CHAPTER - I

INTRODUCTION
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1.1 Introduction

Performance in sports and games depends on both physical and mental abilities. Body and mind have an equal contribution in human success. Performance of Indians at international sports and games is a dismal show. In general, games other than hockey, tennis, volleyball and cricket Indians could not find a place in the international sports map. The reason for such pitfall could be accounted to the lack of infrastructure, narrow base of sports population, improper system in selection of players and training, lack of awareness in sports and financial constraints. Among these major issues, the top most is improper system in training. The present system of training in India highly concentrates on the physical aspects and psychological aspects are given the least importance that too only during the camp. The salient aspect of the psychological influence in human beings is execution of every physical movement. Though mind is exerting such a significant influence in human physical activity, no training schedule comprises the system to develop mind related aspects. Earlier studies in sports also confirm that body and mind are functioning for high-level performance at an equal distance.

The persons in the field of Indian sports are now beginning to realize the importance and impacts of mind in success of sports. Two years before, the Sports Authority of India had sent the Indian hockey team to one-week yogic training camp with the aim to develop the concentration, relaxation and strengthen the mind related aspects. At the end of the yoga training camp, the
players opined positively that yogic training was highly helpful in developing the concentration, relaxing all the physical and physiological systems which in turn helped to free the mind from distractions. These effects were practically realized by the Indian hockey players while playing the crucial matches. Here very specifically the players realized such a valuable effect only at the age of nearly above twenty. But if the Government of India takes steps to inculcate the yogic exercises at an early age i.e. at school level, the rate of benefit will be very high. By such a year long programme for the sports participants strengthening the physical and mind related aspects, the individual can increase the consistency in performance. It helps the sports participants to enhance the rate of success, it appears as a viable source to find permanent place in international sports map. With this basic assumption, the investigator was impelled to design the training programme consisting of physical and yogic exercises and to test its impacts on performance and performance related factors of sports since the investigator himself being associated with this game for more two decades as a player and coach.

To achieve this purpose, the investigator has chosen the game of basketball as a sport. The reason behind the selection of basketball particularly is that it is a game of complex nature of movements. High-level performance in basketball demand not only timely application of mind during dribbling and passing the ball, but also a sort of coping mechanism in stressful situations.
1.2 HISTORY AND NATURE OF THE BASKETBALL

The game of basketball was invented in December 1891 by Dr. James A. Naismith an instructor in the physical training department of the International Young Men’s Christian Association Training School in Springfield, Massachusetts, U.S.A.

Basketball has attained an impressive level of international popularity. It is a game played with continuous flow of activity and has always been considered as a game of precision, timing, accuracy, and agility. However the changing character of the game and the improved ability of the players, from inter-school competition to Inter-national competition, demand greater attention to player’s preparation. Competitive basketball is considered more anaerobic than aerobic and the success in basketball appears to be dependent more on the player’s anaerobic power and endurance rather than on aerobic power. Although only 15% of the playing time in a basketball game has been described as high intensity, these actions are likely to determine the outcome of a contest. The quick change of direction and explosive speed needed to free oneself for an open shot, the ability to jump quickly and repetitively, and the speed needed to reach loose balls and run a fast break, are examples of high intensity activities common to basketball.

Basketball is a demanding sport. Not only the basketball player must have tremendous cardiovascular endurance to run up and down the court time after time for four quarters of play, but he will also need to be able to execute explosive bursts of speed, explosive jumps, and explosive movements for
agility, time after time. Such an ability to perform explosively regardless of extreme cardiovascular fatigue is called "strength-endurance". Explosive power, one of the most important components of performance related factors, helps the player to move fast, jump high, and beat out the man in front of him. Basketball is no longer just a game of shooting baskets and dribbling the ball around opponents. It is no longer a game of blocking shots and fast breaks. It is a complete game involving incredible levels of fitness. Having the greater intensity throughout the entire game – the player can have the ability of the faster, stronger and more enduring for the entire game. With the mastery on performance related components a player can have a higher degree of overall body strength and stamina, as well as increasing ability to hold position under the basket, rebound, increase speed and agility.

1.2.1 Prerequisites for a Basketball Player

As the important prerequisites for a good performance in Basketball, the skills related to physical and psychological factors are as follows.

Physical Skills

Generally the performance of a Basket Ball player depends largely on physical fitness factors such as strength, speed, endurance, flexibility and various co-ordinative abilities. Speed plays vital role in the modern basket ball. Basket Ball is a game played for 40 minutes with 2 minutes break between 1\textsuperscript{st} & 2nd quarter and 3\textsuperscript{rd} & 4\textsuperscript{th} quarter and 15 minutes between 2\textsuperscript{nd} & 3\textsuperscript{rd} quarter. When a player gets tired his skills are inaccurate, and could not be performed
satisfactorily. Endurance is important for ensuring good quality of the skills, accuracy, rhythm etc. Co-ordination and flexibility are other important fitness factors, which have more say in the modern Basket Ball. Reaction time and movement time are of immense importance for a Basketball player whether in offensive or defensive position. An offensive player has to react quickly and execute the shooting faster to outwit the defense. The defensive players should be quick enough to react and execute to tackle successfully.

**Psychological Skills**

The development of mental skill for a Basketball player is as important as the development of physical skills. A player should be able to think, understand and analyse each movement in the game and act. A player should be able to make split-second decisions on the spot and develop determination and will power. The champion player must have self-confidence and positive attitude. Practising a skill over and over to perform it correctly in game situation adds to self-confidence. Since Basketball is a team game, players must have the mental traits of being able to work with teammates. It is a natural impulse for a player to want to make the winning goal. But a player who is willing to pass the ball to player who has a better opportunity than him should be congratulated.

Apart from various physical and mental factors, the very important thing to be considered for top-level player is emotional factors. Emotional factors such as anxiety, stress, fear and anger plays very crucial role in the game of Basketball. At the beginning of the game, while taking the free throw the
anxiety of a player is less than that of the same player taking the free throw in the last minute of the game, when his team is down by one point. Stress in competition is a result of both internal and external pressures. A player should develop emotionally to control his feelings that will make him tense, fearful or angry. The fear of failure, the inferiority feeling when comparing him with the opponent will affect the performance of a player.

1.3 YOGA - A BRIEF OVERVIEW

Yoga has been practised in India for over two millennia. Stories and legends from ancient times testify to the existence of yoga, and to the practitioners and divinities associated with it. Indian literature is a storehouse of knowledge about yoga covering every conceivable level. Roughly in chronological order are the vocals (books of Scriptural knowledge), the Upanishada (philosophical cosmologies), and their commentaries; then the Puranas (ancient cosmologies), and the two epics, the Ramayana and the Mahabharatha. The Mahabharatha contains within itself that masterpiece of Indian scripture the Bhagavad Gita. Towards the end of Vedic period comes the aphoristic literature, with the “Yoga Aphorisms” of Patanjali of special interest to yoga students. These are, besides, whole bodies of works both ancient (Pre-Christian) and more modern dealing with various aspects of yoga and yoga philosophy, testifying to the continued relevance of yoga as a discipline (Mira-Mehta, 1994).

Yoga has a hoary past. The importance for the spiritual attainment has been recognized throughout the ages by all the systems of Indian philosophy.
There is no doubt that the essence of yoga has been considered in the spiritual upliftment of man. One may question as to how then yoga is related to the physical education and whether yoga will not be pulled down from its highest pedestal in doing this. It is necessary, therefore, to clear the concepts of yoga and physical education first (Gharote, 1976).

In other systems of physical exercises, the internal organs of the body mostly do not get proper exercise, while yogasana gives sufficient exercise to the internal organs of the body. Yogasanas have a greater impact on the mind and the senses than the other physical exercises with the result that yogasanas help to develop one’s physical and mental powers to calm the mind and control the senses. Yogasanas make possible not only physical and mental development but also intellectual and spiritual development. Asanas require the least possible use of physical energy. Yogasanas are called a ‘non-violent activity’ (Sharma, 1984).

1.3.1 Meaning of Yoga

The science of yoga works on physical, mental, emotional, psychic and spiritual aspects of a person. When inbalance is experienced at this level, the organs, muscles and nerves no longer functions in harmony, rather they at in opposition to each other. Therefore yoga aims at bringing the different bodily functions into perfect co-ordination so that they work for the good of the whole body.
Yoga is one of India’s wonderful gifts to mankind. One of its valuable qualities is that it builds up a store of physical health through the practice of a system of exercises called asanas which keep the body cleansed and fit. Yoga believes that exercise is essential for speedy removal of toxins and for keeping blood circulation and all internal processes functioning smoothly.

Yoga has a complete message for humanity. It is a message for the human body, human mind and human soul (Kuvalayananda, 1977).

Maharishi Patanjali, the father of modern concept of yoga and a great physician himself, in the 300 BC defined yoga as the complete mastery of mind and emotions. Unlike so many other philosophies of the world, it is a scientific philosophy that is wholly practical. Yoga is an exact science which has its foundation on certain immutable laws of nature and establishes “Mind over body”. The gaining of a healthy body with a calm and steady mind under all circumstances is the common aspiration of every individual. The word yoga is derived from the Sanskrit word “Yuj” which means Control or ‘unite’. Both these words quite adequately give the meaning of “yoga”.

Bhagawat Gita refers to yoga in several places. Gita states that “a Yogic is one who renounces the concern of the consequence of his deeds”. In other words, a yogic is concerned only with the perfection of the action and not the consequence. He is not reward motivated and will overcome bondage for ever.

Yoga is a science which enables one to learn to unite his jeevatma (individual soul) with the paramatma (universal soul) and the final union is the
fulfillment of ‘yoga’. Even the techniques which promote one’s progress towards realization of the supreme are called “Yoga” (Chakrabarthi et al, 1984).

1.3.2 The Concept of Yoga

Although the word ‘yoga’ has many connotations, etymologically it means “Integration”. The term ‘Samatva’ of Bhagavat Gita conveys the same meaning. Other terms like homeostasis, equilibrium, balance, harmonious development etc. more or less suggest the same things. The aim of yoga itself is an integration of personality in its all aspects. In order to help the development of such an integration, various techniques are employed. These techniques or practices enjoined in Yogic literature and handed down in different traditions also go under the name of yoga (Gharote, 1976).

1.3.3 Nature of Yoga

Yoga postures are the physical positions that co-ordinate breath with movement and with holding the position to stretch and strengthen different parts of body. Yogic exercises are the ideal complement to other forms of physical exercises such as running, cycling, and swimming. Yogic postures systematically work on all the major muscle groups, including the back, neck and shoulders, deep abdominal, hip and even ankles, feet wrists and hands. By their very nature, yogic exercises affect all the muscles groups and organs as they simultaneously impart strength, increase flexibility and bring nourishment to internal organs. Although most poses are not aerobic in nature, they do in
fact send oxygen to the cell by way of conscious deep breathing and sustained stretching and contraction of different muscle groups.

Yoga can help to check any imbalance in muscular development and will enable both mind and body to function more efficiently. Practising of yoga asanas strengthen the muscles, release physical tension and improve concentration and poise. Yoga makes limbs balanced strong and relaxed. The standing poses improve balance and muscle flexibility. Yogic practice can help players to relax and replenish their energy after strenuous games. It also promotes calm, clear thinking even in situations that call for fast reactions. Yoga stretches and strengthens all muscles of body and brings peace and calm to the mind and spirit.

Yoga helps to prevent injuries by bringing balance back to the body along with relaxation and focused concentration of the mind. Yoga develops strength, suppleness, agility, awareness and alignment. Yoga is a great cross training for any sport. Salient feature of yoga is combination of both physical conditioning and focused concentration. One of the most essential elements for athletic performance is balance.

1.3.4 Common Objectives of Yoga and Physical Education

Health, Physical fitness and emotional stability are the objectives which bring yoga and physical education on a common platform for the benefit of human individuals. Health is a more general and comprehensive term conveying the “feeling of well being”, while physical fitness is a more specific
term. Physical fitness is the capacity of an individual to perform a given task at a particular time. Health and physical fitness are not static. They are always changing. They follow "the law of use and disuse". Health and physical fitness can be maintained only by carefully selected physical activities which are called "Exercise". The utility of a particular exercise programme can be evaluated only in terms of the effects that are obtained in promoting a particular factor or factors of physical fitness. Through constant practice of yoga, one can overcome all difficulties and eradicate all weakness. Pain can be transmitted into bliss, sorrow into joys, failure into success and sickness into perfect health. Determination, patience and persistence lead one to the goal (Ananda, 1982).

1.3.5 Yogic practices in Physical Education Programme

Yogic practices were included in the syllabus of physical activities headed by Swami Kuvalayananda in India in the year 1937. Though yoga has become popular all over the world, physical education workers in many countries do not feel that yoga could be accommodated in their regimen (Gharote, 1976).

Very often, it is observed that under 'Emotional Stress' players forget the principle of 'Sportsmanship' and 'Sportsman Spirit' and their basic personality pattern comes to the surface. Due to this, a good player and at times the whole team has to suffer and get disqualified.
It is hoped that through relaxative and corrective asanas and other suitable yoga practices these personality factors could be tackled to a great extent. In this respect, one has to make a distinction between games, sports and yoga practices. Games and sports mainly work on the basic aspect of the neuromuscular system and essentially they aim at increasing one’s own muscular strength, power and endurance. On the other hand asana seems to work on and through the tonic aspect of neuromuscular system and influence various psycho neuro endocrine mechanisms in due course of time (Bhole, 1977).

As a result, one feels less tired. This is the reason why practice of Asanas keeps the respiratory system in an efficient condition. Breathing activity depends on the health of lungs and respiratory muscles. Shalabasana and Mayurasana make them strong and elastic because Shalabasana requires deep inhalation and retention of breath for a few seconds. The pressure forces air into every cell of the lungs and opens it out for active work. Yogic exercises have been found to be excellent exercises for the thyroid also. The pituitary glands and the pineal glands are best taken care of by Sirasana. So far as the adrenals are concerned, Bhujangasana, Dhanurasana, Uddiyana and Nauli are capable of preserving their health. For conducting various healthy tests Sarvangasana, Uddiyasana and Nauli have been observed to have great efficiency.
1.3.6 Yogic Exercise

Yoga is universal, benefiting all people of all ages. Asana is a very ancient practice of yoga whose antiquity can be traced to and even from the excavations of the statues and figures at Mohenjodoro and Harappa. Asana plays an important role in every kind of yoga sashana (Gharote, 1985).

Yoga is the inhibition of the modifications of the mind. This means that it prevents the contents of the mind from taking different forms (Ananda, 1981). According to Indira Devi (1967) the aim of yogasana is not only to develop the muscles and the body but also regulate proper activities of all, mainly the internal organs and glands which affect the nervous system and that which controls over ‘well being’ to a greater degree than one actually supposes.

Yoga is thus the most devoted and dedicated approach to personality and its perfection, promising pursuit of life. Therefore, yoga should have an integral place in the pattern of education with the object of equipping the youth with proper physical, emotional and mental capacity so that, he may develop into a well adjusted person for his own benefit as well as for the benefit of the society around him. The yogi believes that a strong and limber spine makes the movements graceful and is the secret for a strong body and youthful appearance.

Good posture refers to efficient mechanical relationship between and among body segments. It enhances health because it is conductive to improve
organic functions such as endurance, ease of performance and a more rapid recovery from normal fatigue. Further the aesthetic value of correct body alignment and favourable impression made by it upon other people is, of course also important (Christaldi, 1966).

Iyenger (1986) puts forth his view on asanas thus: Asana can be done alone as the limbs of the body provide the necessary weights and counter weights. By practicing them, one develops agility, balance, endurance and greater vitality. Asanas have been evolved over the centuries so as to exercise every muscle, nerve and gland in the body. They secure fine physique, which is strong and elastic without being muscle-bound and they keep the body from diseases. They reduce fatigue and smoothen the nerves. But their real importance lies in the way they train and discipline the mind.

1.3.7 Yoga Practices and Physical Exercises

It is necessary to note that the nature of all Yogic practices is psychological and physiological. Some exercises emphasizing the control of mental processes directly are more psychological. Other exercises are more physical or physiological. It is this later part of yogic practices that has become more popular and is being extensively used for the development and promotion of health and fitness. The Yogic exercises in general differ from the physical exercises and the important differences are:

1. The non-yogic exercises are repetitive in character and utilize a lot of energy whereas yogic exercises help to conserve energy. The caloric
requirement of yogic exercises is only 0.9 to 3 calories per minute depending upon the severity of exertion.

2. Relaxation forms the most important aspect of yogic exercises unlike non-yogic exercises, during the practice of asana, muscles, which do not support weight or which are not actively involved are relaxed. With relaxation, the muscles return to normality after contraction and therefore yogic exercises keep the body more flexible. Non-yogic exercises improve the circulation of blood in voluntary system, thereby resulting in better muscular development as a result of improved function of the muscles. Yogic exercises aim at improving blood circulation to all the vital organs and thus improve their function.

3. Unlike non-yogic exercises, in yogic exercises spine has been given an important place and various exercises for the spine aim at keeping the spine flexible and joints supple.

4. Yogic exercises influence both mind and body whereas non-yogic exercises have their effect mainly on the body. They have more positive reaction to stress, thus minimizing its ill effects.

5. Non-yogic exercises cause fatigue whereas yogic exercises remove fatigue (Datey 1983).
1.3.8  Proper Exercise – Asanas

In yoga, the physical exercises, called asanas, are non-violent and provide a gentle stretching that acts to lubricate the joints, muscles, ligaments, kerdors and other parts of the body. Asanas help to tone the nervous system, improve circulation, release tension, and increase flexibility. When performed in a slow and relaxed manner, they are designed to develop more than just the physical body. They also broaden the mental faculties and enhance the spiritual capabilities. Asanas make up the third limb, or step in the Raja yoga system.

Asanas are designed a state for mental and physical well being, or good health. This may be defined as the condition that is experienced when all the organs function efficiently under the intelligent control of the mind. Asanas have an extraordinary capacity to overhaul, rejuvenate and bring the entire system into a state of balance. Although they are performed by the physical body, asanas also have profound effects on the Astral body.

1.3.8.1  Asanas as Physical Exercise:

Asanas are not only practised for spiritual gains but they are also used as physical exercises involving great deal of skill, flexibility and neuro-muscular coordination.
Asanas:

1. As mentioned earlier, asanas can be understood as postures rather than exercises. It is presumed that they predominantly work at the cerebellar level rather than the cortical level because cerebellum is the one responsible for the maintenance of tone, posture and equilibrium.

2. Usually Motor Cortex is involved in various types of psycho-physical activities related to most of the training and education programmes and one has to depend on the sense organs for the sensory activities. In Yoga practices, however, the motor cortex and the five sense organs are expected to remain in low profile and even the body musculature supplied by the central nervous system is expected to remain relatively relaxed and inactive to a great extent.

3. On relatively relaxed background of the skeletal muscles, certain groups of muscles are put to stretch because of the particular position of the body which leads to the stimulation of the muscle spindles. If the whole technique is properly followed, then the stretch reflex initiated through action can lead to the release of tensions and relaxation of the related groups of muscles.

4. Developing awareness of breathing movements in different regions of the body while the posture i.e. asana is maintained for some length of time further helps to release tension and develop a kind of balance and equilibrium at different levels of the body musculature.
5. Thus one may be able to appreciate the role that can be played by asanas in releasing tension, initiating relaxation of the skeletal muscles and establishing a condition of balance and equilibrium.

6. This understanding about asanas as postures will also indicate its application in games, sports and physical education programmes. They could be used as conditioning practices to develop flexibility and better proprioceptive awareness and to train the individuals to release tensions, restore balance and equilibrium and to develop relaxation. Thus they could be used after any hectic activity is over or from time to time in between a prolonged activity.

Benefits of Asanas

The benefits of the asanas are given below in the heads of physical and mental benefits.

Physical Benefits

With regular practice, asanas encourage all parts of the body to work more efficiently. Asanas initially focus on increasing and maintaining flexibility of the spine, toning and rejuvenating of the nervous system. The gentle stretching, twisting, and bending movements bring flexibility to the other joints and muscles of the body, as well as massaging the glands and organs. Circulation is also improved, ensuring a rich supply of nutrients and oxygen to all the cells of the body.
Mental Benefits

Many people believe that asanas were originally designed as concentration exercises to help improve the mind’s capacity to meditate. Steady postures free the mind from disturbance caused by physical movement, promoting steadiness of mind, balancing the emotions, and improving your lot look on life.

1.4 PRANAYAMA

Pranayama is a compound term ('prana' and 'yama') meaning the maintenance of prana in a healthy manner throughout one's life. More than a breath-control exercise, pranayama is all about controlling the life force or prana. Ancient yogis, who understood the essence of prana, studied it and devised methods and practices to master it. These practices are better known as pranayama. Since breath or prana is basic to life, the practice of pranayama helps in harnessing the prana in and around us, and by deepening and extending it, pranayama leads to a state of inner peace.

Breathing is a direct means of absorbing prana and the manner in which we breath sets off pranic vibrations, which influence on entire being. Pranayamas are the practices in the control of respiratory impulses which form one of the main channels of the flow of autonomic nerve currents. They are practised for bringing control over the autonomic nervous system and thereby diminishing the mental fluctuations.
By becoming aware of the nature of the breath and by restraining it, the whole system becomes controlled. When you retain the breath you are stopping nervous impulses in different parts of the body and harmonizing the brain wave patterns. In pranayama, it is the duration of the breath retention, which has to be increased. The longer the breath is held, the greater the gap between nervous impulses and their responses in the brain. When retention is held for a prolonged period, mental agitation is curtailed.

Through pranayama the mind can be brought under control. In many spiritual traditions, including Surfism, Buddhism and Yoga, it is known that by concentrating on the breath, you can still the mind, develop one-pointedness and gain entry into the deeper realms of the mind and consciousness.

Pranayama:

1. Like asanas, the concept of Pranayama is also peculiar to yoga discipline.

2. There is a common notion that pranayamic breathing improves oxygen consumption and CO₂ elimination. Many yoga teachers and experts are seen to contribute to this notion and want people to practise pranayama for this purpose. Manipulation of breathing is advocated in many activities like weight lifting, swimming, jumping, sprints, boxing, shooting etc. Here the main aim of manipulating the breathing is to develop proper leverage for body
actions, steadiness, alertness, improving perceptions, ensuring protection to body parts etc.

3. In pranayama, on the other hand, the basic aim seems to be to understand and learn to work with the mechanics of breathing in the initial stages and to develop a capacity to perceive internally aroused sensations from different regions of the body so that the awareness could get internalized and one could get guided by them till one can get established in a relatively different kind of awareness, usually termed as self-awareness. Through the routinely followed physical activities in games and sports, the awareness gets related with the external objects and ideas related with them.

4. Pranayamic breathing, as a conditioning exercise, will help an individual to develop better ability of ‘self-imaging’ and a short session before the actual performance will help one to take care of anticipatory tensions due to anxiety and fear etc.

1.5 BENEFITS OF YOGA FOR SPORTS PERSONS

Many world class sports persons have found that the practice of Yoga helps them to achieve greater skills in their sport. This is because Yoga not only works on the physical level but also has benefits for the mental, emotional and energy levels. It enables them to realize that ‘winning is not everything’ and that there is ‘more to life’ than sporting ‘highs’ and ‘lows’.
1. At the physical level asanas, kriyas, mudras and pranayama stabilize and balance the lop-sided physical drills necessary for sporting activity.

2. Yoga helps to develop all systems of the human body (cardiovascular, respiratory, digestive, eliminative, endocrine, nervous and musculo-skeletal) thus strengthening, cleansing and purifying the body so that it is brought under our conscious will. This is vital for the sports person who otherwise develops the muscular system but puts too much stress and strain on the other systems leading to their failure sooner than later.

3. Most sporting activity is ‘on the feet’ and the exertion is made due to standing up for a time. In Yoga, all possible body positions are explored and the body is exercised standing, sitting, lying down (front, side and back) and even upside down. This creates an acute awareness of the entire body, strengthens the body systems and develops flexibility of the body that is not present in most sports persons.

4. Yoga is isometric and internal. It is a contest between our inherent inertia and the power of the will. Parts of the body are pitted against one another and a unique harmony of body, mind and breath is developed. This internal struggle when handled successfully deepens the consciousness of not only the working of the body but also of the mind and emotions.

5. Yoga seeks balance, which is lacking in the sporting activity. A tennis player may develop the muscles of the dominant arm but the rest of the
body is neglected. Through Yoga all parts of the body are cultivated equally. Flexibility, balance, control, strength and endurance are all developed by the concept of Loma Viloma which means to balance the opposites.

6. In the science of Yoga, body movement and breath must be synchronized. The body is lifted on the incoming breath and lowered on the outgoing breath. Bhastrikas or the ‘bellows breath’ activate the solar plexus, which is an energy reservoir, it strengthens the diaphragm thus producing strength, vitality and endurance. Pranayamas such as Mukh Bhastrika stimulate the internal cleansing of toxins. Breath is directly related to the energy levels, life span, quality of emotions, state of mind and the clarity and subtlety of thoughts. This use of breath power with the body can bring about revolutionary effects on the performance of the sports persons and improve their state of mind, emotions and all round health.

7. Sports persons are prone to suffer from glandular imbalance due to their lifestyles and activities both on and off the field. Yoga stimulates and strengthens the endocrine system and it counteracts the body stiffness, changes in skin tone and hair loss, which are common problems due to glandular imbalance.

8. The World of Sports in ancient Greece and Rome was associated with high levels of moral and ethical codes of behavior. Modern day sports has gone a long way astray from such ideals and the inculcation of
Yogic values such as Yama and Niyama can go a long way in bringing back such ideals into the world of sports. They will stimulate the sports people to have a second look at their decadent life styles and try to change for the better. The Yamas when practised provide much mental solace and ethical strength to the participants of competitions while the Niyamas produce the stoic qualities necessary for high tension situations.

9. Yogic concepts such as ‘non attachment to the fruits of one’s labour’ and ‘equal mindedness in victory and defeat’ are important attitudes in sports. When sports persons go into the competition with such attitudes, they are free from anxiety and are confident that they have done their best, they are willing to accept the verdict. Such persons have a much better chance of success than one who looks upon the competition as a life and death situation. Only a ‘quiet mind’ and ‘controlled body’ can produce real ‘skill in action’.

10. Yoga has a lot to offer to sports through the field of relaxation. In the sports world, all is PUSH, PUSH and PUSH. There is little room for relaxation in the arena. Yoga teaches us that there has to be balance. The concept is known as ‘spanda-nishpanda’ or ‘exertion-relaxation’ in an alternating rhythm. The art of relaxation as taught in Yoga can provide a counterfoil to the extreme stress of competitive pressures, fostering mental, emotional and physical health.
11. The catabolic nature of sporting activities can be balanced by the anabolic activities of Yoga, retarding the aging process and giving the sports person a longer professional life.

12. A more conscious and aware outlook of the whole phenomenon of human life on earth will make the sports person a more valuable member of the human social unit.

1.6 CONTRIBUTION OF YOGA TO SPORTS

Let us consider how yoga contributes to the promotion of Sports. This may be studied from the following points of view:

1.6.1 Yoga and Prevention of Sports injuries

Most sports build muscular strength and stamina, often in specific areas of the body. Yoga can help to check any imbalance in muscular development and will enable individual both mind and body to function more efficiently. If body is flexible and supple, player will be less prone to sports injuries. Active individuals are accustomed to using their bodies and muscles vigorously on a regular basis. All sports have certain movements that build the body in specific ways. This can lead to imbalances and possible injuries. Yoga helps to prevent injuries by bringing balance back to the body along with relaxation and focused concentration of the mind. The poses should be practised in conjunction with strenuous activity. When regular stretching is neglected, strenuous activity strains the muscles, joints and tendons and tension
accumulates in the body. This accumulated tension has forced many active people to give up their favorite sport or activity as a result of some type of injury or permanent damage.

Athletes, dancers, weight lifters and other active individuals who incorporate yoga technique in their activities discover that the benefits go far beyond the effects of improving coordination and preventing injuries. Moreover, yoga helps balance mental, emotional and physical energy, which improves concentration and endurance. Yoga will help with attitude, confidence, and pacing, keeping calm, understanding setbacks and failures, the importance of patience and waiting, and having faith. Yoga practice will also help you appreciate the joy of playing totally free from fear.

In addition to these benefits, the gentle nature of yoga stretches makes it suitable to use as preventive and healing measures for various injuries athletes frequently incur. Most of the low-back pain and injuries athletes experience are directly connected to tightness in the waist, hips and legs. The combination of backward and forward bending postures along with hip-stretching poses is ideal for toning and strengthening these groups of muscles. For example, Achilles tendonitis (inflammation of the large tendon at the back of the heel) can be prevented by practising the ankle flex, mountain pose and hip stretches. An excellent preventive method for condromalacia patella (softening of the cartilage under the knee cap) is stretching the quadriceps and hamstrings in the upper leg, and the gastrocnemius muscle in the calf by practising forward bending, standing, balancing and downward dog poses. Similarly other injuries, such as plantar fasciitis (inflammation of the tissues in the bottom of
the foot) and shin splints (inflammation of the tendons on the front lower leg),
can be prevented or healed by utilizing the ankle and foot stretches of the
standing, balancing and sitting poses.

People involved in a range of sports, such as skiing, scuba diving and
weight lifting, assert that yoga has not only given them extra muscle
conditioning and development but has also healed and prevented a
reoccurrence of old injuries.

1.6.2 Yoga and Physical factors

Yoga is an excellent method of enhancing the performance of sports
participants. Salient feature of yoga is combination of both physical
conditioning and focused concentration. One of the most essential elements for
athletic performance is balance.

Physical fitness is a must for any good performance in sports. Different
sports require different types of fitness emphasizing on a particular fitness
factor. However, general level of physical fitness is necessary for every sports
man. The law of use and disuse suggest that if you want to be fit you must
exercise. The routine of exercise differs from individual to individual
according to purpose. Sportsmen also select different routines of participation.
This can be attained excellently by indulging in Yogic routine. Yogic exercises
deal with the vital organs of the body on which health depends. The precursor
of physical fitness lies in the efficient working of the vital organs of the body
and yoga aims at it. The various selected Asanás giving different movements to
the spine, controlled respiration, relaxation technique and concentration 
practice as a whole form an excellent routine to take care of the health of vital 
organs of the body.

This is vital for the sport person who otherwise develops the muscular 
system but puts too much stress and strain on the other systems leading to 
failure sooner than later. In yoga all possible body positions are explored and 
the body is exercised standing, sitting, lying down (front, side and back). This 
creates an acute awareness of the entire body, strengthens the body systems 
and develops flexibility of the body that is not present in most sports persons.

Excellent performance in any sport is governed by several factors of 
physical fitness. The important ones may be mentioned as speed, strength, 
stamina, suppleness, stability and neuro muscular co-ordination. Although not 
many scientific researches have been done, the works of Herbert A. de vries 
Therrien (1968), Gharote and Ganguly (1976) have shown enough evidence 
about how yoga could be gainfully employed in the promotion of basic fitness 
factors. Using elaborate Fleishman battery of Basic fitness tests, Gharote 
(1971) has shown how even a short term yogic training could improve different 
basic fitness factors.

1.6.3 Yoga and Psychological Factors

From the opinion of many world class sports persons, it is found that the 
practice of yoga helps them to achieve greater skills in their sport. This is
because yoga not only works on the physical level but also has benefits for the mental, emotional and energy levels. Yoga enables them to realize that winning is not everything and that there is more to life than to sporting ‘highs’ and ‘lows’. Yoga helps to develop all systems of human body thus strengthening, cleansing and purifying the body so that it is brought under our conscious will. Emotional factor is very important in the performance of sports. If rightly used, emotions can contribute to the improvement of the performance in sports. Emotions are governed by the working of autonomic nervous system which brings the emotional disturbances down. Yogic exercises as a group play a significant role in training the autonomic nervous system. Stretching exercises like asanas, relaxation techniques and breathing exercises in the form of pranayama are excellent in conditioning the autonomic nervous system. A few studies made on the effects of short-term Yogic routine have shown the utility of Yoga in the achievement of emotional stability.

Emotional factor is very important in the performance of sports. If rightly used, emotions can contribute to the improvement of the performance in sports. Emotions are governed by the working of autonomic nervous system. Control over the autonomic nervous system brings the emotional disturbances down. Yogic exercises as a group play a significant role in training the autonomic nervous system. Stretching exercises like asanas, relaxation techniques and breathing exercises in the form of pranayama are excellent in conditioning the autonomic nervous system. A few studies made on the effect of short term yogic routine have shown the utility of yoga in the achievement of emotional stability.
1.6.4 Physiological Aspects of Yogic Discipline

It is possible to identify four main types of environment; namely, physical, mental, social and cultural environments. Yoga with its physical and mental disciplines can mould the behaviour of an individual promoting perfect harmony with his environment to relieve him from any suffering. Yoga is a discipline which seeks to bring the internal environment of an individual under his control thereby making a good adjustment of the individual with his surroundings.

Asanas and all Yogic Exercises are confined to minimum motions involved with everything done at a slow tempo (Isometrotonic and Isokimetic) which is the direct opposite of gymnastics, calisthenics Swedish drills, all of which emphasize on speed and rhythm. Further by influencing the autonomic nervous system the Yogic exercises ensure better food utilization and improved nourishment besides proper relaxation and sleep due to superior voluntary control of such individuals. (Chakrabarathi et al., 1984).

Importance of Yogic exercises on physical and physiological systems :-

The following are the importance of yoga and physical education.

1. Improve circulation vital to proper functioning of the body.

2. Nourish, stimulate and maintain the vital balance of the endocrine glands which govern growth and development.

3. Help to establish a regular menstrual cycle.
4. Improve functions such as digestion and respiration so that there is more energy available for the growing child.

5. Increase the supply of fresh blood to the brain thus enhancing the mental capacity.

6. Strengthen the nerves thereby endurance capacity improves.

7. Promote proper structural development by working on the joints.

The psychological importance of yogasanas for adolescents are:

1. Help a boy to become self-controlled and less prone to extremes of behaviour (which tends to occur during adolescence) by regulating endocrinal functions.

2. Check excessive aggression and excitability through the regulation of the adrenal glands.

3. Correct brooding and melancholy in girls by regulating pituitary and pineal functions.

4. Check laziness and lethargy which sometimes characterizes this phase.

5. Build up self-confidence, remove shyness and improve self-consciousness.

6. Control the arousal of the emerging sexual urge.

7. Direct the new found energy into creative outputs.

8. Create predisposition towards yogic principles of yama and niyama thereby developing child’s moral and ethical development (Swati Chanchani, 1985).
1.6.5 Role of Yoga in Performance Related Factors of Sport

1. Improves Flexibility.

Increasing flexibility with yoga leads to more ease of movement and fewer injuries. It enables the player to move more freely with a greater range of motion. The more freedom to the body which has to move into the positions necessary for the sport(s), the more quickly the player can do so, with less effort, strain of risk of injury.

2. Improves Agility.

Almost all aspects of yogic exercises assist in improving the agility of the payer. The combination of total body strength, flexibility, posture, balance and kinesthetic awareness is aimed at improving the body's ability to move freely, quickly and without pain or stiffness.

3. Increases Strength.

Yoga practitioner uses his own body as the resistance. Many yoga postures require many major and minor muscle groups to be used simultaneously. In some it feels like every muscle in the body is being used! This is much different than traditional weight training in which the player isolates one or two muscle groups per exercise. The strengthening in yoga requires entire body to be working as a unit so the strengthening of one muscle
group is connected to that of another muscle group. This improves the player’s overall sense of strength from a centered, connected place.

4. Improves Balance.

Many sports, because of their quickness and/or concentration, require body to be able to move in any direction with ease within a split second. If body is off balance and the upper half of the body feels disconnected from the lower half, response time increases. Many yoga postures require finding the centre that is balance. Through the conscious practicing of balancing postures, body learns where its center is and how to find it rapidly.

5. Increases Mental Focus.

Yoga teaches the discipline of being present in the moment through the physical postures and breath work.

6. Improves Mind/Body Connection.

In yoga, player learns to listen to his body through his mind and learns to quit his mind through his body. The breath is the essential tool used to unite body and mind. The word "yoga" means to yoke, establish a relationship with each other that affects every area of life. The more the player tunes the mind/body connection, the more awareness he can have of his movement and his state of being. With this tool, he can assess where his mind is when playing sport and can draw his mind and body back into union if they become separate.
This helps the player to prepare himself to be present in whatever sport he is involved.

7. Reduces Stress.

One of the quickest and most significant benefits of yoga is the effect it has on reducing stress. Because of stress tenseness is held in the neck, back, hamstrings, stomach, head. Tense muscles decrease flexibility and energy and increase pain and risk of injury. In such a case yoga helps to release stress in body and mind. So that body has more freedom to perform at its best with the least amount of pain.

8. Improves Posture.

Yoga strengthens the core muscles in torso, specially those that support spine. Unlike a typical fitness routine, practically every posture in yoga has a positive effect on the spine. Keeping the spine flexible and strong is one of the highest purposes of yoga. The stronger and more flexible spine helps the posture falls into proper alignment. The alignment becomes effortless rather than effortful and thus your posture improves. As yoga helps to improve posture, the body begins to move in proper alignment where the body is naturally supposed to be. This impacts every aspect of how the player moves, especially in sports where he was most challenged to be quick, strong and balanced.
9. Increases Kinesthetic Awareness.

Through yoga player begins to discover and explore kinesthetic awareness, that is, where his body is in space. He learns to place his body in exact positions and knows when it is in the correct place. This is at the core of leaning to balance and move his body as a unit, aware of the space around him. It has a wonderful effect on his game because it also helps the player to be more aware of both his teammates and his position.

10. Improves Sportsmanship.

Aside from the physical and mental aspects of yoga, there is also a spiritual element. Basically, yoga teaches the player about connection with himself and all living things. Through the discovery and realization of the connection that all living things have with each other, and element of camaraderie, non-violence and peace begins to shine through. So, no matter if the player wins or loses, he can be injury-free, agile and live with a sense of appreciation for his competitors and a feeling of peace.

1.7 Performance Related Fitness

Success in games and contests requires more than just being fit. It demands motor skills, speed and power. The components of performance related fitness enables one to move and perform more efficiently, whether it is in work-related activities, daily movement functions, or in sports performance. Further, health-related fitness may also benefit from performance related
fitness, since persons who possess skill-related fitness are more likely to be active throughout life. Performance related fitness is compatible with health-related fitness. Many activities promote both types. Individuals who possess both will find participation in either type of activities more enjoyable and beneficial to their health and physical well-being. A person who is physically active cannot help but improve some aspects of skill-related fitness.

In the present study the factors such as speed, strength, flexibility, cardio respiratory endurance, agility, coordination, explosive power and anxiety were used as performance related factors for basketball as described here.

Coordination

Coordination is the speed and accuracy of correct muscle response to produce a desired movement.

Power

Power is the product of force, strength, and velocity. This quality is needed both at the plate and on the mound. Power is the ability to exert strength in a given time frame. Power is the application of strength and speed during a muscular movement. Power equals four times velocity and has to do with the speed of the contraction against less than maximal resistance. Power is closely related to dynamic strength, with speed or quickness of movement as the added dimension. Although strength, speed and power are related, strength
alone will not develop power. Power is displayed in many activities in different ways. Dribbling the ball, shooting the ball, throwing the ball, and rebound are the examples for power needed in basketball.

**Speed**

Speed is the ability to move the body or a part of the body as rapidly as possible from one point to another. Speed is the rate of movement, or the amount of time it takes for a body or object to travel between two points. Speed usually refers to running speed, as in the sprints in track or in football. However, speed can be performed as leg speed in soccer kicking, arm speed in throwing a basketball, and body speed (acceleration) necessary in fast break. Speed is related to strength and power. In fact, all skill-related components contribute to speed. Speed requires the expenditure of a large amount of energy in a short period. Age is a factor in attaining speed.

Speed is the amount of distance covered in a given amount of time. Acceleration is how quickly you get to top speed. A basketball player does not hit top speed unless he is at the end of a fast break. Acceleration and stride rate are the most important speed related factors in basketball.

**Agility**

Agility is the ability to change body positions quickly and accurately to the indicated response or situation. Some experts contend that strength is the
most important factor in agility since a stronger body moves with more ease and efficiency.

Agility is a recognized and accepted factor of motor fitness. It is a unique compound factor, which includes acceleration, control, speed, reaction time, movement time, balance and explosive strength. It is total body movement, usually of short duration and or distance. Agility is total body movement, involving change of direction at a high rate of speed, quick acceleration and dodging. When the movement is performed well, it is controlled, accurate and efficient. Agility is the rapidity with which, accuracy of the total body movement is in response to the perceived stimulus. Injury and body weight affect agility performance.

Agility is the ability to explosively stop, change direction, and accelerate again. The primary goal of agility is to enhance body control and increase the athlete’s ability to accelerate and decelerate in multiple directions. The sport of basketball requires acceleration, as well as rapid deceleration of speed-strength, which is force developed rapidly or at high speed—that is why speed-strength training is a vital part of speed and agility training. The great underlying goal of agility training should be to increase the speed of movement, manage injuries, improve athleticism, and provide a long-term performance enhancement outcome. If agility and quickness are to be enhanced, which help the player to enhance functional power, balance, and speed, enhance sport specific movements, place the athlete in a variety of different body positions, increase intramuscular coordination, be performed with maximal effort and intensity.
Strength

Strength is the ability of the individual to exert force against an object. High quantity and quality of trained muscle tissue is an asset in the demonstration of body strength. Body strength is either static or dynamic, depending upon whether the body is held in relatively fixed position during muscular contractions, or the body or its parts are lifted or propelled in any particular direction. Squeezing or holding a ‘dead’ weight in a fixed position is an example of static strength. Lifting a maximum weight throughout the range of motion once, such as in a bar-bell, is a demonstration of dynamic strength.

A very high positive relationship exists between muscular strength and physical health, and physical fitness. Without body strength no physical activity is possible and even with low muscular strength, bodily functions are handicapped. Strength is the most important element in motor performance. Strength is a consistent differentiator of ability to make and to achieve success in school athletic teams. All top-flight athletes possess superior muscular strength.

The strength of males increases rapidly from 12 to 19 years of age at a rate similar to that of weight. It increases more slowly up to 30 years, after which it declines at an increasing rate to the age of 60 years. The strength of females shows somewhat the same pattern but more uniformly to 19 years of age and always approximately 20% below males.
Muscular Power

It is the ability to release maximum force as fast as possible. Maximum muscular contraction against a resistance in a minimum of time. Power = force x velocity. It is a compound element of motor fitness. It needs specific muscular strength, speed of limb movement, and skill in integrating and co-ordinating the action. Increased velocity of parts of the body is related to improved neuromuscular initiation, co-ordination and precision of movement patterns. When a highly skilled level is attained, further performance improvement is primarily attributable to strength increases. Muscular power exists in its own right. Strength and power are separate entities.

Cardiorespiratory Fitness

Cardiorespiratory (CR) fitness, sometimes called CR endurance, aerobic fitness, or aerobic capacity, is one of the five basic components of physical fitness. CR fitness is a condition in which the body's cardiovascular (circulatory) and respiratory systems function together, especially during exercise or work, to ensure that adequate oxygen is supplied to the working muscles to produce energy. CR fitness is needed for prolonged, rhythmic use of the body's large muscle groups. A high level of CR fitness permits continuous physical activity without a decline in performance and allows for rapid recovery following fatiguing physical activity.
In basketball the duration of the game is divided into four quarters which place an extra demand on the cardiovascular and respiratory systems. During competitive matches these systems attempt to supply oxygen to the working muscles. Most of this oxygen is used to produce energy for muscular contraction. Any activity that continuously uses large muscle groups for 20 minutes or longer taxes these systems. Because of this, a wide variety of training methods are used to improve cardio respiratory endurance.

The kind of endurance associated with cardio-respiratory system is characterized by a physiological fitness and is related to the phenomenon of 'wind'. In this instance, exercise is carried on for sufficient duration and intensity to stress the circulatory and respiratory systems. Such endurance enables the individual to sustain moderate contraction of the skeletal muscles over a comparatively long period of time. The adjustment in the heart, lungs and circulatory systems just mentioned can be made more efficient through training. The best tests to measure this facet of motor performance are long distance running and the treadmill run. The fit individual has a cardio-respiratory system which is capable of meeting the demands of the tissues under conditions of intense exercise.

1.8 STATEMENT OF THE PROBLEM

The purpose of the present study was to find out the effect of physical and combination of physical and yogic exercises training on performance and performance related factors of Basketball players.
1.9 HYPOTHESES

The formulated hypotheses in the present study were

1. Physical training group significantly improves the performance and performance related factors of basketball players as compared to control group.

2. The combined effect of physical and yogic exercises training significantly develops the performance and performance related factors of basketball players as compared to physical training group and control group.

1.10 SIGNIFICANCE OF THE STUDY

The present study is significant in the following aspects.

1. The result of the study is a reliable source to the physical education teachers and coaches to include the yogic exercises as a part of their training while designing the training schedule for their players.

2. To overcome the stress and stress related disorders now-a-days people are participating in physical activities. But these disorders are highly a mind related one, inclusion of mind related exercises of yogic exercises with their physical activity that helps them to relieve early from stress and to make them both physically and mentally fit.
3. In high level competition and competition at equal level, the physical education teachers and coaches are voluntarily forced to win. In such a situation, the function of mind is one of the most pre-requisite in addition to body (physical). Such type of power can be had by participating in physical and yogic exercise training.

4. The results of the study would enhance the awareness of yogic exercises among the sports participants. Further as yogic exercises provide more benefits with the consumption of less energy, it is very reliable and economical source to improve the performance.

5. The present study is mainly focused on players of basketball at school level. Therefore incorporating the yogic exercises training with the physical training at an early age becomes part and parcel of their life in future. It helps them to function easily and effectively in both normal and sports life.

1.11 DELIMITATIONS

The present study was delimited into the following aspects.

1. As performance related factor, it was delimited to the overall playing ability of the basketball player.

2. As performance related factors it was delimited to the factors such as arm explosive power, leg explosive power, arm strength, speed,
cardio-respiratory endurance, flexibility, agility, hand-eye coordination and competition anxiety.

3. The subjects for the present study were delimited to the boys’ section only.

4. The age of the subjects was fixed in the range of 12 to 15.

5. The training period for the present study was delimited to 12 weeks.

6. In designing the combined physical and yogic exercise training, selected physical and yogic exercises were chosen which are very prone to develop the performance and performance related factors of basketball players.

7. Three groups namely physical training group, combined physical and yogic exercise training group, and control group were used in the present study. Each group consists of 30 subjects.

1.12 LIMITATIONS

The limitations of the present study are:

1. The influence of internal and external motives of the players on performance of the subjects was not taken into account.

2. The subjects for the present study were selected on random basis. So the influences of social and geographical conditions were not considered.
3. The impacts of life style and food habits on performance of the subjects were considered as limitations for the present study.

1.13 DEFINITION OF TERMS

**Yogic Exercises**

Yoga is an exact science which has its foundation on certain immutable laws of nature and establishes “Mind over body”. The gaining of healthy body with a calm and steady mind under all circumstances is the common aspiration of every individual. The word yoga is derived from the Sanskrit word “Yuj” which means control or unite. Both these words quite adequately give the meaning of ‘yoga’ (Krishna raman, 1998).

**Muscular Endurance**

Muscular endurance is the ability of a muscle or group of muscles to maintain a sub-maximal contraction over a period of time, where the player performs single muscle contraction and relaxation required movement, repeatedly for extended time without fatigue (Barrow and McGee, 1989).

**Flexibility**

Flexibility is the range of motion available in a joint (Charles B Corbin, 1985).
Agility

**Eckert (1974)** states that agility helps the player to change directions quickly and effectively while moving as early as possible at full speed.

Speed

Speed may be defined as “the capacity of individual to perform successful movements of the same pattern at a faster rate”. *(John W Bunn, 1959).*

Cardio Respiratory Endurance

Cardio respiratory Endurance is the ability of the lungs and heart to take in and transport adequate amounts of oxygen to working muscles which allows activities involving large muscles groups to be sustained for a long period of time. *(Fox, 1993).*

Leg Explosive Power

**Baumgarther (1987)** states that the explosive power is the ability to release maximum muscular force in the short test time as in executing a standing jump.
Hard – Eye Coordination

According to Singers (1972), Hand eye coordination work is involved with hand and eye combination which is extremely complicated and requires a period of terms to perfect it.

Anxiety

Anxiety is defined as a tensional state of such severity that work efficiency was interfaced with wand medical advice which is characterized by one or more of the following complaints Persistent feelings of tension and strains irritability, unremitting worry, restlessness, inability to concentrate, feelings of panic in every day life situations (Milmo and Shagass, 1952)

Abdominal Muscular Strength.

This is the ability of abdominal muscles to perform a particular exercise for a long period of time. (Harrison Clarke, 1978)

Arm Explosive Power

Arm explosive power is the ability to release maximum muscular force in an explosive manner, in the shortest possible time. (McCloy and Norma, 1954)
1.14 OPERATIONAL DEFINITION OF TERMS

Exercise

Any and all activity involving generation of force by the activated muscle(s).

Physical Exercise

Physical Exercises improve the circulation of voluntary system, thereby resulting in better muscular development as a result of improved function of the muscles.

Yoga

Yoga is a way of life which can be practised by any human being regardless of age and condition of health. Yoga is a gaining process of control over the mind. Thereby improving the physiological and psychological behaviour of an individual.

Yogic Exercises

Yogic Exercises are a form of physical exercises. They involve stretching and contracting of part of body in a specific sequence.
Asanas

Asanas are certain special patterns of posture that stabilize the mind and the body.

Combination of Physical and Yogic Exercises Group

In Combination of Physical and Yogic Exercises group, the subjects were treated with the physical and yogic exercises. The subjects of this group were differed from the subjects of physical training group only by treatment of yogic exercises specifically prepared for the present study. As far physical training concerned, the physical exercises were same for the subjects both Combination of Physical and Yogic Exercises Group and Physical Training group.

Physical Training Group

Physical Training group in which the subjects were treated with specific physical training prepared for the present study.

Control Group

Control group in which the subjects were asked to play with their traditional training schedule