

CHAPTER – I

INTRODUCTION

Yoga is an ancient scientific method which deals man how to lead one's own life in unity within him and with those surrounded him. It is believed as one of the most vital and important culture of India. More than 2000 years ago our forerunners developed it to bind the body, mind and spirit, as a harmonious whole. Nowadays, the whole world is looking towards yoga for answers to the various problems of the human beings. Yoga means the experience of oneness or unity with inner being. It is not a religion but a good method by which one obtain control of one's latent power and to reach a complete self realization and a re education of one's mental processes, along with the physical. In the age of modern science and information technology, and changing world scenario with Global warming, our lifestyle becomes fast and also becoming stiff and complicate to live and lead with natural and normal life. The present condition of the environment is unfit, noisome, dirty, and congestive. So, it creates tension to the human beings and making them always strain. Yoga acts to save the human beings from the serious and dangerous ailments.

Yoga is a light, which once lit, will never dim, the better your practice, the brighter the flame. The younger, the old, the extremely aged, even the sick and the infirm obtain perfection in yoga by constant practice. In short, yoga is a way to achieve total health, peace, bliss and wisdom. Physical, mental and spiritual aspects of yoga help to make one's life purposeful, useful and noble. Yoga is an art, science and philosophy, which influence the life of man at every

level. Therefore, the influence of yoga must be felt in every movement of our day to day lives. (Iyengar, 2008).

1.1 YOGA EVOLUTION AND HISTORY

Yoga is an ancient art based on a harmonizing system of development for the body mind and spirit. It is a practical aid, not a religion the continued practice of yoga will lead one to a sense of peace and well and also a feeling in harmony with one's environment. The word Yoga comes from the Sanskrit root "Yuj", which means, "to join" or "to yoke". Yoga is one of the six systems of Indian philosophy. The classical form of yoga, based on the text described to patanjali, became known in the middle ages as Raja Yoga or "Royal Yoga". Other forms of yoga also developed, which might be followed together with, or independently of the classical yoga. Among these the practices of Hatha Yoga have become famous throughout the world, and the term yoga is often used to denote them. Hatha Yoga seems to be a late development in Hinduism, and the earliest texts on the subject date from little before the Muslim invasion. It is closely connected with Tantrism. Though many practitioners of Hatha Yoga are not Tantrists.

The history of yoga can be divided into four broad categories, like Vedic, pre-classical, classic, and post-classical period. The ancient texts of Vedas are the foremost scripture in the world. The Sanskrit word Veda means 'knowledge' and rig means 'praise'. Thus the rig Vedas are the collection of hymns that are in praise of a higher power. Other three Vedas are Yajur Veda (knowledge of

sacrifice), Sama Veda (knowledge of chants), and Atharvana Veda (knowledge of Atharvana). Vedic yoga can also be called Archaric yoga, as people believed in a ritualistic way of life. Rituals, sacrifices, and ceremonies existed because they were considered a means of connection to the spirit world. People turned to rishis or Vedic yogis for illumination. Vedic masters were blessed with a vision of the supreme reality and their hymns speak of their marvelous intuitions. Hatha Yoga is based on a fantastic physiological theory, teaching the existence of a dormant potential energy, called Kundalini, “the serpent power”. At the base of the spine, a vein, known as sushumma, runs through the backbone, linking the Kundalini, by way of six psychic centers (“called chakras, or wheels”), with the supreme centre of psychic power, at the top of the skull, called sahasrara, and described as a lotus with a thousand petals. The aim of the yogi, according to this system, should be to raise the kundalini through the vein sushumma from one chakara to another until at last it unites with the sahasrara, when full salvation is achieved. This requires an intense development of the will, so that all the automatic process of the body are brought fully under the control of the mind, and the yogi can control the rhythm of his heart beats at will, live for many days without food and water, and survive for an appreciable length of time even without breathing. Despite exaggerated claims, there is sample evidence that some yogis have achieved an almost superhuman control over their bodies. Yoga therapy and Acupunctures, in their less extreme forms, are believed to be conducive to health, clarity of intellect, and long life: many Indians and some Westerners perform yoga exercises without any special religious purpose.

A few hundred years after Patanjali, the evolution of yoga took an interesting turn- the potential of the human body now become an interesting field of study. Yogis of the past had not paid very much attention to the (physical) body, as they focused all their energy on contemplation and meditation. Their goal was to leave their bodies and the world, in order to re- unites with the shapeless reality- the soul. The new generation of yogis however, developed a system where different exercises- in conjunction with deep breathing and meditation, would he keep the body young and prolong life. The human body was regarded as the temple of the immortal soul, and not just as a meaningless vessel to be abandoning at the first opportunity. This paved the way for the creation of Hatha Yoga, and other branches and schools of Tantra Yoga.

1.2 THE STAGES OF YOGA

Patanjali enumerated the eight limbs or stages of yoga for the query of the soul.

They are

1. Yama (Universal moral commandments)
2. Niyama (Self purification by discipline)
3. Asana (Posture)
4. Pranayama (Rhythmic control of breath)
5. Prathyahana (Withdrawal of the mind form the sense and exterior objects)
6. Dharama (Concentration)

7. Dhyana (Meditation)
8. Samadhi (A state of super- consciousness) **Iyengar B.K.S, (2008).**

1.3 ASANAS

Asana is derived from the verb root “as” which means “to sit”, “to remain”, etc. Therefore asanas means, a state of being in which one can remain physically and mentally steady, calm, quite and comfortable. A steady and pleasant posture produces mental equilibrium and prevents fickleness of mind. Asanas are not merely gymnastic exercise but postures. Asanas have been evolved over the centuries so as to exercise every muscle, nerve and gland in the body. They reduce fatigue and soothe the nerves. But their real importance lies in the way they train and discipline the mind. **(Iyengar, 2008).**

1.4 PRANAYAMA

Pranayama is generally defined as Breath Control. The word Pranayama is comprised of two roots, Prana, Yama. Prana here means vital energy or life force. Yama means control. There are five types of Prana. They are Parna, Aparns, Samana, Udana, and Vyana. Breath means life. Every breath, you take energy into yourself, with each out-breath you let go of all tension, all struggle, all worries and all sufferings. Deep breathing practice involve the technique of filling the lungs with oxygen that help the child by promoting calmness of the mind and enriching the blood supply. Very early in life, the child realizes the manifold benefits of good breathing technique, something that elude even the grown up. **(Malathi, 2012)**

1.5 MEDITATION

Meditation is the act of focusing one's thoughts or engaging in self – reflection or contemplation. Some people believe that, through deep meditation one can influence or control physical and psychological functioning and the course of illness. Meditation is a state of consciousness that can be understood only on a direct, intuitive level. While you meditate, past and future cease to exist. There is only the consciousness of I AM in infinite eternal now. Meditation is the royal road to the attainment of freedom a mysterious ladder that reached from earth to heaven, darkness to light, and mortality to immortality.

1.6 FARTLEK TRAINING

Fartlek means "speed play" in Swedish, is a training method that blends continuous training with interval training. The variable intensity and continuous nature of the exercise places stress on both the aerobic and anaerobic systems. It differs from traditional interval training in that it is unstructured; intensity and/or speed varies, as the athlete wishes. Most fartlek sessions last a minimum of 45 minutes and can vary from aerobic walking to anaerobic sprinting. Fartlek training is generally associated with running, but can include almost any kind of exercise. Swedish coach Gosta Holmer developed fartlek in 1937, and, since then, many physiologists have adopted it. It was designed for the downtrodden Swedish cross country running teams that had been beaten throughout the 1920s by Paavo Nurmi and

the Finns. Holmer's plan used a faster-than-race pace and concentrated on both speed and endurance training.

This is the first session that was designed by Gosta Holmer for a cross country (multi-terrain) runner. This is also an example of what a fartlek session might look like, but fartlek sessions should be designed for an athlete's own event or sport, as well as catering to their individual needs. Sessions should be at an intensity that causes the athlete to work at 60% to 80% of his or her maximum heart rate. This should mean that the body will not experience too much discomfort while exercising. An athlete should also include a good warm up at the beginning of the session, and a cool down at the end of the session, to improve performance, minimize post-workout muscle soreness, to decrease the chances of injury and for other reasons.

Warm up: easy running for 5 to 10 minutes. Steady, hard speed for 1.5–2.5 kilometres (0.93–1.55 mi); like a long repetition. Recovery: rapid walking for about 5 minutes. Start of speed work: easy running interspersed with sprints of about 50–60 metres (160–200 ft), repeated until a little tired. Easy running with three or four "quick steps" now and then (simulating suddenly speeding up to avoid being overtaken by another runner). Full speed uphill for 175–200 metres (574–656 ft). Fast pace for 1 minute. The whole routine is then repeated until the total time prescribed on the training schedule has elapsed.

The fartlek method of training was introduced to the United States in the 1940s. Fartlek Hill in Quantico, Virginia, on the grounds of United States Marine Corps Officer Candidates School, is named after fartlek training. The hill is the central part of the fartlek-type physical training regularly conducted throughout the training cycle. The fartlek training done at Officer Candidate School differs from traditional fartlek training, however, by incorporating a number of calisthenic exercises at various intervals. Fartlek is a form of road running or cross country running in which the runner, usually solo, varies the pace significantly during the run. It is usually regarded as an advanced training technique, for the experienced runner who has been using interval training to develop speed and to raise the anaerobic threshold. However, the 'average' runner can also benefit from a simplified form of Fartlek training, to develop self-awareness and to introduce variety into the training program.

For the advanced runner, the aim in Fartlek can be best described by relating it to interval training. The purpose of interval training is to develop speed by running for short distances at a speed significantly higher than the normal strong race pace, with these short runs separated by intervals of easy running or jogging. Intervals are normally run over predetermined distances, and usually on the track. Fartlek is similar to interval training in that short fast runs alternate with slow running or jogging recovery intervals. However, in Fartlek the running is done on the road or on parkland or bush tracks. There is no predetermined schedule to follow, but instead the athlete will set her/his own

interval lengths and pace in response to their own feeling of the workload. An advantage of Fartlek is that the athlete can concentrate on feeling the pace and their physical response to it, thereby developing self awareness and pace judgement skills. Also the athlete is free to experiment with pace and endurance, and to experience changes of pace. It is primarily a technique for advanced runners because it requires 'honesty' to put in a demanding workload, and also 'maturity' to not overdo the pace or length of the intervals. With these qualities, Fartlek makes for an excellent component of a distance runners training programme.

A mild form of Fartlek can also be of benefit for the average runner. Here I am thinking of the road runner who normally trains over a variety of distance, at a fairly constant pace, and who may have done no or little specific speed training. The technique here is to introduce into your normal runs some short periods of slightly higher pace. Maintain these for a short period, say 200-400m (aim for a bend in the road, power pole or some other landmark up ahead). Then drop your pace back below your normal running pace, or slow to a jog, until you have fully recovered and your breathing has returned to normal. Then return to running at your normal pace, and put in another slightly fast interval later in the run. In this way you are putting a slight extra stress on your system which will, in time, lead to an improvement in your speed and in your anaerobic threshold.

Fartlek training is a well known and a well respected training method that was first developed over 70 years ago, in the late 1930's, by the Swedish coach,

Gosta Holmer and was introduced at about the same time that Gerschler and Reindel were experimenting with the original Interval Training. Fartlek training was designed as Holmér's response to the Swedish distance athletes' lack of success against the Finnish teams of the day, including the legendary Paavo Nurmi, and also to having limited access to specially built training facilities in Sweden at that time.

Gosta Holmer's Fartlek could be done virtually anywhere, even where there were no recognised athletics tracks. The word 'Fartlek' itself comes from the Swedish for 'Speed Play' and reflects that this training provides for a variety of speeds or paces combining continuous aerobic emphasis training with faster than race pace efforts. True Fartlek allows the athlete to run whatever distances and speeds they wish and to 'play' with varying the intensity, occasionally running at high intensity levels, occasionally at lower intensities. Varying the terrain for the Fartlek session merely added another variable to play with and Fartlek was frequently done through woods on undulating trails. This Fartlek training was also known as the 'Swedish natural method', or just the 'Swedish method', of training

In the beginning a typical Swedish Fartlek session would comprise a total of 12 kilometres running with up to 5,000 metres of this running being at faster than race pace. And this Fartlek training would be done regularly and often, from three to five times a week. Holmér's athletes blossomed under the Fartlek regime and produced world records in all distances from two miles to 10,000

metres. The most successful of these athletes was Gunder Hägg who in the summer of 1942 established ten world records over an 82-day period in seven different events, from 1500 metres to 5,000 metres. The running world took notice and word of the new 'Fartlek Training' spread.

Fartlek, developed in the 1930's, comes from the Swedish for 'Speed Play' and combines continuous and interval training. Fartlek allows the athlete to run at varying intensity levels over distances of their choice. This type of training stresses both the aerobic and anaerobic energy pathways. Fartlek running involves varying your pace throughout your run, alternating between fast segments and slow jogs. Unlike traditional interval training that involves specific timed or measured segments, fartleks are more unstructured. Work-rest intervals can be based on how the body feels. With fartlek training, you can experiment with pace and endurance, and to experience changes of pace. Many runners, especially beginners, enjoy fartlek training because it involves speed work. But it is more flexible than and not as demanding as traditional interval training. Another benefit of fartlek training is that it doesn't have to be done on a track and can be done on all types of terrains roads, trails, or even hills. To do a fartlek workout, try introducing some short periods of slightly higher pace into your normal runs. Maintain the faster pace for a short distance or time intervals, such as 200m or 30 seconds. The intervals can vary throughout the workout, and you can even use landmarks such as streetlights or telephone poles to mark your segments.

Once you complete a fast segment, slow your pace to below your normal running pace, until you have fully recovered and your breathing has returned to normal. Then return to running at your normal pace, and incorporate more slightly fast intervals later in the run. Fartlek training puts a little extra stress on your system, eventually leading to faster speeds and improving your anaerobic threshold.

1.7 HISTORY OF FIELD HOCKEY

The name hockey is thought to have originated from the French word 'hocquet', meaning a crooked stick or shepherd's crook. Field hockey is a popular sport for men and women in many countries around the world. In most countries, especially those in which ice hockey is not very prominent, it is simply known as hockey. Field hockey has several regular and prestigious international tournaments for both men and women. These events include the Olympic Games, the quadrennial World Hockey Cups, the annual Champions Trophies, and World Cups for juniors.

Though there may be an argument on the origin of hockey. There can be no doubt whatever as to how it came to India. It came to this country with the British; though no one enough evidence that the game was played with great gusto in army barracks and flourished there. The civilians might have played it. In due course Indians also started to play it. Towards the end of the nineteenth century the game had established itself in all port towns soon the Indians took over from the British. Indians participated 1928 and won the gold medal and

kept winning till 1956. Dhyanchand came to be the wizard in the world at that time. With the advent of synthetic surface in modern hockey and major International tournament from 1976 onwards drastic changes have take place. Men's hockey entered the Olympics Games in the 1908 and has been an event continuously since 1920. Women have competed at Olympic level since 1980.

The aim of hockey is quite simple to use sticks to dribble, pass, and shoot the ball along the pitch in an effort to score goals. The rules are very similar to those of football except that players use sticks instead of their feet to move the ball. A goal counts as one point and it scored when the ball, having been hit by a player inside the 'striking circle', completely crosses the opposing goal line. The 11 players on a team include: a goalkeeper, defenders, midfielders and attackers. The only player that is allowed to kick the ball with their feet or touch it with their hands is the goalkeeper. Hockey is played on a 91.4m x 55m pitch and each player has a stick which is about a meter long, has a rounded head, and weighs about 340 to 790 grams. A hockey match usually lasts 70 minutes – two halves of 35 minutes each. In Olympic competition, any match that ends in a draw goes to extra time. In extra time the first side to score a 'golden goal' wins, but if there is no goal within the extra 15 minutes, a penalty shoot out results.

The game had been taken to India by British servicemen, and the first clubs formed there in Calcutta in 1885. The Beighton Cup and the Aga Khan tournament had commenced within ten years. Entering the Olympic Games in 1928, India won all five of its games without conceding a goal, and went on to

win in 1932 until 1956, and then in 1964 and 1980. The Indian Hockey Federation was formed in the year 1925 in Gwalior, Madhya Pradesh during the Scindia Gold Cup tournament. But it was not active after that. After the end of the World War I, the commander of the British Armed forces in India, Field Marshall Birdwood who was in charge of organizing the retreat of the combined Australian and New Zealand armies after the Gallipoli tragedy proposed a Hockey tour to New Zealand in 1926 as a friendship tour. The tour gave a chance for revival of the Federations and thus began the efforts of consolidating the Indian Hockey Federation as the Indian Army's Hockey team toured New Zealand. The Indian Hockey Federation gained global affiliation in 1927 and joined the International Hockey Federation. A national championship between provinces was organized in 1928 at Calcutta to select the Indian team for the Amsterdam Olympics.

Keeping in view of the significance and relevance of yoga in one's life, and the influence of fartlek training the researcher has made an attempt to experiment it in practical life so as to study, and analyze its influence concretely.

1.8 STATEMENT OF THE PROBLEM

The purpose of the study was to find out the influence of yogic practices with and without fartlek training on selected lung functions and hematological variables among hockey players.

1.9 SIGNIFICANCE OF THE STUDY

1. This study would help to assess the lung functions and hematological variables among hockey players.
2. The results of the study would help to introduce the training packages for men Hockey players.
3. The results of the study would motivate the players to practice the game Hockey.

1.10 HYPOTHESES

On the basis of available literature and scholar own understanding of the problem, the following hypotheses were formulated:

1. It was hypothesised that there would be a significant improvement in selected lung functions. From the base line to post training due to the influence of yogic practices and yogic practices with fartlek training group among the hockey players.
2. It was hypothesised that there would be a significant improvement in selected hematological variables. From the base line to post training due to the influence of yogic practices and yogic practices with fartlek training group among the hockey players.
3. It was hypothesised that the experimental groups would show significant improvement on selected lung functions and hematological variables than the control group.

1.11 DELIMITATIONS

This study was delimited to the following aspects.

1. The study was delimited to forty five Inter-Collegiate men Hockey players from Ernakulam district, Kerala, Tamilnadu.
2. The study was confined to Inter-Collegiate men Hockey players between the age group of 18 and 25 years.
3. This study was delimited to only yogic practices and fartlek training.

1.12 LIMITATIONS

This study was delimited to the following aspects.

1. The impact of training schedules, previous experiences, motivational factors and various physical activities on the subject's playing ability were not taken into account.
2. Hereditary and environmental factor, which contribute to both physical and mental efficiency were not controlled.
3. Variations in performance due to diet, climatic conditions, ground conditions and other environmental factors that might affect the study, were not taken into consideration.
4. No attempt were made to determine whether the subjects and having the some degree of motivation during the various stages of training and testing periods.

5. The fatigue factors of the players and the carry-over knowledge of the skills which might affect the performance in the tests were considered as limitations of the study.
6. Since the human elements are involved in the test administration even slight error in measurement and timings which might affect the results were also considered as limitations of the study.

1.13 DEFINITION OF TERMS

1.13.1 Vital Capacity

The Vital capacity is the amount of air expelled from the lungs after a deep inspiration. **(User Manual Helios 401, 2006)**

1.13.2 Forced Vital Capacity

Forced vital capacity (FVC) is the volume of air that can forcibly be blown out after full inspiration, measured in liters. **(User Manual Helios 401, 2006).**

1.13.3 Slow Vital Capacity

Slow vital capacity (SVC) is the maximum volume of air that can be exhaled slowly after slow maximum inhalation. **(User Manual Helios 401, 2006)**

1.13.4 Maximum Voluntary Ventilation

Maximum voluntary ventilation (MVV) is a measure of the maximum amount of air that can be inhaled and exhaled within one minute. **(User Manual Helios 401, 2006).**

1.13.5 Total Cholesterol

The total cholesterol is defined as the sum of HDL, LDL and VLDL.
(Fox, 1984)

1.13.6 High Density Lipoprotein

High density lipoprotein cholesterol known as good cholesterol because elevated levels decrease coronary heart disease risk factor that arises due to diabetes, should account for at least 25 percent of one's total cholesterol. HDL transports cholesterol from the cells back to the liver which can be excreted.
(Fox, 1984)

1.13.7 Low Density Lipoprotein

Low density lipoprotein cholesterol can deposit cholesterol on artery walls, lowering blood flow, and is considered bad cholesterol. It causes coronary heart disease risk factor that arises due to diabetes **(Fox, 1984)**.