

Chapter-I

INTRODUCTION

Where there is a health there is happiness. Here the meaning of happiness is not the pleasure out of fulfillment of the desire but the jubilant feeling all the time that is free from fears and tensions. The primary objective of yoga is spiritual advancement and to cure the diseases. However, it has been observed that many psycho-somatic disorders are controlled best with the help of yoga practices and persons who practice yoga regularly, can very well maintain their health throughout their life.¹

Yoga is a method that benefits the body, mind and spirit by educating self-control through a series of various kinds of postures and exercise, as well as through breathing control, relaxation and meditation practice. Yoga is science which deals with the ranges of the Physical and spiritual well being and even discovers greater mysteries of Physical, Physiological and other higher relatives and worlds. As in all the things found. There is also in it a high intension to hold the genuineness the light found in our inner being and turn it to our psychic self, our spirit, our self knowledge and will our self or love and joy our self of life and action.²

The word Yoga has been derived from the Samskrit word 'Yuj' means unification or binding as one which can be understood as unity between body & mind. The word yoga also point out towards ascetic methods for contemplation. For example, the yoga-sutra implies such a method for liberation of the self; when this Liberation is arrived at a mystical union, then we find the yoga presented by the Bhagavad-Gita. If "Yuj" implies a bond, it presupposes that one has first to break the bonds that unite the spirit and the world: union implies first detachment from matter, suppression of the

¹ Gore.,M.M.,Vaze D.R.,Kulkarni S.A.,Oak J.P.,(2008),**Yoga therapy for selected Disease.**, Kaivalyadhama ,Swami Kuvalayananda Marg: Lonawvla ,Maharashtra.

² Aurobindo, **Letters on Yoga** (Calcutta: Moffitt John Reflection in Hindu Spirituality Heritage Publishers part II, 1984): 50.

complexity that always Exists in beginners, and therefore unification of the spirit. In devotional yoga such unification is aimed at a union with the divine.³

The most comprehensive understanding of the world might be the Yoga-darsana, found in the treaty of Pathanjali Yoga-sutra. A darsana is indeed a system of affirmations, based on human experiences analyzed in order to free man from ignorance. “The aim of yoga practice is to become conscious of our whole being, to free and unite it to the light of the truth.”⁴

As we explain before that Yoga is a system of physical and mental exercise deliberate to balance and bring together the mind, body and spirit. Yoga has some easy and effectual body movements that make stronger one’s back, firm the stomach, and reallocate body weight. Yoga exercise stretch and tone the body muscles. Thus yoga increases fortitude and develop elasticity in our body. The practice of Yoga meditation has to be seen against the traditional backdrop of Hindu belief and culture. However, Yoga is not a religion. It is a system of psycho-physiological techniques that people can employ for spiritual enfoldment and its history is linked with that of Hinduism, into which it was incorporated by the Brahmins, the Priestly caste and Yoga’s whole ration dieter is mystical, its ultimate aim being the experience of the reality underlying all manifest forms. Therefore to understand better yoga’s goals, methods, and terminology, one should have some acquaintance with its Hindu and mystical frame reference.

In Bhagwat Gita, Yoga comprises “Skill in action”⁵.Bhagwat Gita is the best known of all the Indian philosophical epics, but this is not anticipated to indicate action in just the narrow sense of physical movement. For as well as exercise for improving the skill of the body, Yoga also encompass various methods and techniques that act on the mind and sentiment, and provides an inclusive philosophical living.

³ Kapri, B.C., **Sharirik Shiksha ke maulik Aadhar**, Friends Publication, New Delhi, (2010), p.102.

⁴ Aurobindo, **Letters on Yoga** (Calcutta: Moffitt John Reflection in Hindu Spirituality Heritage Publishers part II, 1984): 48.

⁵ R.Nagarathna, et. al., **Yoga for Common Ailment** (London: Gaibook Publications, 1990): 9-10.

In order to reach this aim we must have a greater need to develop “skill” in all aspects of our life. A great Indian teacher of this century Aurobindo regarded Yoga as a legendary endeavor towards self-perfection through taking strong step for developing our potential on the physical vital, mental, intellectual and spiritual level.

Yoga has an absolute message for the human body and for the human brain. And also it has message for the human essence.⁶

‘Patanjali’⁷ the founder and father of yoga lived around three centuries before Christ. He was a great philosopher and grammarian. He stated yoga as- automatically calls to mind sage. He was also a physician and at that time medical work is attributed to him. However his significant works somewhere lost in the pages.

Patanjali Yoga Sutras or Aphorism on Yoga is his best known work in Yoga. The pathway delineated by him is called ‘Raja Yoga’ or the sovereign path. It is so called because of the majestic, dignified method by which the ‘self’ is combined with the ‘over self’. Patanjali's yoga has basically to do with the mind and its amendment. It dealt with the training of the mind to realize oneness with the cosmos. Incidental to this objective are the getting hold of ‘Siddhis’ or supremacy.

Yoga⁸ revenue not only thought but also empathy and yoking all powers of the body, mind and soul to God. It is a very primeval and efficient system of disciplines and is considered to produce the integration of the body, mind and spirit. It also helps one to realize and attain higher states of consciousness and self-realization by different methodical efforts to get perfection. The curative benefits obtained by performing asanas are well known by everyone. The circulation of the blood is improved; tensions can be detached from the daily life, and a feeling of well-being is induced. The muscles are strengthened; nerves alleviated and physical endurance is improved. One important feature is that blood vessels and nerves, that form the internal organs, are "massaged" by the twist and bending, ensuring appropriate functioning. Ageing bodies can have smaller

⁶ H.V. Bole and Swami Kuvalayanda, **Abstract and Bibliography of Articles** (Kuvalayanda Birth Centenary Year Publication, 1985): 26.

⁷ Retrived from <http://www.indiaexpress.com//>

⁸ Retrived from <http://www.india4u.com//>

amount of aches and pains, stiffening of joints can be healed very soon and depression alleviated.

Yoga⁹ is the oldest recognized science of development. Learning and participating in yoga makes one feel good because it positively affects the mind and body. It gives mental, physical and spiritual control. Developed thousands of years before in India, yoga exactly means to join- to join the 'individual self' with the 'universal self'. This amalgamation is achieved through the practice and mastering of specific physical postures called 'asana', and after making control over breathing process called 'Pranayama' and 'Meditation' - this is known as the pathway of 'Raja Yoga', and its subdivision is 'Hatha Yoga'.

There are numerous stories about the remarkable abilities of yogis, who are adept in the obedience of yoga. British doctors further than 200 years before began studying certain Indians who could do some very unusual and interesting things. These people, called yogis, apparently had phenomenal powers of self-regulation of both mind and body. Studies of yogis who demonstrated unusual control over mind and body, and studies of the mechanisms of voluntary autonomic control indicate that body control is achieved through passive concentration and not through active striving, and the important part of the control is the process and the attention to it - not the outcome nor the goal. These dimensions operate in all physical, emotional and mental activity. Yoga helps all to learn autonomic control via passive concentration.

Yogasana can be used for warming-up, to cooling down, restoration, reimbursement of muscle balances, synthesis of whole mind and whole body, activation or deactivation of the body and also as supplemental exercise. Psychological preparation can be divided into two important types, they are general psychological preparation and specific psychological preparation.

General psychological preparation is to develop basic mental skills such as goal setting, relaxation techniques, concentration and visualization. The ultimate goal of

⁹ Kogler Aladar, **Yoga for Every Athlete, Secrets of an Olympic Coach**, (Mumbai: Jayco Publishing House, 2003): 11.

specific psychological preparation is self-mastery, control of emotions and control of the mind. Yoga is one of the best resources of self- development and attaining one's complete potential. In the progressive stages of yoga, super conscious states are attained which result in a feeling of ecstasy, deep peace and the materialization of psychic powers.

Yogasanas¹⁰ are trouble-free actions to keep the internal and external body parts fit for smooth functioning and maintaining a good health. No physical and mental activity can be performed well as long as the internal and external parts of the body are not in the condition of good health. The body and mind are closely related with each other's, we cannot ever divide it. Thousands of years back, the people of ancient Greece believed in the theory "A sound mind in a sound body". The whole system of yoga is based on this theory which is a precise and complete description of a happy state of human in this world.

"Yoga¹¹ has an absolute memorandum for humanity. It has a message both for the human body, human mind and also a message for the human soul." Yoga as a system of physical exercise had been in continuation in India since very olden times. According to our ancient sages, there are eight steps of yoga. Out of these eight steps first five steps are known as external Yoga and can be practiced by anyone, but last three steps are known as Internal Yoga and should be practiced by the well trained and advanced yogis. These eight steps are known as 'Astangyoga'. The first step "Yama" which means social discipline, Second step "Niyama" which means individual discipline, third step "Asana" it means the posture, fourth step "Pranayama" which means control over breathing process, fifth step "Prathyahar" which means mental discipline, Sixth step "Dharna" which means the concentration, seventh step "Dhyana" which means meditation and the eighth and final step "Samadhi" which means self-realization.

¹⁰ Sharma P R, Yoga, **Yogasana and Pranayama for Health**, (Ahemadabad: Navaneeth Publication India Limited): 10.

¹¹ Bold H V Swamy Kuvalayananda as Cited: **Abstracts and Bibliography of Articles**, (Kuvalayandan Birth Centenary Year Publication, 1985): 26.

Asanas¹² are mostly static body postures that should be executed slowly and without force. The posture in which body is still and under rest condition is called Asana. Learning and then practicing asanas is done in step by step and on regular basis help you to learn autonomic control through passive attention. In the asana, the stretch captures our passive attention. Asanas are body attention getters to bring passive concentration to a definite area.” Asanas are a very effective for developing correct body posture and for increasing flexibility in joints and the vertebrae column. Asanas increases strength, endurance, the ability to relax completely, and promote concentration. It also fine-tunes the nervous and endocrine systems. They stimulate and massage the digestive tract, cardiovascular system, pulmonary organs, and organs of secretions. Asanas directly influence the internal organs, especially the endocrine glands, and by this, influence the metabolism of the organism and the overall regeneration.

Through yoga a person can develop flexibility, strength, self-observation, body-awareness, self-study, self discipline, attention, concentration, good health and prevent bad health. Flexibility and yoga go together. Physically speaking postures improve the flexibility of muscles, amplitude of joints and height gain in children. With improved elasticity many tensions and conflicts are wiped out. It saves your body from redundant torture and pain. Pain and stress are the variety of barren, misplaced and misused liveliness. Being suppler means opening these energy blockages and releases one’s energy circulation in a proper way. As the blocked energy when freely circulated, one’s whole body will feel fresh and new because the captivated parts are free and released. Yoga helps us in making our body completely stretchy and grows the feeling of comfort.

Carelessness of these things causes the origin of any kind of pain. Problems like toothaches, back pain and headaches are all symptoms of negligence of one’s health. These problems should be listened carefully and not a subject of ignorance. The one who is in a good health, the less concerned one will be with their own body. This frees your mind to experience again itself. Yoga makes one more perceptive and more aware of one’s body; otherwise due to negligence, misuse, or mistreatment pain goes into the body. Due to be concerned that one has taken with one’s health, one’s attentiveness and

¹² Retrieved from <http://www.yoga.iloveindia.com//>

self-definition are open to enlarge. Our body is like a machine and time to time oiling and greasing is required, which keeps us concerned and in movable condition. Yoga has that power to set correct every bad thing that deals with our body. Hence, yoga helps us in making our body more flexible and healthy.

Pranayam¹³ is the fourth step of eight fold path of Yoga. Pranayama is derived from combining two hindi words Prana (life) + Ayama (to lengthen, prolong). Thus the literary meaning of pranayama is with the technique of lengthening the life. It should not be misconceived as breath control. Breath is the link between soul and spirit. As the metals like gold, silver etc. are purified when they are put into the fire same way all the sense organs are purified by pranayam.

Yoga is the union of Sun and Moon. In broader sense there must be a perfect coordination between sun nerve and moon nerve. There are nearly 72 crores nerves considered in human body. Out of these Ida Nadi (sun nerve), Pingla Nadi (Moon Nerve) and sushumna nadi (nerve) are main. At a particular time one nostril remains more active than the other. Through pranayama coordination between these two is set and nerves are purified. Inhalation through right nostril is warmer in comparison to inhalation through left nostril. There are three parts of Pranayama: Purak(Inhalation),Kumbhak (Breath Hold)and Rechak (Exhalation).Physiologically when during a long deep breathe air is inhaled, more amount of air rushes inside which results in availability of more oxygen up to the last tip of the lungs. During Kumbhak (Breathe hold) more time is given so that internal respiration (gaseous exchange) takes place properly and maximum carbon dioxide is replaced with the maximum oxygen.

During rechak (Exhalation) long deep exhalation ensures the maximum excretion of carbon dioxide and also upward movement of diaphragm in the chest cavity which massages the lungs. Availability of more amount of oxygen to each cell ensures more energy yield per cell and strengthens all the cellular level. It is also a process of detoxification of the body.

¹³ Sharma,S.K.,**Practical Yoga**, Sports Publication, Ansari Road Daraya Ganj, New Delhi,2008.

This step is most important step not only in Ashtang yoga but also in the other forms of yoga like Bhakti yoga, Laya yoga, Mantra yoga etc.

The Asanas¹⁴ are capable of influencing the breathe movements in a subtle manner. Almost all the asanas have to be done by controlling the breath. All asanas are done in a particular manner. It controls the breathing in a good manner. A combination of twelve steps 'Surya Namaskara' will improve the cardio-respiratory endurance and make the body highly physic and flexible. Same way almost all the asanas improve the concentration, memory and flexibility of human beings. Hence doing yoga improves the concentrations, memory and flexibility.

Pranayama practicing is critical to maximizing the valuable capacity of the lungs, that is, the essential purifying engine of our body. Our lungs encompass of some 73 million cells and in normal breathing only a third of the lung cells get oxygenated. Enlarged and effective utilization of the lung capacity would have a major impact on our physical, mental and spiritual well-being.

There are mainly eight types of pranayama¹⁵- Surya Bhedi Pranayama is called suryabhedi because in this inhalation is done by the right nostril alone i.e. surya swar is used. The second type of pranayama is Ujjayi pranayam. By practicing this pranayama control over pran is achieved that is why it is called Ujjayi Pranayama. The third type of pranayama naming Sitkari Pranayama is inhaling through the mouth producing a 'ssssss' type of sound, that is why it is called shitkari pranayama. Fourth type of pranayama is Shitali Pranayama. In this pranayama excessive cold is experienced. Fifth type of pranayama is Bhastrika Pranayama. While practicing this pranayama inhalation and exhalation creates the noise of a blacksmith's apparatus, and that is why it is called Bhastrika Pranayama. Sixth type of pranayama naming Bhramhari Pranayama, while practicing this pranayama inhalation in the noise a male black bee (bhanwara)and similarly exhaling also in the sound of female black bee is done. That is why it is called Bhramhari Pranayama. Seventh pranayama is Moorcha Pranayama. After any pranayama

¹⁴ Sharma P. P., **Yogasana and Pranayama for Health**, Ahemdabad: Gala Publications, 1989: 7-9.

¹⁵ Goel, B.B., **Natural Health & Yoga**, All India Nature Cure Federation, Delhi, 2010: pp no.188-192.

if on removing jalandhar bandh while exhaling gradually one feels as if unconsciousness is describing upon him it is called Moorcha pranayama. Eighth type of pranayama is Kevali Pranayama. When the practitioner is able to retain in the position of outer breath outside and inner breath within, with the pran stationed at the crown, then this particular state is called kevali pranayama.

After giving abovementioned description it is hereby needed to give a brief introduction that why the present topic has been selected by the scholar. Many researches have been already done in the area of yoga. Hence the curiosity rise in the mind of the research scholar that emphasis him to find out the questions, answer that what will be the effect of different kind of yogic asanas and breathing techniques on selected physical and physiological variables.

Statement of the Problem

Statement of the problem is declared as ‘a study on the effects of yogic asanas and breathing techniques on selected variables.’

Purpose of the Study

The specific purposes of this study were as follows:-

- i) To characterize the physical and physiological status of the school going students.
- ii) To investigate the effect of yogic asanas training on selected physical and physiological parameters of school going students.
- iii) To find out the effect of breathing technique on selected physical and physiological variables of school going children.
- iv) To compare the effect of yogic asanas & Pranayama techniques between experimental group and control group.

Delimitation of the study

i) Despite the heterogeneity of living pattern the subjects of the present study were from a Bengali medium school located at Haldia and therefore the study was delimited to class eight standard boys and girls of Haldia Govt. Sponsored Vivekananda Vidyabhawan (H.S), Haldia, West Bengal, India only.

ii) The age of the subjects of the study was delimited between 12-15 years only.

iii) The study was confined to the following selected variables:-

a) Muscular endurance

b) Static balance

c) Vital capacity

d) Breathe holding capacity(Antara Kumbhak)

e) Resting pulse rate

f) Systolic Blood Pressure

g) Diastolic Blood Pressure

Limitation of the Study

i) It was difficult to accumulate many more students of this age group. So the sample size was small.

ii) No motivational techniques have been used. The differences in the performance due to lack of motivation was considered as the limitations of the study.

iii) Lack of fund and proper instrument forced the investigator to limit the breathing tests.

iv) The effect of uncontrolled factors like climatic condition, dietary habits and the daily routine work of the samples were considered as the limitations of the study.

Hypothesis

Considering the relevance of the present research study the following hypothesis were drawn:

i) There will be no significant effect of Asana and Pranayama on selected physical parameters of school students.

ii) It is expected that Lung function test will improve following the participation of Pranayama training.

iii) There will be significant change in Resting Heart Rate, Pulse rate, Blood pressure among the experimental and control group.

Meaning and Definition of the Operational Terms

Pranayama¹⁶: - “Pranayama is a Sanskrit word meaning "extension of the prana or breath" or, "extension of the life force". The word is composed of two Sanskrit words, Prana, life force, or vital energy, particularly, the breath, and "ayāma", to extend or draw out. These practices bring control over the respiratory impulses, which form one of the channels of the flow of autonomic nerve impulses.”

Vital Capacity¹⁷: - “Vital capacity is the maximum amount of air a person can expel from the lungs after a maximum inhalation. It is equal to the sum of inspiratory reserve volume, tidal volume, and expiratory reserve volume.”

Breath Holding Capacity: -As defined by **Moses** breath holding time is the duration of time through which one can hold his breath without inhaling or exhaling. Breath holding could be positive or negative. It is referred to be positive when breath held

¹⁶ Retrieved from <http://en.wikipedia.org/wiki/Pranayama>

¹⁷ Retrieved from http://en.wikipedia.org/wiki/Vital_capacity

after forcefully inhaling the air, similarly it is termed negative when the breath is held after exhaling the air forcefully.

Resting Heart Rate: - “Resting heart rate is the number of times the heart beats per minute after complete rest.”

Muscular endurance¹⁸: - “Muscular endurance refers to the ability of body muscles to sustain resistance work for an extended period of time. This concept is closely associated with the muscle's ability to continue performing without fatigue.”

Static balance¹⁹: - “Static balance is the body's ability to maintain balance while still. Generally, balance is determined when the body is in unison with gravitational pull. Static balance is important in gymnastic preliminaries.”

Systolic blood pressure²⁰: - “Systolic pressure is peak pressure in the arteries, which occurs near the end of the cardiac cycle when the ventricles are contracting.”

Diastolic pressure²¹: - “Diastolic Pressure is the minimum pressure in the arteries, which occurs near the beginning of the cardiac cycle when the ventricles are filled with blood.”

Significance of the study

i) This study may focus the physical and physiological status among the sedentary school going children in searching for a better quality of life for healthy living.

ii) This study may throw some lights on the physical and physiological changes occurring by the practice of Pranayama.

iii) This study will enable to prepare an effective training programme based on asana and Pranayama of school students.

¹⁸ Retrieved from <http://www.ask.com/question/what-does-muscular-endurance-mean>

¹⁹ Retrieved from <http://www.ask.com/question/what-is-static-balance>

²⁰ Retrieved from http://www.diffen.com/difference/Systolic_vs_Diastolic

²¹ Retrieved from http://www.diffen.com/difference/Systolic_vs_Diastolic

iv) The findings of the study will be helpful in the identification of scientific based Yogis Programme.

v) This study will further help to prepare a model of training programme for the selected physical and physiological parameters.

vi) The result of the study will help to differentiate various training components and their trainability through systemic yogic training programme.

vii) The findings of this study may add to the existing bond of knowledge for physical educationists, coaches and useful to those who involve themselves in organization of sports competition and training.

viii) This study may help students to understand their potentialities in respect to physical and physiological fitness.

ix) This study may indicate that Pranayama can be an effective alternative medicine for controlling various breathing disorders.

x) This study may help to maintain healthy life especially the school going children.

xi) As the school students are the representative of the future youth of the nation, this study may help them to transit their experiences to the nation.