7 to 28 rounds, adding 3 rounds every week.
3 rounds of 11 to 121 expulsions each, adding
11 expulsions to each round every week. Every
round to be followed by a suitable *Kumbhaka*

4.5 Results of YOGA SYLLABI for School Students

School children, according to their nature, are very active and always want action-oriented activities. They like free movements with a lot of enjoyments. On the other hand, yoga is static in nature, which considers slow and steady movements of body part with inner awareness. Therefore, inclusion of yoga in their school curriculum is a difficult task, because the nature of yoga practices is just opposite to the activities that our children need.

However, importance of yoga for overall development of personality of school children cannot be ignored. It is high time to introduce Yoga in the system of our school education for enriching health, fitness and academic status of young student generation. Therefore, designing a syllabus on yoga for school children is really a challenging job.

Prior to designing a syllabus on yoga for school students, its real implication is to be **verified through research-based evaluation**, which has been presented as follows:

4.5.1 Yoga Research on Fitness Factors

a) Muscular Fitness

School children require a good level of **muscular fitness** to sit or stand comfortably during teaching learning situation. Moreover, proper muscular fitness level is essential for maintaining a good posture so as to prevent postural defects in future life. However, a survey research on Kendriya Vidyalaya students reveals that about 40.3% students **failed in muscular fitness test** (Gharote & Ganguly, 1975). Further, different controlled experiments (Gharote, 1976; Gharote, Ganguly & Moorthy, 1976; Moorthy, 1982) indicate that Yoga intervention help the school children to improve muscular fitness.

b) Flexibility

Body flexibility depends upon the coordinated function of joints and muscles. Literature reveals that aging reduces flexibility, which in turn causes musculo-skeletal problems by disintegrating the functions of muscles and joints. Such a poor state of flexibility is seen among the urban school children. Our researches indicate that Yoga practices help for significant improvement in flexibility level (Moorthy, 1982; Govindarajulu, Gannadeepam & Bera, 2003).

c) Cardiovascular / Cardiac Efficiency

Coordinated functional ability of heart and lungs signifies the cardiovascular efficiency. Many research reports in developed countries indicate that today's school students are more inclined towards obesity which affects their overall cardiovascular functions. Here we can think of Yoga. The research literature revealed that regular practice of Yoga (both short term and long term) are helpful in improving cardiovascular functions of school students (Ganguly, 1981; Ganguly, 1989; Govindarajulu, Gannadeepam & Bera, 2003; Mishra, Tripathi & Bera, 2003).

d) Body Composition / Body Fat / Body Density

Body composition is indicative of one's organic functions. For example, excessive body fat indicates improper functioning of one's heart and one becomes hypertensive generally. Kaivalyadhama Laboratory conducted ample of researches in this direction. The findings of our controlled study support that Yoga contributes to reduce excessive body fat not only among school students (Bera & Ganguly, 1990) but also in obese patients (Bera, *et al.*, 2003; Gharote, 1977) in increasing body density (Bera, Rajapurkar, Ganguly, 1993). A direct controlled study (Bera, 1993) reveals that Yoga training helps to keep the body composition of school students under control.

e) Physical Fitness & Health-related Fitness

A good level of physical fitness does not signify that the person is healthy. Therefore, AAHPERD (*American Alliance of Health, Physical Education, Recreation and Dance*) has developed the concept of "*Health related Fitness*." Our researches

on school children have revealed that Yoga practices help not only to improve overall physical fitness (Gharote, 1976a, 1976b, 1979, 1987), but also responsible for better level of “*Health related Fitness*” (Ganguly, Gharote & Bera, 2003).

4.5.2 Yoga Research on Psychological Factors

a) Stress, Anxiety, Neuroticism & Hostility

Body and mind function together. Once physiological organs start improper function our body experiences stress, which in turn affects our psychological states. Thus, controlling physiological stress may be indicative of controlled psychological stress and vice-versa. One of our findings indicates that practice of *Shavasana* reduces physiological stress (Bera *et al.*, 1998). However, psychological stress as experienced in terms of anxiety, neuroticism, emotional imbalance and hostility is also reduced significantly with the help of Yoga practices (Bhogal, 1997; Kocher & Pratap, 1971 & 1972; Kocher, 1973). 9-month yoga programme has been found to be instrumental in enhancing human values (Bhogal, Oak, & Bera, 2002). Although these studies were conducted on college students, Yoga may be equally important for school students in tackling stress in academic situations.

b) Memory, Perception & Mental Fatigue

Memory and proper perception, without doubt, help for better learning. Some times appearance of mental fatigue, the state of perception and memory is disturbed which affects learning. It is important to note that regular practice of Yoga increases both **memory** (Kocher, 1976a) and **perception** (Sahu & Gharote, 1985) on one hand and **delays mental fatigue** (Kocher, 1976b) on the other. Thus, Yoga is really conducive for better learning.

c) Psychomotor Performance, Steadiness, Hand Coordination

For school students, high level of psychomotor performance is essential mostly while writing notes or during interaction in classroom situation. In fact, psychomotor performance depends upon one’s state of steadiness (mind and body) and coordination of body parts. This performance ability can be improved by

practicing omkara recitation, *pranadharana* and *nadanusandhana*, which are known as higher yoga practices (Kocher & Pratap, 1972; Pratap, 1968; Sahu & Bhole, 1983a & 1983b).

4.5.3 Yoga Research on Physiological Factors

a) **Motor Functions, Aerobic Power, Work Capacity & Oxygen Consumption**

Healthy body is the temple of healthy mind and spirit – it is generally believed. Healthy body signifies systematic and coordinated functions of all internal organs indicating better motor functions, aerobic power and physical work capacity. Controlled experiments on school students revealed that long term practice of yoga influences one's motor functions (Bera, Jolly, Ganguly, Gharote, 1999) along with aerobic power (Bera, 1993), oxygen consumption and work capacity (Bera, 2004; Govindarajulu, Murugesan, & Bera, 2002).

b) **Vital Capacity & Lung Functions**

Research literature in sports informs that higher state of **vital capacity and lungs functioning** are the indicative of top performance. Similarly, for common people, respiratory disorders can be prevented if one secures better level of vital capacity and lungs function. Moreover, as the functions of lungs and heart are interrelated, the abnormal function of lungs and low vital capacity would adversely affect the function of one's heart. This, in fact, indicates that coordinated functions of lungs and heart increase stability of body that in turn brings about stability or tranquility of mind and, therefore, helping for better learning. In case of yoga practice, similar mechanism might be working so that one can improve vital capacity (Bhole, Karambelkar, & Gharote, 1970) and lungs function (Gore & Gharote, 1981a, 1981b) along with psycho-physical stability which seems to be conducive for better learning.

4.5.4 Yoga Research on Sports Skills & Performance

The research evidences, available so far, have created an impression that Yoga is useful for improving one's health and fitness and it can be used as an easy technique for controlling stress. However, its implication in the area of sports skill and

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performance is found significant (Lolage & Bera, 2003; Govindarajulu, Tiroumourougane, & Bera, 2003; Pargaonkar, Joglekar, Dhope, & Bera, 2001).

4.5.5 Yoga Research on Health & Biochemical Parameters

a) Cholesterol

Although HDL-Cholesterol is good for health, excessive level of LDL and VLDL cholesterols affect health not only for adults and old, but also for the children. Many recent studies on urban school population are in agreement that a significant percent of school students are obese who are prone to excessive level of LDL and VLDL. In this case yoga plays very important role in controlling the affective cholesterol (Karambelkar *et al.*, 1981; Moorthy, Ganguly, Gharote, & Karambelkar, 1978). This principle of Yoga may be of immense use for school children who are prone to obesity having excessive level of bad cholesterol.

b) Urinary Acidity & Blood Urea

Appearance of excessive acidity and blood urea in urine is the indicator of anxiety, tension, mento-emotional instability and stress. Our investigation reveals that long-term yoga practices are helpful in improving urinary pH by reducing the level of urinary acidity and blood urea (Desai & Gharote, 1986a; Gore, 1976). Thus, in present ***competitive academic atmosphere***, our students population suffer mostly from stress, anxiety, tension, which may increase acidity and urea in urine contents that may in turn affect the excretory organs like kidney, urinary bladder etc. Here yoga may be useful for better health of excretory organs.

c) Plasma fibrinogen, Plasma protein, Gamma globulins.

School children generally participate in games and sports under the curricular subject "Physical Education." Thus, possibility of sports injury cannot be ignored. If there is bleeding due to sports injury, ***plasma fibrinogen*** helps for better coagulation of blood and stops the oozing the blood for better quick recovery. Our research finding (Desai & Gharote, 1986b) is very significant which indicates Yoga practices improve fibrinogen level in plasma. Moreover, 3 weeks of Yoga practice also claims

to improve **plasma protein and gammaglobulin** (Desai & Gharote, 1986a). Thus, Yoga keeps the health of our blood (pure) which in fact keeps our body healthy.

4.5.6 Yoga Research on Learning & Academic Achievement

Above research based evidences support the efficacy of Yoga conducive for creating better teaching-learning atmosphere in schools in improving students health and fitness.

However, direct controlled experiments conducted in our laboratory indicates usefulness of Yoga better **learning ability** (Bera, Kulkarni, Gore, Bhogal, & Oak, 2005) and **academic achievement** (Ganguly, Bera, & Gharote, 2002) especially for school children.

Thus, on the basis of the above literature, following syllabi of yoga for school children have been suggested:

a) Yoga Syllabi for School Children (Standard-I, II, III, IV,V)

This is the basic and compulsory for imbibing value education. It should cover –

1.Free Movements (joints) like animals (informal types)	Class I to IV
2.Rhythmics yoga	Class I to IV
3.Imitations, story plays, story from Upanishads & mimeties	Class I to IV
4.Yoga practices (10 periods) (<i>Swastikasana, Ardhapadmasana or Virasana, Bhujangasana, Ardhashalabhasana, Utkatasana, Tadasana, Vrikshasana, Naukasana, Padahastasana, Shavasana, Om recitation</i>).	Class V

b) Yoga Syllabi for School Children (Standard-VI, VII, VIII, IX, X)

This is the basic and compulsory (10 periods) for imbibing value education. Each Class should cover the followings–

Class VI

1. Repeat Yoga practices learnt in Class-V
2. Introduce new yoga practices
(*Padmasana, Dhanurasana, Vakrasana, Vajrasana, Supta Vajrasana, Parvatasana, Chakrasana, Shavasana, Om recitation*)
3. Imitations, Mythological story plays, Story from Upanishads, *Bhagwadgita*, Ramayana, Mahabharata, Koran, Bible, **Listening religious** songs, music, prayers, vedic hymns etc.
4. Teaching *Yamas & Niyamas*

Class VII

1. Introduce new yoga practices
(*Baddha Padmasana, Yoga Mudra, Matsyasana, Gomukhasana, Viparitarani, Sarvangasana, Tolangulasana, Hamasana, Marakasana, Ujjayi without Kumbhaka, Shavasana, Om recitation, prayer, Vedic hymns*).
3. Lead up Yoga (other activities like yoga), Mythological story plays, Story from Upanishads, *Bhagwadgita*, Ramayana, Mahabharata, Koran, Bible, **Listening religious** songs, music, prayers, vedic hymns etc.
4. Teaching *Yamas & Niyamas*

Class VIII

1. Introduce new yoga practices
(*Halasana, Ardha-Matsyendrasana, Paschomatanasana, Gomukhasana, Bhadrasana, Tolasana, Uddiyana Bandha, Agnisara, Shavasana, prayer, Vedic hymns, Anuloma-Viloma pranayama, Dhyana*).
3. Mythological story plays, Story from Upanishads, *Bhagwadgita*, Ramayana, Mahabharata, Koran, Bible, **Listening religious** songs, music, prayers, vedic hymns etc.
4. Teaching *Yamas & Niyamas*

Class IX

1. Introduce new yoga practices
(*Ugrasana, Dhanurakarshana, Simhasana, Uttanamandukasana, Kukkutasana, Nauli, Kapalabhati, Shavasana, prayer, Vedic hymns, Anuloma-Viloma pranayama, Dhyana*).
3. Mythological story plays, Story from Upanishads, *Bhagwadgita*, Ramayana, Mahabharata, Koran, Bible, **Listening religious** songs, music, prayers, vedic hymns etc.
4. Teaching *Yamas & Niyamas*

Class X

1. Introduce new yoga practices

(*Shirshasana, Shalabhasana, Bakasana, Mayurasana, Uttanakurmasana, Anuloma-Viloma, Shavasana, Shavasana, prayer, Vedic hymns, Bhastrika pranayama, Dhyana*).

- ### 3. Mythological story plays, Story from Upanishads, *Bhagwadgita*, Ramayana, Mahabharata, Koran, Bible, **Listening religious** songs, music, prayers, vedic hymns etc.
- ### 4. Teaching *Yamas & Niyamas*

4.6 Authenticity of Results

4.6.1 Authenticity of Yoga Modules for promotion of Health

Ample of research has been done on yoga in relation to promotion of health. Literature reveals that the scientific basis of mind-body medicine resides in psychoneuroimmunology. Research evidences also showed that depression and despair impair the function of the immune system, while peace, love, hope and joy enhance immuno-competence. Yoga is of great relevance to mind-body medicine because of the way it looks at life. The *Yogic* view of life is the best prescription ever written for lasting peace and joy, which promote health. Moreover, emotion having *Rajas guna of Prakriti*, is responsible for many types of disease. Psychophysiologically, emotions act upon our body through hypothalamus which controls ANS (Autonomic Nervous System) and the endocrine systems. Negative emotions like anger, fear, greed, jealousy give rise to *somatic illness* where on the other help positive emotions like love, compassion, friendship, affection etc. give the strength to combat the stress. Yoga plays a vital role as the *ancient Indian healing art*, which brings harmony in body and mind. Thus, yoga is very rational and scientific method by which a state of equilibrium or homeostasis in mind and body is achieved which contributes to a balanced integrated functioning in both external and internal stimulants leading towards self-perfection. Literature also reveals that yoga helps to enrich health through accurate perception, appropriate feelings and precise actions with increasing pleasure, power, prosperity and profundity, perception, feelings and actions, which have been also expressed by terms *Cognition, Affection and Conation* respectively. In traditional parlance, this is called fulfillment of four *Purusharthas*, viz., *Dharma, Artha, Kaama, and Moksha*. Thus, yoga works for better health in increasing an appropriate

satisfaction of physical, instinctual, emotional, intellectual needs and fulfillment and happiness arising from it.

4.6.2 Authenticity of Yoga Modules for promotion of Health related Physical Fitness

Health related physical fitness is a recent concept evolved in USA and AAHPERD (American Alliance of Health, Physical Education, Recreation and Dance) found this concept has practical implication on the health of common public and student population. Ample of research studies have been conducted on health related physical fitness on school and college level students' population in USA and they suggest special norms for appropriate evaluation of this concept. Today, this concept "Health Related Physical Fitness" has wider acceptability by the world wide nations. The practical measurement of health related fitness is done in measuring four major test items viz., cardiovascular efficiency, flexibility, abdominal muscles strength and endurance and body fat%. Measurement techniques of these variables were also accepted globally. Recent studies in India on health related physical fitness, although meager, have developed appropriately reliable and valid norms for Indian population. Some of the research studies also indicate that yoga contributes to the improvement of one's health related fitness. Although, in traditional texts, there is no direct reference regarding the impact of yoga in relation to health related physical fitness, but ample of such references is available on efficacy of yoga for reduction of excessive body fat in controlling diet (*mitahara*), enhancement of functional efficiency of heart in increasing micro circulation in cardiac muscles, improvement of flexibility in enhancing the range of motion around various joints including spine, and gaining abdominal muscles strength and endurance. Thus, both the literature on yoga research and traditional yoga texts provide reliable and valid information about yoga in relation to enhancement of the factors of health related physical fitness.

4.6.3 Authenticity of Yoga Modules for promotion of Value Education

Value Education is a comprehensive process. In its full range of connotation, it covers the entire domain of learning, cognitive, affective and psychomotor and includes knowledge, understanding and appreciation of our culture, moral, aesthetic and spiritual values i.e. the values springing from our nationalistic aspirations and

universal perceptions. Thus, value education is a process of education which involves working on the total personality of the individual keeping in view all aspects of personality development, the intellectual, social and emotional, will and character.

Detailed analysis and criticism of entire contents of yoga indicate that ***Yoga itself is a System of Value Education***. The humane values viz., honesty, tolerance, justice, self-control, compassion, freedom etc enable man for self-control than other animals, so that he cultivates certain ideals, which are available in plenty in Yoga - a rich cultural heritage of India. Since an ultimate value does not change fundamentally, all these ideals remained unchanged in Yoga – as literature indicates.

Analytical approach of Indian education reveals that our system of education is more inclined towards spiritual development, receiving knowledge and disciplining the mind as well. Swami Vivekananda viewed education as “*manifestation of divine perfection already existing in man.*” He said, we want that education by which character is formed, strength of mind is increased, and the intellect expounded and by which one can stand on one’s own feet.

In the light of the above goal of education, it becomes relevant to assign the role to Yoga to fulfill this goal.

Yoga, the ancient treasure of our nation has stood the test of time. The various definitions of Yoga, - “*Yoga Karmasu Kausalam,*” “*Yoga Samatvam uchyate,*” “*Yoga citta vritti Nirodha,*” etc. teach us about what we should derive from life; and what should we give to others.

In modern time, the education is much inclined towards Western bent of “*Learn only to earn.*” But education can’t become only the source to livelihood, because human life has more precious and gracious purpose. The value-based education leads us steadily towards that purpose. The basic *Sanskaras* of *Ahimsa, Satya, Asteya, Aparigraha, and Bramhamacharya* form the foundation of values which are the part of *Ashtanga Yoga*. The *Yama- Niyama* concept, if deeply rooted in *early primary education* would mould the soil to the desired shape at the right time. The *Asanas, Pranayamas, Kriyas, Bandhas, Mudras* are not only beneficial for body but also for the mind. The healthy mind resides in healthy body. When integration of body, mind and

spirit is achieved, one's personality blossoms. Number of such personalities can be created with the help of Yoga education.

The Ancient Science and Art of Yoga is the real, time tested, comprehensive, long-term solution to all human problems. The greatest advantage of Yoga lies in the fact that it addresses human problems at individual and collective levels. It helps create harmony within the person and the society in which he lives. It integrates body, mind, intellect, emotions and spirit, which bring harmony, happiness & peace.

Yoga works as a tool for Modification of Behaviour, Emotion & Personality. *Patanjala Yoga* explains the real significance of emotional intelligence by way of complete cessation of modification of mind (P.Y.S.-I:2).⁴³ In fact, yoga practices work at the visceral and the emotional level in following psycho-physiological principles and tackles functional disturbances of the neuro-vegetative system, attitudinal and emotional domains of human personality.

Relaxative *Asanas* work for *Chitta vishranti* i.e. tranquility and peace. Corrective *Asanas* develop stability, steadiness and lightness of the body. Emphasis on relaxation taking help of gravity to ensure eternal effects of tackling mento-emotional states. *Asanas, Bandhas, Mudras, Kriyas* and *Pranayamas* may have beneficial effects on autonomic nervous system, brain and the mind. Along with yoga practices, *Yogic* diet comprising simple vegetable proteins, low in salt content and moderately rich in cereals, vegetables and fruits and adequate minerals and vitamins seem to have been prescribed for better health. Such type of food influences the awareness and overall feeling, thinking, being and behavior. Yoga aims at improving the emotional control in overcoming imbalance. Yoga ultimately enriches our emotions, value systems and attitude to life as a whole and influences our personality.

In fact, Yoga is a bridge between body, mind and spirit. Since its practices smoothly coordinate the functions of the bones, muscles, blood, brain etc., which help to improve health, and as they train human mind, which is immaterial and intangible, for modifying proper attitude, behaviour and values may develop personality in establishing peace. *Thus, Yoga is an indispensable authentic system for enhancing value education in our school education.*

⁴³ P.V. Karambelkar, "*Patanjala Yoga Sutra*." (Lonavla: Kaivalyadhama S.M.Y.M. Samiti, 1984), p.3.

4.6.4 Authenticity of Yoga Syllabus in School Education

Research literature on yoga provides ample information about role of yoga in improving required level of physical fitness and health related physical fitness and other psychological aspects (memory, perception) and in reducing stress, anxiety, neuroticism, hostility. Yoga also helps to tackle stress in academic situations and enhances atmosphere that is conducive for better learning. Yoga also brings physiological benefits in improving motor functions, aerobic power, work capacity, oxygen consumption, vital capacity and lungs function. Biochemical contribution of yoga is also remarkable, which controls lipid profiles, urinary acidity, blood urea, plasma fibrinogen, plasma protein, gamma globulins to a healthy limit. Further, yoga contributes to better **learning ability**, which in turn helps to enhance **academic achievement** of school children. Experimental researches conducted, so far, on the claims of the benefits of yoga and the results record a sound proof of *Yogic* effects. Based on the reliable and valid effects of yoga practices, the yoga syllabi for school students have been framed in this study. Since the syllabi have sound base on research literature and traditional texts, the same seems to be authentic.

4.7 Discussion of Results

The entire text of *Patanjala* Yoga Sutra reflects different means to tackle psychosomatic disorders and establishes procedures humane values. This text also describes the methods of enriching one's mental health. Similarly, Hatha yoga texts are dealing with the basics of musculoskeletal functions along with enriching value education. Logical interpretations reveal that *Patanjala* Yoga is superior to *Hathayoga* so far as health and human values are concerned. Thus, the hypothesis- *H₁: Patanjali Yoga would be more useful than Hathayoga to promote health in tackling psychosomatic ailments and in establishing humane values*, has been retained logically;

Different *Hathayogic* texts have different understanding about human health, fitness and homeostasis in body constituents. *Hathayogic* texts deal more with one's musculoskeletal functions that in fact help to enrich almost all the physiological functions leading to improved health and fitness. Thus, the hypothesis-*H₂: "Hathayoga would be more significant than Patanjala Yoga to improve fitness and to prevent health in tackling homeostasis in body constituents"* has been sustained.

Various literature have been reviewed systematically, which indicate that the traditional scriptures validate the real information about proper method of practicing yoga. Our ancestors have experienced these methods have tremendous benefits in maintaining one's health and fitness. On the basis of these reviews, the researcher has developed so many "Yoga Modules," which are found appropriate to enrich health and fitness. Thus, the hypothesis-H₃: *"Schedules of Yoga," to be developed on the basis of traditional scriptures, would be appropriate for maintaining health and fitness*" has been retained.

Yoga syllabi are the real need of our modern civilization with special reference to the students of primary and secondary education. Literature revealed that the yoga syllabi as suggested from the standard 1 to X seem to be beneficial to imbibe value education. Thus, the hypothesis-H₄: *"Syllabi of Yoga," as developed in this study, would be appropriately useful as "Guidelines for Value Education" in our modern system of Formal Education for improving human health and values,* has been logically sustained.

CHAPTER V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

Man probes the mysteries of the universe but ignores the mystery of his own self. From necessities he moved to comforts and from comforts to luxuries in forgetting the supreme source of comfort and bliss.

Whole society, therefore, becomes the victim of tremendous stress and strain that, in fact, leads towards intensive health complications and moral diminutions. This has become true not only for man, but also for **today's school children**.

The problems in school education reveal the following facts:

- Our present system of education fails to imbibe the real sense of values, perception, attitudes, habits and personality among the children.
- Today's education is information-oriented not character-based. It has become consumerist in nature and makes one's personality so poor so that the students become *selfish, self-centered, irreverent and cynical* in their future lives.
- We lay little or no emphasis on such basic values as truth, love, honesty, humility, compassion, forbearance and justice. It makes one conscious about one's rights not duties.
- To keep pace with the fast changing society and in order to fulfill one's desire to be at the top, our system of school education is somewhere compromising with the gross erosion of values.
- Improper implementation of physical activity or some how increasing status of physical inactivity in schools causing poor health and fitness in students.

- The tendency of exam fever, suicidal attempts, emotional imbalance, juvenile addictions are increasingly evident among school students. This in fact signifies intensive personality problems.

The net result is that a strongly individualistic and materialistic culture has taken birth, which promotes self-aggrandizement, nurtures opportunism and chicanery, and generates lust, greed, anger and the like causing tension in society.

Possible Solutions

- Along with technological revolutions, there is a need of the right kind of education which should combine science with spirituality, fitness with health, reasons with faith, ***prajna with karuna***, empirical knowledge with intuition and insight; which may keep both progress and peace as its goals and may be helpful in mitigating social evils.
- There is a need of some change in our modern education to restore human values of truth, co-operation, non violence, peace, love, respect for parents, elders, authority and hard work.
- The Indian culture is deeply rooted in spiritual and ethical values and unless these values find their way into the life of students, education will lose its significance and will not fulfill its aim. Thus, inclusion of such values in the school curriculum may have real significance.

Thus, imbibing yoga in our daily lifestyle is significant and a beginning of the same is to be made through our young school age.

Although it is high time to introduce Yoga in the educational system for implementing value education to young student generation, its real implication needs research-based evaluation. It was, therefore, thought desirable to undertake this study.

This study considers following objectives:

- To identify the major dimensions of health, fitness, personality and values which are appropriate to the school children;

- To critically study the traditional Yogic texts and to identify various “**means and/or techniques of Yoga**,” which claim to achieve all the above dimensions;
- To examine, based on systematic review of research literature as well as logical interpretations, the real implications of the “**identified yoga practices**” in achieving each of the stated dimensions;
- To evaluate “**Traditional Yoga**” as a system for improving health, fitness, and personality and as a process of Value Education in school education;
- To develop separate “Schedules of Yoga” and “Chart of Yogic Diet” for school students (age-wise) for achieving “*Health, Fitness and Personality*” and “Syllabi of Yoga” for implementing “value education” in school education.

This is a literary research, where the Indian Traditional Scriptures and standard Yoga Texts were critically analyzed and evaluated in the context of the health and value education. The extracts of Scriptures and Classical Yoga Texts were deduced scientifically and the contribution of them towards human health, fitness and value education was established. A custom made Checklist, which has 6 major items, was used as the research tool to collect data.

Major Findings

- The **major dimensions** of human health and values have been identified. The findings indicate that the dimensions of human health are physical, mental, social and spiritual, whereas Theoretical, Economical, Aesthetics, Social, Political and Religious attributes are representing the values. Similarly, the dimensions viz., cardiovascular efficiency, strength and endurance of abdominal muscles, flexibility and fat percentage represent one’s level of health related fitness.
- Critical study of the traditional Yogic texts helped to gather different claims of various yoga practices to achieve human health and values. Literature suggested some Yoga practices to attain health are *11 Asanas, 3 Pranayamas, 1 Bandha, 1 Mudra, 3 Kriyas* and *6 other practices*. Similarly, the literature suggests *11 Asanas, 2 Pranayamas, 1 Bandha, 1 Mudra and 2 Kriyas* to attain health related fitness.

- Literary survey suggested some Yoga practices to enrich the values are –
 - Reading holy books e.g., Puranas, Vedas, Bhagwatgita, Koranas, Bible etc. and implementing the principles in day to day life.
 - Observing Yamas & Niyamas in social life.
 - Listening religious songs, music, prayers etc.
 - Attending religious lectures, spiritual activities, collective prayers etc.
 - Practicing Omkar recitation, Dhyana etc.

- The **schedules of yoga** including diet, do's and don'ts as suggested by the Traditional Texts for treatment of various **major psychosomatic disorders** viz., Diabetes, Hypertension, and Asthma have been explicitly presented and are found authentic.

- **Age-wise modules of Yoga** (based on traditional literature) suitable to enrich and maintain health and fitness have also been suggested.

- Yoga syllabi that contribute Value Education suitable for the students of primary and secondary education have been framed.

5.2 Conclusion

Within limitations, the present investigation draws following conclusions:

- Yoga contributes to maintain one's Health Related Fitness.
- Yoga can be used as a therapy to control different psychosomatic disorders.
- Literature based **Yoga Modules**, as presented in this study, for enriching one's Health, Health Related Fitness, and Value Education seem to be authentic.

- Patanjala Yoga is more inclined towards enriching one's health and value education, whereas Hathayoga practices are found useful to enrich one's health related fitness.
- Thus, "**Traditional Yoga**" is a system of Health for enriching Health Related Fitness and Value Education.

5.3 Recommendations

On the basis of the results and conclusions presented above, this investigation recommends that –

- The "Yoga Modules" as suggested on the basis of literary research can be authentically implemented for enriching one's health, health related fitness and value system.
- Repeatedly controlled experiments may be conducted further to establish the experimental authenticity, reliability and validity of the "Yoga Modules."
- Similar "Yoga Modules" as alternative therapy for treating other psychosomatic disorders may be undertaken through future studies.
- Suggested "Yoga Modules" may be incorporated in the curriculum of Primary and Secondary system of school education.

5.4 Contribution to the Knowledge of Global Education

- This study has contributed to the literature of global education about the relevant "Syllabus" of Yoga, which is an Indian traditional system of education, for achieving true value education.
- Suggestive "Schedules of Yoga Practices," in this study seems to be useful to promote health related fitness and health in establishing preventive as well as curative values for all ages.

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