INTRODUCTION

“Sports are a way of life, a legitimate occupation a serious avocation, a source of national pride, even an instrument of national diplomacy.”

~ Manji et al~

In the Modern world games and sports are popularly planned and executed to promote social harmony, discipline and increased productivity. These activities develop student’s rights, attitudes, values, and help them to grow into balanced, integrated and healthy citizens.

The modern age is an age of science and technology and now it is called as computer age. Due to rapid progress in the field, man is blessed with more leisure. In this modern age of micro and macro machines, physical activities in one form or the other are essential for growth and development of human personality. Body and mind movement is the sign of life and activity is the sign of growth and development. Hence sports and games activities should become part of our life. Physical education is expected to develop interest in such activities and provide for participation in an organized way.

Charles A. Bucher has stated that physical education should aim to provide skilled leadership and adequate facilities which will afford to an opportunity for the individual or a group to act in situations which are physically wholesome, mentally stimulating and satisfying and socially sound.

Harold M. Barrow has stated that physical education should have a vital role to play leading to a healthy mind in a healthy body. The participation and outcome in games and sports become a vital yard stick to measure the care of a nation towards its youth.
1.1. SPORTS

The field of sports is currently undergoing remarkable scientific changes. Research has revamped the whole concept of sports; Highly technological innovations through contributions from various disciplines like medicine, engineering, human biology, psychology, etc, have made the sports field more authentic, glamorous and appealing. Different methods are tried to spot out potential talents and train them under near-ideal environments.

Sheshan has contended that “Sports is the act of being Physique- genitive behaviour against an obstacle in a comparatively structured and institutionalised situation”.

1.2. IMPORTANCE OF SPORTS

According to Webster sports means –diversion, amusement or recreation, a pleasant past time, a past time persuade in the open air, or having an athletic character as, hunting, fishing, racing, baseball, bowling or wrestling. Physical education is vitaly concerned and involved with sport.

Sport is in human’s blood. Sport is recreation as well as a competition. Basically sports are individual activities relating and revitalizing in nature and meant to provide opportunities to the individuals to make the ‘fullest’ and the most intelligent use of leisure time. Athletic contests have existed through out the human history, sports and war has been the very life of ancient civilization.

1.3. ROLL OF SCIENCE IN SPORTS

Science plays an important role in all spheres of human life. Technological progress during the last century is the result of advancement in mathematics, physics as well as in other applied sciences. Sport activity is not an exception in this regard, although sports sciences have only been recognized considerably as an academic field of study in recent years. All the different branches of sports sciences help to enhance performance in a big way at higher level.
A coach should have the basic knowledge of sports sciences. Coaches and players striving for excellence in any sports discipline must attempt to incorporate all the information that is available from science to impart quality coaching and preparation for competition.

Considering the importance of sports and competitions we can say that it has become a social need of the modern civilization.

1.4. MODERN TRENDS

Coubertin said that, “The important thing in the Olympic games is not swimming but taking part, for the essential thing in life is not conquering but fighting well”.

This is an earlier philosophy during the Olympic Games in Berlin in 1936. Life of people, their philosophy and way of living are undergoing changes. In sports it has become an accepted practice to strive to win. The philosophy of sports participation has undergone a change because now an individual participates in order to win. And even his countrymen induce the sportsmen to win as sports has become a prestigious aspect to prove their superiority over other nations and societies. Frequently the images conjured up by the name of the Nation and its favourite game is going closely linked. For instance England and West Indies are inextricably linked with cricket. In India, it is Hockey that takes pride of place.

Competitions provide the means by which one can show ones worth by competing successfully. What once war called a mere muscle activity had now an impact of scientific advancement? Consequently sports competitions have triggered of a rigorous competitions in research on human physiology, biomechanics, sports medicine etc. Competitive sports now a mania with all Nations of the World.

Physical exercise in the form of sports recreation and competition, are the potent factors in keeping an individual physically fit and mentally alert. The
philosophy of sports participation has undergone a sea change and today an individual participates in order to win. And even his countrymen induce the sportsmen to win, as sports have become a prestigious aspect to prove their superiority over the Nations and societies.

To satisfy the needs of challenge, adventure and self actualization, people need vigorous exertion in various forms. Physical activity has become a medium by which the individual is better able to cope with the successful conditions of modern life.

Our late Prime Minister Indira Gandhi has rightly proclaimed that science applied to sports has enabled modern youth to develop physical capacities beyond anything imagined earlier. At present winning in competitive sports seems to be a National prestige as each Nation strives to win. Certain Nations even try to project the superiority of their potential ideology through achievements in the field of sports.

To bring success, scientific methods are used to coop every centimeter, every fraction of a second and every fraction of energy out of an athlete who is considered to be almost a machine. Every where now efforts are on to get up research laboratories so that ways and means could be found not only to asses but also to accelerate human performance in sports. The best is extracted through various systems of sports training, new sports techniques and tactics, sophisticated equipments, suitable conditions and other compounds. Really sports have now become extremely complicated phenomenon.
1.5. HOCKEY

“Hockey was a Gentleman’s game to be played for its own sake”.

Chris Moore has defined Hockey, a sport which emerged in the 19th century, has seen huge changes in the latter part of the 20th century. As we move towards the start of the 21st century even more changes can be expected. “It will be, through more evolution than revolution, and that is how it should be.”

Hockey is a dynamic team game played by both sex requiring high level of skills, excellent conditioning and well co-ordinated team effort. Modern Hockey demands that all the players should be adapted to all the situations either defending or attacking.

Hockey is a game which calls for strenuous, continuous, thrilling action and therefore attracts the youth all over the World. The skills involved are simple, natural and yet are highly stimulating and satisfying to any child. These skills are dribbling, pushing, flicking, scooping, tackling and dodging the opponent. Hockey is rated as one of the most popular team games in the world. With the involvement of Dhayan Chand, and Dung Dung from India, this sport is getting a dimensional popularity in India, Asian countries and in other European countries as well.

1.6. ORIGIN AND DEVELOPMENT OF THE GAME HOCKEY IN INDIA

Though there is no definite origin of the game, a beginning has to be made to the primitive instincts of man hitting an object with something. About 500 years ago the Persians are known to have played from the horse backs a game like Polo. The young ones imitated the game with short sticks and stones or pebbles.
A bas relief unearthed (514-449 BC) shows some Athenians at play, two of whom actually engaged in a Hockey bully.

Ron Hendricks has defined as the roots of hockey are buried deep in antiquity. Crude sketches found on the walls of prehistoric caves may lend substantial information on the fanciful notion that the caveman knocked at a stone with a primitive club for his amusement when he was not locked in mortal combat with his deadly enemy, the Iguanodon. Historical records show that a rudimentary form of the game was played in Egypt 400 years ago and in Ethiopia around 1000 B.C. It was the only team game practiced by the Greek in the epoch of Themistocles [525-449]. The ancient Azteus of South America and the Red Indian tribes of North America played a savage stick-and ball-game several centuries before Columbus discovered the New World.

The British pride is that they originated the game and gave it to the world. With reference to the English Historians Hockey is a development of other games. In the pre-Christian era, a stick and ball game had been in practice in the British Islands. Later it came to be known in Ireland as Hurley, in Scotland as shinty and in England and Wales as Bendy, as these games seem to have been played with ball and stick teaming resemblance to the modern one. From England the French People borrowed this game and spread to the whole of the continent.

Modern Hockey was imported to India by Englishman, than the rulers of India in the early years of the 15th century. The credit of starting Hockey in India first goes to Calcutta. The people there played a leading role in popularizing the game in India. In India the game takes the pride of place and it is considered as our National game and it occupies a significant place. The game became popular in other countries and its popularity in the World can be judged in terms of Federation International De Hockey (F.I.H.), this now comprises of more than 130 National Federations as its member.

By the time when India represented in the Olympic Games for the first time Amsterdam in 1928 they overshadowed the pioneers of the game such as England.
India emerged as Olympic Hockey champions in their debut in 1928 and maintained their supremacy till 1960. In 1980 Moscow Olympic, India regained the gold.

1.7. NATIONAL GAME

The game Hockey was played in certain areas like Punjab even colonial roll come into existence. It was known as “khido Kunti” by them. When the Britishers introduced modern hockey, in an organized manner the game become very popular and reached the forcorners of the country. The standard of the game reached dizzy heights and on its maiden appearance at the Olympics in 1928, India obtained the gold medal. The next consecutive five Olympics saw India retain its position as number one in the World. The love and devotion of innumerable players and spectators towards the game brought International recognition and consequently hockey was acclaimed as.

1.8. REASONS FOR THE SUCCESSIVE DEFEAT OF INDIAN HOCKEY

The Indian hockey team’s pinnacle and pits seems to be two sides of the same coin perhaps no other country has experienced the sweetness of triumph and the despair of defeat as much as the Indians are. The performance of Indian hockey team in the last two decades had been very disappointing.

Apart from 1975 World Cup at Kulalumbur the devalued Moscow Olympics in 1980 and the Asian games and other International tournaments we have very little to be proud of. Even in the recently concluded World Cup India got only eight place out of twelve countries. After analysing India’s performance in Olympics, World Cup and Champions Trophy one can easily understand India’s present position in World Hockey. From 1928 to 1956 India was on the top in Olympics and later we were relegated to the status of a mere medal list and now our position is far below.
The question posed prominent these days in Indian sporting circle is that why Indian hockey has nose-dive today almost to a nadir status. Where have we gone wrong? Are we really as bad as our results show? Have our standards determined to such an extent? Whether will we able to regain our past glory? Have other non-Asians gone ahead? Is it because of the change of playing ground? Have the changes in the rules really affected our traditional style of hockey? Is officiating responsible for? Are our coaches not moving with the time? Do we have to change our style and system of play? Who is responsible for this downfall? Is it the management or the players? These are some of the serious questions to be answered to regain the past golden glory of Indian hockey.

1.9. REASONS

It is felt that the plight of Indian hockey is inconsistent. Because the ignorance of latest techniques for our team to play on the synthetic field for which the game is now played.

For coaches and also for players ignorant of the new techniques that have to be mastered before they can overwhelm in International outfits.

Artificial turf has completely revolutionized the style and system of play. Our players however learned to play hockey on grass and gravel grounds. They get the opportunity to play on artificial field only when they are selected for the National Coaching camp or in the Sports promotional schemes.

The frequent changes of National Coaches and nominations of unqualified coaches have also adversely affected the performance of Indian hockey team.

Many changes in rules have also affected the traditional style of Indian hockey Where Most of the time we experiment these changes of rules only at the competition venue.

The frequent changes of Umpiring styles according to the new rules by the Non Asian umpires affect the game, because in Asian Countries we do not strictly
amend the new rules in the domestic competitions. The game has also suffered and the players indulged in rough play because of bad umpiring.

Proper coaching camp especially long-term plans are not formulated and implemented for the promotion of the game.

Lack of scientific back up and failures to incorporate the scientific findings lead to unfruitful results, i.e. the systematic talent search programmes, to select suitable sportsmen to play hockey and to be trained scientifically and systematically.

Since 1920, India regained supreme in the world of hockey nearly her 40 years. India which once was considered to be the magician with hockey sticks was now pushed back in the world level competitions. The successive defeat of Indian hockey team in major events has created a pessimistic view over our teams. Though there are number of reasons for our defeats and the improvement of the Western countries in this game such as change of rules, change of playing ground, lack of facilities, lack of proper selection, long term training etcetera. People are critical about the present standard of Indian hockey by comparing it with the good golden days of India in hockey three decades ago. In case India wants to regain the lost reputation, lot of spadework has to be done. One among them is systematic talent search programmes to select the suitable sportsmen to play hockey and to be trained scientifically and systematically.

The game of hockey is largely depends upon skills, Physiological make up of the body, Psychological built up and motor qualities of the player. The performance of Hockey is based on the proficiency of techniques such as dribbling, hitting, stopping, flicking, scooping and passing.

A complete review of the game and findings enable to make structural changes within the frame work of training and can establish improvement at all levels to achieve better performance in International competitions.

A giant stride revolution has to be made to regain the supremacy of Indian hockey in the World.
1.10. FITNESS

Physical activity is essential for the development of wholesome personality of the child which would depend upon the opportunities provided for wholesome development of the mental, physical, social and spiritual aspects. Hence a well organized and properly administered physical education programmer for school children is very essential.

Bucher and Williams has stated that fitness is a broad term denoting dynamic qualities that allow a person to satisfy his or her own needs such as mental an emotional stability, social consciousness and adaptability, spiritual and moral figures and organic health consistent with person heredity.

Robert has defined that fitness is the state which characterizes the degree to which a person is able to function efficiently. Fitness is an individual matter. It implies the ability of each person to live most effectively within his potentialities.

1.11. IMPORTANCE OF FITNESS IN GENERAL

The increased energy expenditure that accompanies regular physical activity contributes to more efficient function of various systems, weight maintenance; reduce risk of several degenerative diseases, reduced risk of morality, and overall improvement of quality of life. Habits and attitude towards physical activity developed during the childhood are assumed to continue through adolescence.

1.12. PHYSICAL FITNESS

Physical fitness is a composite mixture of physical make up and physiological built up. The proficiency in physical variables and performance variables depends on the physical fitness and hence it becomes necessary to explain the term physical fitness and its importance.

Bud has defined that physical fitness is the capacity of the heart blood vessels and muscles to function at optimal efficiency.
Willgoose has quoted physical fitness is the capacity to perform activity. The greater the fitness the better physical endurance and precision of movement will be, which are essential for our daily work of life. The greater the physical fitness, the longer can a person keep and the more efficient will be performance and his capacity for recovery from fatigue.

Edwin has stated that physical fitness is a term used to the functional capacity of an individual to perform certain kinds of tasks requiring muscular activity. Physical fitness is the ability of the body to adopt and recover from strenuous exercises. It is the relation of one’s ability to work and play with vigor and pleasure without undue fatigue and with sufficient energy for unforeseen emergencies. Physical fitness is the ability to last, to gear up and to preserve under difficult circumstances where an unfit person would give up. It is the opposite of being fatigued from ordinary efforts.

11.2.1. IMPORTANCE OF PHYSICAL FITNESS

Bucher and Williams has stated that the increased physical fitness should improve the performance at work. Hundreds of American companies have backed this idea financially by employing full time directors of fitness for their workers.

The benefits of physical fitness are numerous. The person who is physically fit will have greater amount of strength, energy and stamina an improved sense of well being better protection from injury because strong well developed muscle safeguard the bones, internal organs and joints and keep moving parts limber and improve cardio-respiratory function.

For a good performance in any sport or athletic event, the high standard of fitness is the basic requirement. More participation in sports activity is not enough to improve fitness. The fitness must be gained through conditioning programmes.

The performance of any game largely depends on how much the player is physically fit, how much the player is proficient in fundamental skills of that particular game, how much the player is exposed at different difficult situations
and how much the player is experienced and intelligent in the various playing situation.

1.12.2. PHYSICAL VARIABLES SELECTED FOR THE STUDY

The performance of any game depends upon the physical fitness of the players, even though proficiency in fundamental skill and other variables play important role. Hence it becomes necessary to explain the physical variables and its significance.

The game of hockey nowadays is being played in three types of grounds namely gravel, grass and artificial ground. After the introduction of the artificial field the players, coaches and the conditioning experts now understand that the physical variables are playing vital role to reach high level performance in the artificial ground. All the major tournaments like Olympics, world cups, Asian games, champion trophy and Commonwealth games are being played only in the artificial ground. Playing in the artificial field requires high level of physical efficiency, especially in speed, agility, power and endurance. Among the many physical variables the investigator being a hockey coach feels and experienced that the following physical variables namely speed, agility and power are more important and selected those as physical variables for this study.

1.12.3. SPEED AND ITS IMPORTANCE IN HOCKEY

Harold and Rosemary has defined that the speed is the capacity of an individual to perform successive movements of the same pattern at a fast rate.

Hardayal Singh has quoted that the speed is the performance per-requisite to do motor actions under given conditions (movement task, external factor, individual pre-requisite) in minimum time. Speed is a determining factor in the explosive sports such a sprints, jumps and most field events.

Speed in one of the most important physical fitness component which is highly essential for many physical activities. Strength is highly related to speed.
Generally in team events with higher speed and strength wins because they are the fastest team. Speed is more valuable in team games like hockey, football, basketball and track events.

The Performance of any game depends upon physical variables. For any competitive sports activities speed is highly essential to achieve high level performance. In a team game like hockey, speed is more essential because the ball moves faster than the man. After the introduction of the artificial field namely Astroturf, Poly grass, super turf speed plays most important role for the team to decide the champion. Ball moves faster in the artificial field than the other two grounds namely grass and gravel ground. Hockey players playing in the forward line must have good speed with the ball and without the ball to score more goals and also to fallback and receive the ball from the teammates. Speed is also more essential for half line and fullbacks when it arises they also should run faster to defend their goal from scoring. Speed is considered as one of the most important physical variable for a hockey player to achieve high level performance.

1.12.4. AGILITY AND ITS IMPORTANCE IN HOCKEY

Johnson and Nelson said that the agility may be explained as the physical ability which enables an individual to rapidly change body position and direction.

In any physical activity or in any game situation, the controlled ability to stop or to start and to change direction rapidly and move quickly is a very essential factor and this quality decides one’s performance level and the speed of acquiring any skill. The absence of that ability among the participants would spoil the original game score.

Agility plays a significant role in the training of technique and tactics in competition. The aim of training skills is to bring the athlete closer and closer to the ideal form of the sequence of movement.

Martin has state that the changing position and direction of the body quickly at a higher speed is very much useful in speedy games like hockey, basketball,
soccer and events like high jump and pole-vault. Players having more agility perform better than others in games and sports.

Wayne and Payne said that the agility or the ability to move quickly with changes in direction or position enhances the performance in a variety of activities. Dancing, walking on ice covered site walks, and completing many aspects of employment are enhanced by an adequately developed level of agility. Like other dimensions of physical fitness agility can be maintained when life style includes sufficient opportunity for vigorous activity. Dance, gymnastics, team sports and many recreative pursuits will provide opportunities to become more agile.

Hockey players must have good agility in all the three types of play fields with the ball and without the ball. Agility is more important for the entire hockey players playing in different position like forwards, halfbacks and fullbacks. After removing the obstruction rules in hockey agility with the ball and without the ball became more important for the attacker to control over the ball during the game to beat or to dodge the defender. When the forwards are having the ball it is very difficult for the defender to tackle because if the defender allows the forward to his right side and tackle the forward turn towards his left side and dodge the defender easily. If the defender allows left side the attacker will dodge the defender without any difficulty and to tackle the ball from the defender when they are in possession of the ball. Defender also will make a semi circular movement either to left or to right and can clearly make a pass to the teammate without any difficulty.

1.12.5. POWER AND ITS IMPORTANCE IN HOCKEY

Harold and Rosemary have stated that the power is the capacity of an individual to bring into play maximum muscle contraction at fastest rate of speed.

Guyton and Hall have said that the power is the measure of total amount of work the muscle performs in unit of times.
The power of muscle contraction is different from muscular strength. Power is determined not only by the strength of muscle contraction but also on its distance of contraction and the number of times that it contracts each minute; Muscle power is generally measure in kilogram meters per minute.

Power plays a major role in all the competitive sports.

In hockey power has been considered as more important variable equally with other physical variables. After the introduction of the artificial field the competition rules for hockey also changed. All the major tournaments like Olympics, World Cup, Asian Games, Asia Cup, Common wealth games, SAF Games are played only in the artificial field. The hockey players must have sufficient power to execute all the skills at any time in any situation. More power is required to player in the artificial field than in the other grounds. In any field power is required to play faster; power is the basic requirement for the improvement of speed. The hockey players playing in different position and also in different playfields react quickly according to the situation arises.

During the game, players run fast to receive the ball in the gap and sometimes to create space. To speed up the game, players must have good power with speed. In the artificial ground, ball is faster than the player and also the ball is faster in the artificial turf field than the other playfields.

Modern hockey requires highly speedy player with sufficient power. To score goal, the players must have very good power, can play the ball in the goal with more speed. For a long clearance, to take free hit, hit in or 16 yards free hit players should have optimum power to achieve their ultimate aim. In modern hockey the results depends upon the penalty corner conversion. Most of the European countries used to score goals through penalty corners much more easier. European countries used to train specialists to score through penalty corners by executing push scoop technique. European country hockey players have more power than the Asian country hockey players.
Power is more important for a hockey player to play better in all the three playfields. Hence power plays a major role for the hockey players to achieve higher level of performance.

1.13. PSYCHOLOGY

Psycho: Psychology is the science of activities of an individual in relation to his environment. Literally Psychology means knowledge of the soul. Psyche means “Solu”, logos means “Science”. The firm soul could not satisfactorily be explained. So Psychology is defined as the science of mind. Some Psychologists analysed the mind, and said that the mind could think, feel and act these are the states of structures of mind.

The most accepted definition is that, Psychology is the science of behaviour and experience. Behaviour induces all manifestation of life. As a pure science Psychology is concerned primarily with systematic study of behaviour and other verification through experimentation.

Kamalesh said that the psychology is the science of the activities of an individual in relation to his environment. The activity of the soul or the mind in other words the internal behaviour is manifested through the physical or the outer form for “thinking” and doing are point on the same stretch and are inseparable for straggle for survival.

1.13.1. IMPORTANCE OF PSYCHOLOGY

Psychology of sports means psychological theories and concepts to apply on sports such as coaching and teaching.

Bucher and Deborah have stated that the psychology is a behavioural science has made its contributions for improving sport performances. It has helped coaches to coach more efficiently. This psychological aspects on sports are gaining much attention among sports administers. A rapidly growing area of interest in sports psychology concerns the sum of stress management procedure
such as bio-feed back and relaxation training to enhance athlete’s performance by reducing their stress.

Josvir, H.A.Khanand Saini had quoted that the psychology can help the sports excellence for the sportsman. The role of Psychology in selection, training materials and rehabilitation would definitely help in achieving sports excellence. The emphasis has been laid on pointing out that psychology and sports coverage at the same point and excellent in sports can be optimally obtained by developing appropriate strategies.

Among the many Psychological variables the researcher has selected some variables such as self-confidence, anxiety and aggression for this study.

1.13.2 SELF CONFIDENCE

Robert had quoted that the Self confidence is the state or quality or being confidence in certain of one’s abilities.

1.13.3. IMPORTANCE OF SELF-CONFIDENCE

Self-confidence is a very essential quality of an athlete. Self confidence plays a vital role for good performance.

Self-confidence appears in almost every theoretical account of behaviour. In the field of Physical Education and Sports self-confidence is a boosting variable which helps a performer to do his works in a good manner. Self-confidence is a positive attitude of one towards ones self-concept and it helps more in the field of sports.

1.13.4. ANXIETY

Anxiety chosen for the study is a Psychological factor, which differs from arousal in that t encompasses some degree of activation and as unpleasant emotional state. This term anxiety is used to describe the combination of intensity of behaviour and directional effect, or emotion. The direction of effect, a
characteristic of anxiety is negative in that it describes subjective feelings that are unpleasant.

1.13.5. IMPORTANCE OF ANXIETY

Anxiety plays an important role in the acquisition of motor skills as well as anxiety can either enhance or inhibit performance.

A moderate level of anxiety sums best for the acquisition and performance of motor skills level of anxiety either too high or too low tend or inhibit learning and performance.

1.13.6. AGGRESSION

The word aggression is also a psychological factor comes from the Latin word “Aggredi”, ‘Add’ means towards and grade means walk. Means to walk toward or approach to “more against” or to move with intent to ‘Hurt’ or ‘Harm’.

Bryant said that the aggression has directional component some aggression is directed inward and outward and in its extreme form, may eliminate in self-destructive behaviours including suicide.

Aggression in sports has been found to be helpful at times it expressed by defensive player whose expressions of skill need not to be practice. But excessive aggression, aside from its moral implications, may be less than useful when high levels of skills are required. Aggression in sports is molded by the acquisitions of reward winning and or money as well as by social norms that condone aggression in various sports and sports situations.

1.13.7. IMPORTANCE OF AGGRESSION

The ideas that aggression and performance are thought to be positively related in sports setting are not surprising. Aggressive behaviour is a behaviour designed to harm others. It can be taken physical and verbal forms and can be aimed at physical weakening and psychologically harming another.
Aggression has a positive influence on the performance outcome of an individual or team. The aggressive behaviour harmed the opposition, either physically or psychologically, their by weakening their resources.

Gill quoted that, the aggressive behavior is quite visible in sports. To observe high level aggressiveness in sports we could attend a team game and watch players “Fight” for the ball.

Among so many Psychological variables the following variables namely self-confidence, anxiety and aggression were selected for the research.

1.14. PERFORMANCE VARIABLES IN HOCKEY AND ITS SIGNIFICANCE

Hockey is one of the fastest field sports being played on a 91.40/55 meters rectangular play field. The game had a rapid growth and development and switched onto artificial field nowadays. To play on such artificial field requires greater amount of speed, agility, power, endurance and neuromuscular coordination besides perfection of techniques or fundamental skills.

There are a number of fundamental skills in hockey namely hitting dribbling, pushing, scooping, stopping, flicking, tackling, dodging and passing. The good performance of a hockey player depends upon the perfection and proficiency of fundamental skills.

1.14.1. PERFORMANCE VARIABLES CHOSEN FOR THE STUDY

Among many performance variables in hockey the following variables have been selected for the investigation. They are dribbling, hitting and trapping. The execution of the performance variables may differ from one play field to another play field (ie) one field to other field. The investigator selected three types of playfields namely gravel field, grass field and artificial turf field. The execution of the performance variables definitely differ while executing the particular skill in a particular field compared to other ground.
1.14.2. DRIBBLING AND ITS IMPORTANCE IN HOCKEY

Dribbling chosen for the study is one of the most important skills in the game of hockey. It is an art which will draw the attention of spectators. During the game when the defenders are in dangerous zone, completely covered by the opponents the defenders in position to clear the ball from the dangerous zone, dribbling is so useful and successful. Dribbling helps the forwards at the time of scoring when there is no chance to give pass or to take straight hit into the goal, to control the ball or to make possession of the ball dribbling is so useful. So every player, including the goalkeeper must be perfect in dribbling in all the playfields.

Dribbling is one of the most enjoyable skills and considered as very important performance variables. Dribbling the ball in the artificial ground, gravel and grass field are more or less same but there maybe slight difference in the body position while dribbling the ball in different playfields. The body position while dribbling the ball in the artificial field will differ from the body position while dribbling the ball in the grounds like grass and gravel. The ball moves faster in the artificial fields than the other two playfields.

1.14.3. HITTING AND ITS IMPORTANCE IN HOCKEY

Hitting is another fundamental skill in the game of hockey. It is the most significantly skill involved in hockey. Hitting is used for long passes and clearing the ball from the dangerous zone by the defenders and mid-field players. To score goal during the penalty corner mostly hitting technique is used. To speed up the game, to give cross passes, and to give diagonal passes, hitting technique is used. When the ball crosses the side line “Hit in” is to be taken. For this the player must be proficient in executing hitting technique. The technique of hitting is very important to take 16 yards free hit, and also to take long corner hit. Hence every hockey player must be perfect in executing the hitting technique at any time.

The ball hit will travel fast in the artificial turf field compared to grass field and gravel ground, whereas the ball hit will move slowly in the grass field. So the
magnitude of force applied to hit the ball may vary depending on the nature of the field.

The players who are experienced in playing at different field may hit the ball with the force what is needed at that situation and thus hitting plays a vital role in the performance of hockey. The body position may also differ while executing the hitting technique from player to player, level of participation, experience and also from one field to another ground.

1.14.4. TRAPPING AND ITS IMPORTANCE IN HOCKEY

   Trapping is one of the most demanding skills for a hockey player when playing in different playfields.

   Walter defined that a trap means to stop the ball with one’s stick to make the ball to come to a halt during motion as desired.

   Barnes and Richard had said that the trapping depends largely upon the receiver’s intention for the next move. The ball must be placed in a strong control position ready for the next pass or dribble or change of direction or in anticipation of a challenge or tackle from the opponent.

   Trapping is one of the most demanding skills in the game of hockey. Perfect trapping can help the players to keep possession of the ball, to build up the attack to defend from the attack to stop goal scoring by the opponent, to re-start the game due to infringements and receiving passes from own teammate. Trapping the ball in the grass field and gravel field is more difficult than in the artificial field since the ball have the tendency to bounce in the grass field and gravel field than in the artificial turf field.

1.15. NEED FOR THIS STUDY

   After the introduction of artificial turf field, India is not able to perform well as expected in the international matches. What is the reason for the debacle? The total performance has deteriorated slowly besides physical, psychological and
performance variables and also there is no consistency in performance in the artificial turf field. Besides that Indian hockey players could not match with the European counterparts in the physical, psychological and performance components. The reason for this deterioration of performance is to be analyzed.

It is of the view that the hockey players have to go all out spending all the physical stock in them while they are playing in the artificial turf field. Experts feel that the proficiency in the performance variables are the vital importance when matches are played in the artificial turf fields. Recent studies have shown that the total performance varies when matches are played in different playfields.

By keeping this in mind and considering the variations of performance in varied playfields this study was done. No research studies have been done so far in such analysis. Very few studies have been done in some games other than hockey. This motivated me to do this research. The senior national and senior south zone hockey matches were played only on the artificial turf fields. Those regions which possess the artificial turf fields will perform better than the other regions not having the artificial turf fields. When the matches are being played in the artificial playfields, hockey players of many of the southern regions could not cope up with the modern artificial fields and ultimately their performance also declines.

So the teams which do not have artificial fields miserably fail in the matches.

Another reason, which motivated me to carry out this study, was the latest changes in the rules and its impact on the performance of the southern region senior teams in India.

In addition, I was interested in analyzing the physical variables, psychological variables and performance variables of the southern region senior men teams in depth, covering various aspects of the game.

Hence I considered that this contemporary performance of the southern region men hockey teams in the senior nationals and senior south zone competitions need to be analysed and researched upon.
1.16. STATEMENT OF THE PROBLEM

The purpose of the study was to compare the physical, psychological and performance variables among the southern region men hockey teams at different playfields.

1.17. HYPOTHESES

Hypothesis point one says that the Puducherry team would be better in physical variables in the grass field than the other southern region men hockey teams.

Hypothesis point two says that the Tamilnadu team would be better in physical variables in the gravel field than the other southern region men hockey teams.

Hypothesis point three says that the Karnataka team would be better in physical variables in the artificial turf field than the other southern region men hockey teams.

Hypothesis point four says that the Puducherry team would be better in psychological variables in the grass field than the other southern region men hockey teams.

Hypothesis point five says that the Tamilnadu team would be better in psychological variables in the gravel field than the other southern region men hockey teams.

Hypothesis point six says that the Karnataka team would be better in psychological variables in the artificial turf field than the other southern region men hockey teams.

Hypothesis point seven says that the Puducherry team would be better in performance variables in the grass field than the other southern region men hockey teams.
Hypothesis point eight says that the Tamilnadu team would be better in performance variables in the gravel field than the other southern region men hockey teams.

Hypothesis point nine says that the Karnataka team would be better in performance variables in the artificial turf field than the other southern region men hockey teams.

Hypothesis point ten says that in general the physical, psychological and performance variables of all the southern region men hockey teams would be better in the artificial turf field than the gravel and grass fields.

1.18. DELIMITATIONS

1. This study was conducted on 120 senior men hockey players represented for the senior national and senior south zone hockey championships. The ages of the players were between 22 to 28 years.

2. This study was conducted on the senior men hockey players of Southern Regions, i.e. Puducherry, Tamil Nadu, Karnataka, Andhra Pradesh, Hyderabad and Kerala.

3. This study was analysed only three physical variables (speed, agility and power), three psychological variables (self confidence, anxiety and aggression) and three performance variables (dribbling, hitting and trapping) for the investigation.

1.19. LIMITATIONS

The factors like diet, daily routine, food habits, climatic conditions (will not control), which will have an effect on the results of the investigation will not be controlled and they will be considered as limitations. No motivational techniques will be used.
1.20. DEFINITION OF THE TERMS

The following terms pertinent to the study are defined for clarity and clarification and to avoid possible difficulty and confusion in understanding them.

1.21. Hockey

Horst Wein has defined that hockey is a dynamic game played by both sex, requiring high level of skills, excellent conditioning and well coordinated team effort.

1.22. Performance

Hockey playing ability may be defined as the execution of fundamental skills in the game situation. The playing ability would include like dribbling, pushing, hitting, scooping and stopping etc.

1.23. Playfield

Playfield may be defined as the playing condition of the ground. Hockey playing fields are in three types. They are grass field, gravel field and artificial turf field.

1.24. Speed

Gerhard has quoted that speed is the ability of the individual to make successive movements of the same kind in the shortest period of time.

1.25. Agility

Mathews has said that agility is the capacity of the individual as measured by the rate of changing his position in pace.
1.26. Power
Harold and Rosemary have stated that power is the capacity of the individual to bring into play the maximum muscle contraction at the fastest rate of speed.

1.27. Self Confidence
Rekha has quoted that self-confidence is a positive attitude of oneself towards one’s self-concept. Self-confidence refers to a person’s perceived ability to tackle situations successfully without learning on others and to have a positive self-evaluations; ”in general terms”. Self-confidence refers to an individual’s perceived ability to act effectively in a situation to overcome obstacles and to get things go all right.

1.28. Anxiety
Rekha has said that the anxiety is the tendency to view comparative situation as treating and to react to them with feeling of apprehension of possible future misfortune and danger. Anxiety is usually related to anticipation of future situation an apprehension of a probable pain, loss of the rest.

1.29. Aggression
Jack and Blucker had stated that aggression is a behavior and actions that usually seek to inflict psychologically and physical harm, either or another person or an individual possessions or dear ones.

1.30. Dribbling
Horst Wein has defined that dribbling is to proceed further having full control over the ball in a required speed towards the desired directions preferably towards the opponent’s goal.
1.31. Hitting

Hitting is to strike the stationary or the moving ball with the flat side of the stick to a determined destination at certain speed and also abiding by the rules of the game of hockey (i.e.) flat side or face of the stick only used for playing the ball.

1.32. Trapping

Trapping is a technique used to stop the ball coming from one place by the flat side of the stick or the reverse stick also abiding by the rules of the game of hockey.

1.33. Southern Region Men Hockey Teams

Southern Region men hockey teams are those teams which have taken part in the South Zone men hockey championships and Senior National men hockey championships from the Southern Regions. (i.e. Karnataka Tamilnadu, Puducherry, Kerala, Andhra Pradesh, and Hyderabad).

SIGNIFICANCE OF THE STUDY

1. The results of the study will be helpful for the Coaches, Physical Educationists and the State Association personnel to know about the standard of their teams in different playfields.

2. The results of the study will be helpful for the Coaches and Physical Educationists to know about the importance of training and coaching in the artificial turf fields to achieve higher performance, especially from the grass root level in order to co-op with the modern artificial fields.

3. The results of the study will focus the attention of the Government and Sports Promotion Bodies to know about the importance of artificial turf fields to achieve higher level of performance in the National and
International events and also the importance of laying artificial turf fields in each districts and regions of all the Southern regions to make equal competition and prepare better National and International players for the district, region, state and country too.

4. The results of the study will be helpful for the future research to select new problems relating to the study.

5. Based upon the results of the study the selection, training and coaching programmes may be designed in relation with the different playfields.

6. The findings of the study will add quantum of knowledge in hockey especially in the area of playfields.