Chapter - I

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Human beings have consistently tried to run faster, jump higher and exhibit greater strength, endurance and skill. We are naturally competitive and ambitious for excellence in athletic performances. As a result of practical experience, observation and scientific experimentation, old method of conditioning, though fascinating and rich in tradition, have been discarded and replaced by new methods based on insight and understanding. For centuries, this evaluation towards better method of conditioning was slow but in the recent years the dramatic changes that have taken place have brought about outstanding results in performance.

Perhaps one of the most exciting and rewarding aspects of life is the experience of going beyond what were once thought to be limitations. We begin to realize that many of our beliefs that impose serious limitation (what can and cannot be done) on us are simply pre-conceived restrictions and attitudes taught to us by parents, teacher and others during formative years. The field of sports and games is no exemption to this. None of our
ancestors would have predicted or even dreamt of the techniques applied, the equipments utilized. The performance achieved and the training methods followed by the present athlete are the result of systematic and continuous research.

The human body is an amazing creation. During test, countless events are occurring simultaneously in perfect coordination, allowing complex functions such as seeing, hearing, smelling, testing, breathing and thinking to continue without conscious effort. The transition from rest to exercise is accompanied by substantial changes in a number of bodily functions, allowing the body to adapt successfully to additional stress. As the body experiences repeated bouts of exercise, such as in a physical conditioning program, long term adaptations occur in the body allowing higher performance levels without undue fatigue as well as providing the body with a feeling and/or sense of well being.

Performance is the combined result of the coordinated exertion and integration of variety of functions. Genetic factors probably play a major role in a person's performance capacity. It appears that up to 70 percentage of an individual's maximal force, power of capacity is a matter of genetic factors. The
environment and geographic location also have a considerable role in the performance. Adding to this the performance of an individual depends largely upon the physiological, psychological and motor fitness qualities in which definite improvement can be achieved by appropriate training.

Training is not a recent discovery. In ancient times, people were trained systematically for military and Olympic endeavors. Today athletes prepare themselves for a goal through training. The major objective in training is to cause biological adaptations in order to improve performance in a specific task. To enhance physiological improvement effectively and to bring about a change, specific exercise and over load must be followed by exercising at a level above normal; a variety of training adaptations takes place in the body that makes it to function more efficiently. Numerous training procedures are in practice to improve each and every physiological, psychological and motor fitness quality at various levels. These basics training procedures will serve better than utilized with modifications suited to the individual or a group dealt with. The best training program is that which increases the desired quality at a higher rate without causing unwanted effects.
For higher performance, physical and motor fitness qualities should be developed harmoniously. Importance should be given based on their role in improving performance and preventing injury. Based on these functional associations between training and the enhancement of fitness and performance factors the investigator was impelled to identify the training impacts of yoga and physical exercises on the selected psycho – physiological and motor ability components among the men cricket players.

1.1. RELEVANCE OF YOGA TO CRICKET

Cricket is the long duration game for it consumes more time both with respect to limited over match and test match. This period requires complete concentration on the part of the players for concentration on any activity undertaken is a key to success.

Development of concentration, self-confidence and patience can be done effectively through the regular practice of yoga for there are certain specific asanas which contribute towards the building up of personality both physical and mental. The role of yoga in the improvement of batting skill is vital. Yoga helps the player in observing the delivery of the ball and hit with
promptness. Eye and hand co-ordination come forth simultaneously.

To develop the various skills in cricket among players certain specific yogic practices can be of great help for a greater performance and general fitness. Yoga is skill in action and a practical philosophy that aims at uniting the body, mind and spirit for health and fulfillment. It is a methodological effort towards self-perfection. It helps in expanding the limits of our consciousness and gain mastery over mind. Yoga as such provides a complete philosophy for living for it comprises techniques that act as our mind and emotions. It is a science of the mind and it is through teaching you to control your mind, your desires and your reaction to stress that yoga can fundamentally of help especially to concentrate on the execution of skills and to achieve the overall performance, the ability to concentrate on any given subject or objects, the capacity to quieten one's mind at will. Yoga is an intelligent, skillful means for making the mind calm, thereby bringing closer to our goal. Calmness in action is the secret for achieving the "skill" says Gita.
Yogic breathing or pranayama, just as the asanas that precede it slows down the physical body, the breathing exercises slows and evenly moment after inhaling or exhaling. Postures are mastered and techniques are introduced for relaxation and breath control. It is found that yoga has the power to calm the mind, increase our concentration and give the ability to cope with tension. It promotes total physical and mental well-being.

1.2. ANXIETY

Anxiety may be defined as the emotional reaction to be perceived or anticipated danger. The ability to avoid a danger is increased if the danger can be anticipated. Thus the signal or anticipatory quality of anxiety is central to our understanding. Anxiety and fear are indistinguishable in terms of physiological response and motivational stimulus. In general, normal anxiety is proportional to treat, is consciously perceived and does not lead to behavioral blocking. Anxiety is a vague form of fear which involves bodily responses or stress reactions.

Anxiety is a complex emotional state usually accompanied by tension will be there when an individual is in a state of heightened anxiety. Due to anxiety more tension is created and it adversely affects performance. Anxiety does not exist
independently and non-differentially; it is a part of behavior syndrome, which has developed as a result of unsuccessful adjustments in personality intolerable situations in top sports.

A distinction between trait and state anxiety are characteristically anxious across situation. State anxiety on the other hand is situation ally specific. Trait anxiety is a personality variable, which predisposes us to perceive certain situations as threatening. If a person has high trait anxiety, they will tend to be fearful of unfamiliar situations and to respond with obvious anxiety symptoms. State anxiety is an emotional, often temporary, which exists in relation to particular situations. For example, if you get nervous before dance performance but not a team game, you are showing state anxiety in relation to dance.

1.3. FITNESS

Physical fitness is one's richest possession. It cannot be purchased, but it is earned through daily routine physical exercises.

Physical fitness is important for all human beings, irrespective of their age. A given work may not be carried out if the required physical strength is not available. A boy may
possess extraordinary skill in Hockey, Football and Handball. But if he does not keep himself in the game till the end of the allotted time, he may not find a place in the team. So fitness becomes the first and foremost to enjoy the life fully (Charles A. Bucher, 1972).

When you are fit, you look better, feel better and are likely to have more physical energy, when you feel fit, the good things of life have more meaning the sky is blue, the music sweeter, the steak tester.

A broad term denoting dynamic qualities that allow a person to satisfy, his or her own needs such as mental and emotional, stability, social consciousness and adaptability, spiritual and moral fiber and organic health consistent, with a persons’ heredity (Jan Percival, 1977).

1.4. PHYSICAL FITNESS

It is the ability to perform daily tasks with sufficient strength and vigour without experiencing undue fatigue, and to have enough strength and stamina left over to enjoy recreational pursuits and be able to meet unforeseen emergencies (Charles A. Bucher, 1985).
The human body was created for a movement to walk, dance, jump and play with no physical stimulants; the sensory receptors become starved, subsequently causing the body aches and pains with proper fitness. One can relieve much of this unnecessary pain and unpleasant complications. It is almost impossible to go through an entire day without being exposed to something that involves physical fitness. This national preoccupation with fitness has affected every segment of our society.

The quality of our life depends upon the quality of work we do. With two days sedentary and automated life styles nobody can take good health and physical fitness for granted. Physical fitness is thus, essential for all, but the degree of physical fitness is very individualized and will vary according to the demands and requirements of a specific task. The Degree college players must constantly work to improve his or her strength, endurance, flexibility, speed and cardiorespiratory efficiency, whereas the student who cycles to class will require less effort to maintain his or her level of physical fitness and a thirty five year old father requires a different physical fitness level than his son. So, physical fitness varies according to the circumstances of a
person at different time of his or her life. In essence, physical fitness is a must for all (John R. Tunis, 1958).

1.5. TRAINING

Training is a programme of exercise designed to improve the skills and increase the energy capacity of an athlete for a particular event (N.N. Mal, 1979).

1.6. MEANING OF TRAINING

The word "training" is used in broad sense and its meaning varies with the field of application in sports, the word training is generally understood to be a synonym of doing physical exercises. In a narrow sense, training is doing physical exercises for the improvement of performance.

1.7. IMPORTANCE OF TRAINING

Training improves the functioning of the circulation, the respiratory and the muscular systems. While, practice is largely aimed at improving the control of training activity by the nervous system. Different training methods have been commonly used to improve physical fitness and its related standards of performance of the players (Edward I. Fox, 1984).
Sports training is also characterized by a continuous control and regulation. Systematic nature of the training process is reflected adequately by the fact that the various means and methods. Load, dynamic training, tasks etc. are all planned in order to achieve a short or long term goals keeping in view the inter-relations of various training elements, cyclic nature of performance development and long term goal of the sports training.

The determination of performance structure is a very difficult task and till now sports scientists and coaches have not been able to satisfactorily tackle this task. A systematic and integrated effort by the coaches is needed for effectively meeting this challenge. A beginning has been made in this direction and after some years perhaps, we will be in a position to determine satisfactorily the structure performance in various sports. This will have a positive effect on better and systematic formulation of the training process (*Hardayal Singh, 1984*).

Training is more suitable for developing basic endurance, general endurance, speed endurance, strength endurance, and power. Training done with high intensity and with sufficient rest period, is also effective for the improvement of maximum
strength in case of team games and combative sports (Hardayal Singh, 1984).

Training is also helpful for teaching of new techniques but it can be more effectively used for stabilization of already acquired motor skills under conditions of fatigue. In short, we can say that training is an effective organizational form of doing physical exercises for improving endurance and strength abilities.

1.8. TRAINING AND SPORTS PERFORMANCE

The word training means different things in different fields. In sports, the word training is doing physical exercises. In a narrow sense, training is doing physical exercises for the improvement of performance. The concept is reflected in short terms, which are given to separate components of training or to separate methods or procedures of doing physical exercises.

Coaches and exercises physiologists also understand training to be doing physical exercises for improvement of performance or separate performance factors.

Training and sports performance are a process of preparation of sportsmen and principles for higher performance.
The main aim of training in sports is to achieve high level of performance. This aim relates to different factors. The sports performance depends largely on physical fitness. Sports activity is a physical activity, which is not possible without motor abilities. Therefore, the improvement of physical fitness or motor abilities is the principal aim of sports training.

1.9. PHYSICAL FITNESS AND PERFORMANCE

The increased energy expenditure that accompanies regular physical activity contributes to more efficient functions of various systems. Physical fitness is a related construct and it is also often assumed that the more habitually creative are more fit and that their relationship is casual.

Physical fitness means that a person possessing it meets certain physical requirements. These requirements may be anatomical, physiological or both. Anatomical fitness may require a person to be of a certain height or weight or have specified dimensions of various parts of the body. Physiological fitness may require a person to be able to withstand certain temperatures or altitudes, or be able to perform specific physical tasks involving muscular effort.
Physical fitness is a fundamental need, like food clothing and shelter. It is not an isolated phenomenon. It is an integral part of life itself. "Physical fitness provides capacity for activity. The greater the physical fitness, the better the physical endurance and precision of movement, which are essentials for any effective living".

Performance related physical fitness is associated with those ingredients and qualities conducive to better performance in daily life style, sports and other physical activities, such as those requiring endurance, strength, speed and agility.

1.10. PHYSIOLOGICAL FITNESS AND PERFORMANCE

It is universally accepted that the physiological functions of the body improve with the use and decline with disuse. More specifically, the heart, lungs and muscles become stronger and more durable the more they are used. Exercise strengthens the heart muscle. Greater demands are placed on heart cause it to increase in size and get stronger through use. The person who exercises regularly has a lower pulse rate, and this rate returns to normal more quickly after exercise than does the pulse rate of the sedentary person.
Cardiovascular pulmonary endurance is the most important aspect of any total physical fitness program. Exercise helps player's heart, lungs and circulatory system to perform more efficiently. Heart, which is a muscular of separation from misery and sorrow, a state of silence and peace. But it becomes almost impossible for most of us to attain such a state, because the minds of most of us are endlessly caught up in wishful thinking, seeking security, prestige, power, permanent and lasting pleasure and so on. We, thus, forever carry a burden caused by desires, cravings, hopes and despairs, greed envy. It becomes very difficult to understand clearly how this burden and tension is essentially of our own making, because our beliefs, judgments and conclusions, hardly ever permit us to think in a free manner. We are conditioned by the beliefs that we unknowingly gather from our parents, friends, teachers, leaders and other influential members of the society. This process of conditioning has an overwhelming influence on almost every child born in society. The goal of yoga is to put an end to this conditioning, seeking and grief. An individual, then, stops looking at the problems he confronts, through what others have said, and he starts understanding any situation as it is. But all
this indeed remains beyond the grasp of most of us, because we lack sensitivity and simplicity of mind. It is, therefore, that individuals who reach the goal of yoga are very rare in any society.

1.11. PANAROMIC VIEW ON YOGA

Yoga has been practiced 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 (Charote, 1976).

In other systems of physical exercises, the internal organs of the body mostly do not get proper exercise, while yogasanas give 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).
1.12. YOGA AND IT'S MEANING

The science of yoga works on physical, mental, emotional, psychic and spiritual aspects of a person. When imbalance is experienced at this level, the organs, and 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, "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 forever.

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" (Chakrabarthisi et al., 1984).

1.13. YOGIC CONCEPT

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 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 (Charote, 1976).

1.14. CHARACTERISTICS 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 strengthens 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.
1.15. 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 asana (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).

Iyengar (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.
1.16. 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) actions, steadiness, alertness, improving perceptions, ensuring protection to body parts, etc.

6. 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.

7. 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.

1.17. 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 '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 musculoskeletal) 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 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.

1.18. 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.

1.19. 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 ad 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 practiced 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 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 practicing 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.

1.20. ENHANCEMENT OF PERFORMANCE

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 Asanas 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 (1961a, 1961b, 1962) Gharote (1973, 1976) Dhanraj (1974) Giri (1966), 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.

1.21. PSYCHOLOGICAL EQUILIBRIUM

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 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.

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1.22. MAINTENANCE OF PHYSIOLOGICAL FACTORS

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 behavior 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 (Chakrabarthi 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 is:

1. Help a boy to become self-controlled and less prone to extremes of behavior (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).

1.23. GENERAL EFFECTS OF YOGA

✓ Relief from tension

✓ Improvement of complexion

✓ Normalized weight
✓ A trim and firm figure
✓ Cleanliness and strengthening of lungs
✓ Improved circulation
✓ Recovery from chronic fatigue
✓ Makes the person slim, flexible and clastic
✓ Cures and helps in prevention of diseases
✓ Helps in regulating the breathing mechanism and increases vital capacity.
✓ Develops fitness by improving strength, endurance and flexibility.
✓ It is most cost effective.

1.24. HEALTH BENEFITS OF YOGA

PHYSIOLOGICAL BENEFITS

1. Stable autonomic nervous system equilibrium, with a tendency toward parasympathetic nervous system dominance rather than the usual stress-induced sympathetic nervous system dominance.

2. Pulse rate decreases.

3. Respiratory rate decreases

4. Blood pressure decreases (of special significance for hypo reactors)
5. Galvanic Skin Response (GSR) increases
6. EEG-alpha waves increase (theta, delta and beta waves also increase during various stages of meditation)
7. Cardiovascular efficiency increases
8. Respiratory efficiency increases (respiratory amplitude and smoothness increase, tidal volume increases, vital capacity increases, breath-holding time increases).
9. Gastrointestinal function normalizes
10. Endocrine function normalizes
11. Excretory functions improve
12. Musculo skeletal flexibility and joint range of motion increases
13. Posture improves
14. Strength and resiliency increase
15. Endurance increases
16. Energy level increases
17. Weight normalizes
18. Sleep improves
19. Immunity increases
20. Pain decreases
PSYCHOLOGICAL BENEFITS

- Somatic and Kinesthetic awareness increase
- Mood improves and subjective well-being increases
- Self-acceptance and Self-actualization increase
- Social adjustment increases
- Anxiety and depression decrease
- Hostility decreases

PSYCHOMOTOR BENEFITS

- Psychomotor functions improve
- Grip strength increases
- Dexterity and fine skills improve
- Eye-hand coordination improves
- Choice reaction time improves
- Steadiness improves
- Depth perception improves
- Balance improves
- Integrated functioning of body parts improves

COGNITIVE BENEFITS

- Cognitive function improves
- Attention improves
• Concentration improves
• Memory improves
• Learning efficiency improves
• Symbol coding improves
• Depth perception improves
• Flicker fusion frequency improves

**BIOCHEMICAL BENEFITS**

The biochemical profile improves, indicating an anti stress and antioxidant effect, important in the prevention of degenerative diseases.

• Glucose decreases
• Sodium decreases
• Total cholesterol decreases
• Triglycerides decreases
• HDL cholesterol decreases
• LDL cholesterol decreases
• VLDL cholesterol decreases
• Cholinesterase increases
• Catecholamines decreases
• ATPase increases
• Hematocrit increases
- Hemoglobin increases
- Lymphocyte count increases
- Total white blood cell count decreases
- Thyroxin increases
- Vitamin C increases
- Total serum protein increases (Dr. A.K. Uppal & Dr. G.P. Gautam, 2000).

1.25. YOGA AND PHYSICAL FITNESS

Physical fitness is a must for any good performance in day today life. Different activities require different type of fitness emphasizing a particular fitness factor. However, general level of physical fitness is necessary for every individual to function effectively. The law of use and disuse suggests that if you want to be fit you must exercise. The routine of exercise differs from individual according to purpose.

This can be attained excellently by indulging in Yogic routine. The 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 Asanas 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.

Yoga can contribute to the promotion of sport whether we use the term sport in a restricted sense or in a wider sense. The concept of lifetime sports suggests that exercise is for everyone including those persons who have various handicaps. From this point of view Yoga could be fittingly called lifetime sports. Yoga, therefore, not only contributes to the other sports but also is a sport by itself, which is excellent in nature.

1.26. EXERCISE

Exercise from the practical point of view may be formulated as “any bodily exertion for the sake of keeping the organs and their functions in a health state” (Karambelkar, 1971).

Exercise comprises all movements designed to act on the muscles, the blood vessels, the nervous system, the skin and the abdominal organs (R. Tait, 1944).

Exercise can be classified in various ways. However, there are certain basic movement patterns in each exercise. These may be expressed in terms of tension development in the muscles. The term ‘contraction’ has often been used to mean
tension in the muscles resulting in their shortening. The shortening of the muscle is called concentric contraction and the lengthening of the muscle as eccentric contraction. Both concentric and eccentric contractions are also known as isotonic contraction. When a muscle develops tension but the length of the muscle remains unchanged, it is called static or isometric contraction.

The various systems of gymnastic exercises developed in Europe in the nineteenth century had exercise as one of their objectives in the development of muscular strength. The experimental investigation by De Lorme (1949) demonstrated that the tension developed in the muscle is the determining factor in strength increase. Hellebrandt and Houtz (1956) experimentally demonstrated that muscular endurance was increased when repetitive exercises were performed against heavy resistance. Today, we have a variety of exercise like calisthenics, Gymnastics, Marching, Jogging, Dancing, Stretching exercises, Mobility exercises, Aerobics, Weight training exercises and Yogic exercises, including Asanas. For the past many years, a technique known as ballistic stretching, static stretching and Proprioceptive neuromuscular facilitation
(PNF) have been advocated for the improvement of joint flexibility.

Exercise is referred to as physical activity ranging from light to fairly vigorous nature. It is as necessary for the body as music is for the soul.

Regular stimulation of the total body through vigorous exercise produces increased strength, endurance and such other characteristics associated with good health.

Exercise should become lifetime commitment for people in all walks of life. The advocates of “Hatha Yoga” say that a purpose of exercise is to increase the circulation and have oxygen. Simple movements of the spine and various joints of the body can achieve this with deep breathing without violent movement of the muscles. Exercise is a physiological pattern, and like emotion involves a variety of bodily changes. Experts in the field of physical education believe that regular vigorous physical activity helps to improve the strength and functioning of the heart, lungs muscles and it also appears to have much potential for adding not only more life to the years but also possibly more years to life.
1.27. IMPORTANCE OF PHYSICAL EXERCISE

Physical Exercises are essential for better living. Exercise keeps muscular tones, joints and circulation in motion. Exercise can also be used to control blood pressure. Hypertension causes an inordinate amount of pressure on the walls of the arteries. This pressure can result in the rupture of the arteries in the brain, which is called stroke. Any hypertensive individual, who exercises regularly, is able to lower his/her blood pressure thereby helping to prevent strokes, one of the leading causes of death in the world. Regular exercise helps to prevent obesity, which is related to both coronary heart disease and hypertension and helps for mental alertness. Regular exercise can be an effective way of lowering stress. It helps for emotional stability and enhances spiritual and moral development. The purpose of exercise is to increase the circulation of blood and intake of oxygen.

Exercise can be performed in many ways. Modern men and women feel that their daily work provides them with enough exercise for fitness. Running up and down stairs or standing all the day at a job seems to be physical exertion. But such activities are limited activities that neither use the lungs nor
provide adequate stimulation for the heart to produce the training effect.

1.28. EXERCISE AND HEALTH

It has been seen that those who maintain a relatively high degree of fitness through the nature of their work or through physical activities suffer less from degenerative diseases and probably live longer than those who follow a sedentary life.

Obesity, muscle atrophy, cardiovascular deficiency, joint stiffness, and impairment of various metabolic functions are possible effects of prolonged inactivity. Sudden cessation of work activity in older individual as sometime happens on retirement, often seems to lead to rapid physical degeneration if no substitute activity is provided. The successful use of physical activity in the medical management in patients indicates the beneficial effect of exercise in preventing or delaying organic disease and degeneration.

The benefits of exercise (Physical-Activity) are more clearly observed in their relation to certain organic disease. Regular exercise is now considered to help retard the onset of further progress of diabetes. However, exercise regardless of its nature
or extent, cannot provide immunization against infections, illness, or cure for communicable diseases.

There is no longer any doubt that the level of physical activity does play a major role in weight control. Maintaining a good calorie balance between dietary intake and energy output enquires a sound approach to both food consumption and exercises (B.S. Yadav, 1986).

STATEMENT OF THE PROBLEM

The purpose of the study was to identify the training impacts of designed capsule of yoga and physical exercises on selected psycho-physiological and motor ability components among the cricket players.

HYPOTHESIS

The hypotheses formulated in the present study were as follows

1. Both yoga and physical exercises would have a training impact on the psycho-physiological and motor ability components.
2. The experimental groups would be significant in the training outcomes more than the control group.
3. The experimental group (Yoga) would be a most significant and better group in the training out comers compared to the physical exercises group and the control group.

SIGNIFICANCE OF THE STUDY

The significance of the present study is as follows

1. The findings of the present study would help the players to identify their level of psycho-physiological and motor ability through the adapted training methods.

2. The study indicates the suitable training methods for various fitness and performance variables.

3. The findings are the viable source for physical education teachers and coaches to develop the scientific training program.

4. The study paves the way for integrating yoga and physical exercises.

5. The study would also highlight the positive contribution of yoga to personal health and performance in sports.
DELIMITATIONS

1) The study was confined to the cricket players at the collegiate level.
2) Only male subjects were taken to this study.
3) Sixty subjects were taken for this study; they were divided into three equal groups.
4) Two experimental groups and one control group was employed for the study.
5) The training period was limited to twelve weeks only.
6) Only selected psycho-physiological and motor ability components were selected for the study.

LIMITATIONS

1) Certain factors like food habits, lifestyle, daily routine, climatic condition, and environmental factors which may have an effect on the result of this study were not taken into consideration while interpreting the results.
2) Apart from the training programme the involvement of the subjects in daily routines were not taken into consideration.
3) No special motivational techniques were used to encourage the subjects to attain their maximum performance.
DEFINITIONS AND EXPLANATION OF TERMS

FITNESS

Fitness is a state, which characterizes the degree to which the person is able to function. Ability to function depends upon the physical, mental, emotional, social and spiritual components of fitness, all of which are related to each other and are mutually interdependent. This may be referred to as ‘total fitness’ (Reuben, 1971).

YOGA

Yoga - citta vritti nirodha

- citta - consciousness
- vrtti - fluctuation
- nirodha - restrictions

Yoga is the restriction of the fluctuations of consciousness (George Feuerstein, 1989).

ASANAS

Asana - sthira sukha asana

- sthira - steady
- sukha - joy

- asana - posture (George Feuerstein, 1989)
PRANAYAMA

Pranayama is an exercise that prolongs life. The word Pranayama is derived from the Sanskrit root called ‘Prana’ and ‘Ayama’. The syllable Prana denotes the air that leaves from the body. Ayama has two meanings.

i) to elongate

ii) to withhold (Dr. K. Chandrasekaran, 1999)

MEDITATION

Overcoming the fluctuations is meditation (George Feuerstein, 1989).

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 muscle development as a result of improved function of the muscles.
ANXIETY

Anxiety appears to be general fear of foreboding a personality trait marked by a lower threshold to stressful events.

STATE ANXIETY

Spiel Berger defines state anxiety as "a transitory emotional state or condition of the human organism that is characterized by subjective consciously perceived feelings of tension and apprehension and heightened autonomic nervous system activity.

TRAIT ANXIETY

Trait anxiety is defined by Spiel Berger as the "relatively stable individual difference is anxiety proneness that is tendency to respond to situations perceived as threatening with elevations in a state intensity.

BLOOD PRESSURE

Blood pressure is the lateral pressure exerted by blood on the vessel walls while flowing through it.

SYSTOLIC BLOOD PRESSURE

The highest level systolic blood pressure to which the arterial blood pressure rises during the systolic ejection of blood from the ventricle.
**DIASTOLIC BLOOD PRESSURE**

The lowest level to which the arterial blood pressure fall in the interval between successive beat.

**PULSE RATE**

The number of beats of a pulse per minute or the number of beats of the heart and entries per minute.

**RESPIRATORY RATE**

The total number of respiration per minute.

**BREATHE HOLDING TIME**

' Breath holding time has been defined as an individual’s ability to hold the breath (a voluntary forced maximal inhalation) without inhaling or exhaling during the period of holding the breath’ (Morehouse and Miller, 1976).

**SPEED**

Speed may be defined as the capacity of individual to perform successive movements of the same pattern at a faster rate (Charles A. Buker, 1960).

**AGILITY**

Agility is the ability to change direction of the body and its parts rapidly (Clayane R. Jenson, 1972).
CARDIO RESPIRATORY ENDURANCE

Cardio Respiratory endurance has been defined as the ability of the lungs and heart to take in and transport adequate amount of oxygen to the working muscles allowing large muscles to sustain over long periods of time. It has an additional implication as to recover from severe exercise (Mathew and Pox, 1976).

CRICKET

Game played with bat & ball between two teams of eleven players each on a large field, which centres upon to upright wickets each defended by a batsman. A bowler when throws (a straight arm over hand delivery) the ball attempting to put out of the batsman by hitting the wickets or in otherways, runs are scored each time the batsman exchange position without being put out.

OPERATIONAL TERMS

<p>| PSV     | - | Psychological variables |
| PLV     | - | Physiological variables |
| MAC     | - | Motor ability components |</p>
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