CHAPTER - I
INTRODUCTION
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Every individual should develop his strength and stamina for a happy and effective living. In order to get proper strength and stamina one has to involve in physical activities.

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 physical, mental, social and spiritual aspects. Hence a well organised and properly administered physical education and sports programme for school children is very essential.

Physical activity throughout the ages has been acclaimed for health and recreation. It provides fun, enjoyment, youthful exuberance and elderly care.

Sports has also developed and will be developing still further. So, tremendous is this development that it has already been reckoned as a social force.

Sports is not simply play for play’s sake. It is not also just striving for excellent; let sports activity build up strong man power, develop mutual trust, co-operation, solidarity and friendship among individuals, teams and nations.

1.1. PHYSICAL EDUCATION

Bucher\(^1\) considers physical education as an integral part of total education process which has its aim the development of physically, mentally emotionally and socially fit citizen through the medium of physical activities which have been selected with a view of realising these outcomes.

J.B. Nash's physical education is that phase of the whole field of education that deals with big muscle activities and their related responses.

Physical Education today faces the unique opportunity of potentially contributing to the quality of life. No other field enjoys such a dynamic future.

A.A.H.P.E.R. platform says, "Physical Education is the way of education through physical activities which are selected and carried on with regard to values in human growth, development and behaviour".

1.2. OBJECTIVES OF PHYSICAL EDUCATION

Objectives are certain definite steps which lead us to aim. Goals are still more concerned to definite puts which directs us towards the objectives. An aim is the ultimate goal while an objective is an immediate goal leading us to the aim. Aim is general, the objective is specific, the aim is one while objectives are many.

Objectives will lead the physical educations towards meaningful decisions when issues and problem arise. Objectives will help to interpret better the field of endeavour to general educator and a lay person even.

J.B. Nash listed four objectives of physical education. They are:
1. Organic development
2. Neuro-muscular development
3. Interpretative development
4. Emotional development

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By organic development he means the end results of training process that achieve physical power for the individual. This is development through big muscle activity. By neuro-muscular development, Nash means cortical control over the motor mechanism of human body, the ability to cut down waste motions. Interpretative development is the training that helps an individual to make judgements and interpret situations correctly. By emotional development Nash means the drive that results in action. A child must have confidence, must experience success and must have feeling of belonging.

1.3. PHYSICAL FITNESS

Physical fitness is the capacity to perform activity. The greater the physical 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 in performance and his capacity for recovery from fatigue.  

Physical fitness is not only the most important key to a healthy life but also the basis for dynamic and creative life.

Physical fitness is a combination of several aspects rather than a single characteristic. A fit person possesses at least adequate levels of each of the five health related fitness components and each of the six skill related fitness components. People who possess one aspect of physical fitness do not necessarily possess all of the other aspects.


Each of the eleven components of physical fitness is separate and different from each of the other. Some relationship exists between different fitness characteristics, but people who possess exceptional strength do not necessarily have good cardiovascular fitness and those who have good coordination do not necessarily possess good flexibility.

Body composition, cardiovascular fitness, flexibility, muscular endurance and strength are the health related components of physical fitness. Because each fitness characteristic has a direct relationship to good health and lessens risk of hypokinetic disease, each is considered a part of health related physical fitness.

Agility, balance, coordination, power, reaction time and speed comprise the skill related components of physical fitness. Because each fitness characteristic is related to certain motor skills, such as those required in sports and in specific types of jobs, each is considered a part of skill related physical fitness. Skill related fitness is sometimes called “Sports Fitness” or motor fitness.

1.4. IMPORTANCE OF PHYSICAL FITNESS

Good physical fitness, particularly health related fitness, is important to optimal health. Optimal health is more than freedom from disease. According to the world Health organisation, health is “a state of complete physical, mental and social well being and not merely the absence of disease and infirmity”. Good fitness can contribute to buoyant health, including feeling good, looking good and enjoying life, as well as reduce the risk of certain diseases.

Health related physical fitness contributes to positive physical health, including a reduced risk of hypokinetic diseases. The physical health benefits associated with involvement in regular, properly planned exercises. (i) improved cardiovascular fitness (ii) greater lean body mass and less body fat (iii) improved strength and muscular endurance (iv) improved flexibility. Some mental health benefits that are derived from regular physical activity and good physical fitness
are (i) reduction in mental tension (ii) opportunity for social interactions (iii) resistance to fatigue (iv) opportunity for successful experience (v) improved physical fitness.

Good physical fitness can help an individual work effectively and efficiently. A person who can resist fatigue, muscle soreness, back problems and other symptoms associated with poor health related fitness is capable of working productively and having energy left over at the end of the day. Surveys of employees indicate that 75 percent have an improved sense of well being and also absenteeism decreased by up to 50 percent among program participants. People, with good skill related fitness, may be more effective and efficient in performing specific motor skills required for certain jobs.

Good physical fitness is essential to effective living. Although the need for each component of physical fitness is specific to each individual, every person requires enough fitness to perform normal daily activities without undue fatigue. Whether it be walking, performing household chores or merely feeling good and enjoying the "simple things in life" without pain or fear of injury, good fitness is important to all people.

Physical fitness makes one feel mentally sharper, physically comfortable and case with body and better able to cope up with the demands that everyday life makes upon us.

Fitness is an essential part of the game. Techniques deteriorate as fatigue increases so players must work to improve their strength, speed and endurance. Many games are won or lost in the final minutes and it would be tragic to lose a game because players were too unfit to perform the skills they have practiced so long. Fitness is specific to each individual but most players need to add activities to their training which will help their bodies to meet the demands to be made on them. Carefully planned practice sessions with stick and ball can go a long way towards producing the required level of fitness and it is advisable, using pressure practices, to combine stick work with fitness training.
1.5. SPORTS

Physical Education and sports are of the important areas in general education, which develops physical, mental, emotional, cultural and social aspects of human beings. The dictum "A sound mind in a sound body" and "Health is Wealth" are all accepted by one and all.

Sports is an integral part of the society has an important and valuable effects on many spheres of social life, similarly the whole social pattern of a society may be reflected in its play. Sports unlike the other activities has no product. It is undertaken essentially for its own sake. If we want to know why people play, the first answer is that they play primarily for fun or enjoyment or satisfaction. The sport is a carrier which encourages coaching of various sports and games along with rules and regulations governed by them and also it prepares the trainees to take active part in competitive sports. It grows out man's struggle for survival in a hostile world.

In the last few decades sports have gained tremendous popularity all over the globe. The popularity of sports is still increasing at a fast pace and this happy trend is likely to continue in the future also. When one looks at the history of the modern Olympic games one sees that the number of sports for which competitions are held at Olympic games, has increased steadily. The total number of participating countries and sportsmen has also increased steadily. The television and press are giving much more coverage to sports and have become effective medium to carry sports to millions and millions of people around the world. Sports have become an important social and cultural activity of the modern world which is being given the rightful place it deserves by the nations and societies of the world. Sports help in the all round development of human personality. It provides ample and healthy means for recreation and relation of human mind and body.
It provides opportunities for social interaction thereby festering peace and understanding among different people, nations, races, religions etc.

It provides healthy and social acceptable opportunities for the people and nations to compete against each other thereby toweling heights of excellence of human endeavour and attainment.

Sports serve vital social and cultural functions the importance of which can hardly be exaggerated. Sport contributes towards the overall welfare of the human society.

Sport is, above all, competitive activity. We cannot think of sport without thinking of competition, for without the competition, sport becomes simply play or recreation. Play can at times be sport, but strictly speaking sport is never simply play; the competitive aspect is essential to sport.

1.6. SPORTS AND IMPORTANCE

Sport holds a prominent place in modern life. Millions of people participate in sporting activities, watch and read about them, and spend lot of money annually on sports, related activities and equipment.

Sport is used at the international level for many blatantly political purposes, prestige, a show of friendship, a show of international acceptance, propaganda and influencing public opinion.

With rapid growth and development in the modern world the sport becomes a highly organised and competitive social phenomenon. The sport is a clear cut classification on the basis of intensity of participation namely the recreation sports for children, health and conditioning sports for elders and competitive sports for the youth and adults. The competitive sports are further ranked according to the level of intensity of the competition. In the highest level of competition in which the intensity of physical activity raises the pulse
rate of the athlete to approximately between 180-200 beats/minute is considered as top sport. As sports has more and more developed into scientific discipline, each nation in the world is vying with other to produce top class players to win laurels in the International competitions. Considerable research is done and devoted to identify various factors that will be productive of achieving high level performance in skills of a given sport with proper coaching.

1.7. SPORTS AUTHORITY OF INDIA AND ITS ROLE

Sports authority of India (SAI) is an organisation, works under the aegis of Government of India. It has an aim for excellence in various sports disciplines. It has introduced many schemes, for scouting the talent from all over the country. Keeping in mind the physical attributes required for a particular sports, the talent so scouted are imparted scientific training to meet the ever growing demand of the modern competitive games and sports for attaining excellence.

The national coaching scheme is being implemented at state capitals and district head quarters to provide coaching support to the children and broad based sports in the country.

The sports hostel scheme envisages training of meritorious players who have attained advanced level of sports proficiency in order to enable them to take a berth in the national teams.

1.8. PRESENT SELECTION PROCEDURE FOR SAI TRAINING CENTERS AND STATE SPORTS HOSTELS

Every year applications are called from the candidates who are eligible for trials. Boys are asked to submit the applications along with their sports achievement certificates and other details. The expert committee will be formed in their respective, disciplines. The selection trials will be conducted in the following physical and performance variables.
Selection Procedure

Part I
(Speed)  Physical Fitness test
(Agility)  30 mt standing start
(Explosive Strength)  10 mt x 6 shuttle run
(Endurance)  Standing broad jump
(Abdomen Strength)  2.4 km run
(Bend Knee sit up (in 1min)

Part II
Skills in Hockey
(Through Subjective Rating)
1. Dribbling
2. Hitting
3. Pushing
4. Scooping
5. Trapping

Part III
Total Performance
(Through Subjective Rating)
1. Game in mini ground
2. Game in full ground

1.9. ORIGIN AND DEVELOPMENT OF HOCKEY IN INDIA

Though there may not be an argument as to the origin of hockey in India, there can be no doubt whatever as to how it came to India. It came to this country with the British and there is an evidence that the games was played with great gusto in army barrack and flourished there, in the later part of the 19th century. The civilians might also have played it. In due course, Indians also started playing it. Towards the end of the last century, the game had established itself in all the part of towns. Soon the Indians look over from the British, and excelled in a rather big way. They participated in the 1928 Olympics and won the Gold Medal and kept winning it till 1956.
1.9.1. Indian Hockey Federation

As the game spread, throughout India, it became imperative to constitute an All India body to control the activities and for the promotion and development of the game of Hockey in the country on a uniform basis. The 7th November 1925, was regarded as a red letter day in Indian Hockey, as on that day the Indian Hockey federation came into existence.

At the inaugural meeting of the federation of Gwalior, the army sports control board of Bengal, Gwalior, Punjab, Rajaputana, Delhi, Sind and Western India were represented and it was decided to keep Gwalior as the Head quarters of the federation till such time as the I H F becomes lively organisation. The federation actually started functioning actively in 1927 when its headquarter was shifted from Gwalior to Delhi. It is now the supreme body for the control of hockey.

1.9.2. National Hockey Championship

It was only in 1921 that the first Inter provincial hockey tournament was held at Calcutta to select a team to participate in the Olympic games. The inter provincial hockey tournaments were conducted during the years the Olympic games were held. In the year 1940 the Olympic games which were to be held at Tokyo, could not take place due to the outbreak of world war II, but to keep up the game of hockey in India it was decided by the federation to hold an inter provincial every two years. Again in 1944 it was decided to make it an annual function of the Indian hockey federation and since then it is being conducted every year and is now known as the national hockey championship.

1.10. FUNDAMENTAL SKILLS AND IMPORTANCE IN GENERAL

There are number of fundamental skills in the game of hockey such as, Dribbling, Hitting, Pushing, Trapping, Scooping, Flicking, Tackling, Dodging.
Skills of the game play a very vital role in the success of modern hockey. Each skill is having its own importance and application to different situations. A hockey player must master over skills to prove his proficiency. Now a days, hockey matches are won by those teams who are more skilled. The perfection of these skills will have a direct impact on the total performance in the game.

What is a skill? Skill is the combination of brain and body. It is the movement of body, stick and ball carried out by players within the constraints of the game of hockey (for example the rules) to overcome the problems is vast, but includes such things as ‘controlling the ball’, scoring goals in a 5 Vs 4 situation and team defense, i.e. the problem solving has to be done at individual, group and team levels. In addition to the obvious skill on the ball, it is important to recognise and develop skill off the ball, i.e. the movement and positioning of players, which is of paramount importance when defending and provides the support play to the man in possession in attack.  

The teaching, learning and practicing of these skills, is of course of great importance in the development of hockey players as it provides them with a reservoir of knowledge along with technical and physical abilities to be used to find solutions to the problems facing them. Through practice a player develops a variety of solutions to a problem and is aware of the relative advantage of each. In a dynamic game such as hockey there are so many factors influencing any one situation that it is unusual for a situation to be repeated identically and therefore, it is impossible to say that there is only one solution to a problem. Therefore, players are required to use their skills to cope successfully with a wide variety of playing situations (problems) coincide with the concepts of learning and practicing put forward.

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1.11. IMPORTANCE OF SKILLS

When one has mastered the fundamental skills of the game, he gains a feeling of well being, thus high level of performance in hockey depends upon the mastery over the fundamental skills.

The players are judged to be truly skillful in the game of hockey when they can make the best decisions about where and when to play the ball and then to performs the skills accurately. The good performance of a hockey player depends upon the perfection and proficiency of fundamental skills.

Fundamental skills are the key to success. It is the elegance and beauty of the skill that is the center point in the pursuit of sport. In any sports discipline the mastery over the fundamental skills is essential to the eventual success. This means that, the correct technique for each stroke, grip, body position and the basic movement patterns should be learnt practiced and mastered which ultimately enables one to achieve success. The mastery of skills is not only the consolidation of the essential technique but also the ability to improvise so as to be flexible to meet the demands of the occasion. The highly skilled persons in any sports discipline are noted for their consistency and stability in the execution of the skills. The individual style of execution arises from the manner in which the task is executed in an unique way. A player will have a feeling of confidence when he masters over the skills.

1.12. PHYSICAL VARIABLES CHOSEN FOR STUDY

High level of performance of (hockey) player may depend upon the physical variables or motor ability.

The team physical ability is used synonymously with general athletic ability. There are many factors that contribute to successful performance in athletic skill.
A totally fit individual must have physical ability also. Physical ability is also one of the important aspects for physical activities. The components of physical ability are speed, agility, power, endurance, strength, flexibility, coordination etc.

These abilities are the basic prerequisites for human motor actions. Therefore, the sports performance in all sports depends to a great extent on these abilities.

Among the various physical abilities the investigator selected speed, agility, power, endurance, strength for the investigation.

1.12.1. Speed and Importance

Speed is one of the main requisites which enables for higher performance in certain motor tasks. Speed may vary from individual to individual.

Speed is the capacity of an individual to perform successive movements of the same pattern at a faster rate. Speed is one of the most important physical fitness components which is highly essential for many physical activities. Speed is a valuable factor in the game of hockey.

Speed is the ability of an individual to perform successive movements of the same pattern at a fast rate, or even one single movement while speed would appear to be an innate quality. It can be improved by practice to the co-ordinated movements and by learning proper techniques.⁸

"It is the performance prerequisite to do motor actions under given conditions (movement task, external factors, individual prerequisites) in minimum of time".

In spite of the complex and specific nature and low trainability, speed ability is of high importance in all sports except endurance sports. Speed performances appear in different form in various sports.

Speed plays a significant role in better hockey performance. Generally in team events like hockey, soccer, basketball, the team with higher speed and strength wins because they can creatively influence the progress of the game by being in the better position and ball possession.

Hockey is a game, which demands running with and without ball in various directions. Speedy players are always an asset to every team in match winning performance. Speed in hockey refers often to one's ability to accelerate over short distance. Penetration into the opponent's territory can be achieved more easily and an attack can be launched at speed. Players also runs faster, to fall back to defend the goal, being scored by the opponents.

1.12.2. Agility and Importance

Agility is another important physical variable. Agility may be explained as the physical ability which enables an individual to rapidly change body position and direction in a precise manner.

Agility plays a significant role in the training of technique and in competition. The aim in training skills is to bring the athlete closer and closer to the ideal form of the sequence of movement.9

In any physical activity or in a game situation, the controlled ability to stop, to start and to change direction rapidly and more 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.

1.12.3. Power and Importance

Explosive power is the ability to release maximum muscular force in the shortest time as in executing a standing broad jump.

The importance of power in athletics can be readily appreciated. In most sports activities, the greatest energy produced in the shortest period of time is a prime factor, in a successful performance. This is true, for instance, in jumping, running(particularly sprinting) and throwing.

Like wise power is considered to be the most vital component which can lead to success in sports events like boxing and throwing events. In many of the boxing competitions, it was just the powerful punch or hook which had decided the fate of the match.

Power is also known as explosive strength. It can be defined as the ability to overcome resistance with high speed. e.g. throws, jumps etc. The explosive strength is of different nature in cyclic and acyclic movements. Explosive strength is highly specific to the nature of a movement (or part of these movements) have to be used as exercises. A high percentage of movements in sports is of explosive nature and involves overcoming of some external resistance or of one's own body weight. Explosive strength therefore, is important in most of the sports.

1.12.4. Endurance and Importance

Endurance is a conditional ability. It is primarily determined by energy liberation processes. The ability of the human body to maintain a certain level of energy production forms the physiological basis of endurance.

Endurance is directly or indirectly of high importance in all sports.
1. It relates to doing work for a long time or period.
2. It relates to working under fatigue conditions.
3. It involves a large number of muscles.
4. It involves work efficiency.

It is important to realise that endurance is as much a product of physiological functions as of psychic functions. This fact has been proved time and again by successful endurance athletes.

Endurance is a very important ability in sports. It is the product of all psychic and physical organs and systems. No other motor ability depends so much on the working capacity of complete psycho-physical apparatus of humans as endurance. All other performance factors depend on one or more parts of this psycho-physical apparatus and a result are directly or indirectly affected by endurance.

In sports, endurance ensures optimum speed of motor actions. The ability to maintain pace or tempo of an exercise or during a competition is impossible without the requisite level of endurance. Good endurance also ensures high quality or skill of movement execution which finds expression in accuracy, precision, rhythm, consistency etc. Under conditions of fatigue the sportsman tends to lose motor co-ordination, concentration, mental alertness etc. This clearly points out the importance of endurance for tactical efficiency.

Endurance activities have been found to be of high value for maintenance of good organic health, for increasing the general resistance against infection and for cure and treatment of various diseases and metabolic disorders.

1.12.5. Abdominal Strength and Importance

Another very important physical fitness variable is abdominal strength.

A sit up is basically an exercise for the lower back, but it also brings abdominal muscles into action. Since it is difficult to isolate these muscles with a particular movement sit up is commonly used to strengthen the abdominal wall.
The abdominal strength is very much useful in the field of sports and games. When an individual possess a high degree of abdominal strength he will be able to perform any type of activity in sports field. The abdominal strength helps to maintain the body posture, there by involving in many activities in the field of sports and games. Lifting a load or moving an inanimate or animate object essentially depends on the abdominal muscular strength.

1.13. PERFORMANCE VARIABLES CHOSEN FOR THE STUDY

Performance is the execution of skills. Sports performances are possible only through sports motor actions or movements. The performance of sportsman is significantly affected by the skill with which these actions or movements are executed by a sports person. Therefore, the acquisition of sports technical skills, is important. In all sports, one or more skills have to be acquired by doing technical training. The role of technical skills in different sports, is different. In team games, the technical skills serve as basic elements of tactical actions which are indispensable for good performance in these sports.

High level of performance of a hockey player depends upon fundamental skills. It is recognised that among the fundamentals, ability to dribble the ball, ability to hit, ability to push, ability to scoop and ability to trap are of the primary important for high level of performance. Hence, from the fundamental skills, a few selected skills namely, dribbling, hitting, pushing, scooping and trapping were selected for the compilation of norms.

1.13.1. Dribbling and Importance

“To proceed forward within time, having full control over the ball and to move according to the aim to be achieved”.

Dribbling is an essential factor in man to man fight in attack and in defense in hockey.
Effective use of dribbling is actually the fine expression of individuality. The significant of dribbling becomes clear when the attacker beats an opponent and taken a shot at goal. Dribbling can be realised positively and is emphasised in the process of technique training as a strongest weapon in the principles of penetration.

Dribbling is one of the most important skills in the game of hockey. It is an art which will draw the attention of the spectators. During the game, when the defender is in dangerous zone, completely covered by the opponents, the defender has to clear the base in that situation, dribbling is so useful. It helps the forward at the time of scoring when there is no chance to give a straight hit and thus dribbling is most useful for the forwards.

1. In Dribbling one can move the ball from one place to another.

2. Through dribbling one can change movements from the opponents, to give proper pass.

3. Possession of the ball can be retained through dribbling.

4. While dribbling suddenly one can change direction from one side to other side.

Dribbling is the only means for a player to move forward or in any direction with the ball.

To go toward the opponents goaline to achieve the ultimate aim of game, a team has to depend either on dribbling or passing.

It helps in having a better approach for a successful dodge and also to control the ball after the completion of a dodge.

It develops the ball control and ball sense which helps a player to execute the skill in a better way with less effort.
It helps a team to adopt tactics for slowing down the game and speeding up the game effectively.

Sometimes dribbling is of a immense value to achieve the ultimate aim of the game.

1.13.2. Hitting and Importance

Hitting is the player's most valuable technique asset. He can make use of hitting in almost every phase of the game. Hitting is the most valuable weapon in defense and in the preparation and execution of attack.

The importance of hitting is to cover maximum distance so that it will reach nearer to the opponents goals and also helps to score goal.\textsuperscript{10}

Hitting covers the maximum distance in a minimum time.

To take 16 yards hit and free hit, hit is one of the most important stroke to gain an advantage.

Hit is of great value at the time of taking corners and penalty corners.

Hit is one of the main sources to adopt the technique to long clearances, by the defender when the team is hardly pressed.

For quick change of play from one flank to another, hit is the most appropriate stroke to be used.

The effectiveness of the crosses by the winners mainly depends upon their ability and quality of the hitting.

For scoring hit is most useful when the opponent goal keeper is weak in skills and also when attacking player does not want to give the time to defenders to cover.

The goal keeper applies the stroke whenever he wants to make hard clearances.

1.13.3. Pushing and Importance

Pushing is one of the good skills many players use in the game. Players use this skill when they want to pass the ball to his own team or to score a goal and it is easy for the receiver to collect the ball and get possession of the ball whenever his teammate uses the push and the ball travels along the ground.

1. Push is good for clearance, in dangerous zone.
2. For forwards push is beneficial for placements.
3. Push is easier to stop than hit.
4. It is good for short passing game.
5. Push is more accurate than hit.
6. Push stroke is more advantage in penalty corner and penalty stroke.
7. Push is used for clearance.

1.13.4. Scooping and Importance

Scooping skills is performed to lift the ball over the head of an opponent or opponents, to pass to own team mates, so that the ball travels slower/faster in the air and also after landing on the ground. This stroke is governed by the speed of the receiver, distance to be covered, and the position of the defender.

Like any other skill, scooping is also one of the important skills in the game of hockey. Players use this skill, whenever one wants to send the ball in the air for a longer distance. The players also uses this skill, whenever he can not play ground level passes.
1.13.5. Trapping (Stopping) and Importance

Trapping is used to restrict the movement of an on coming ball and bring it complete control in such way, that the ball comes to a place, from where the next possible stroke, can be executed without wasting time.

Trapping is one of the most important fundamental skills in the game of hockey. Players can make use of his trapping ability in almost every phase of the game. Trapping is the most valuable weapon in defense to avoid more goal scoring and to stop the penetration by the opponents. Because of the above qualities, this skill is called the mother of fundamental skills.

The skill of stopping is most necessary to block or to check the opponents attack and in this case, the defender blocks the opponents attack and also brings the ball under control to rebuilt his own attack or to change the opponents attack into defense.

Success of each pass or a movement between two or move players depends upon the ability and quality of the stopping skill.

This skill has its own importance in taking the corner and penalty corner effectively.

1.13.6. Total Performance and Importance

The total hockey performance is that general hockey playing ability. Modern hockey demands a player to be totally fit to play in all the playing positions. Due to the fast movement of ball from defense to attack and vice versa, a player has to act as a defender and as well as an attacker and to cope up with the demands of playing conditions and strategies of the team. In this regard, a player has to sharpen his skills of attack and defense which would be a for bearing advantage for the team. The total performance in any game may be assessed by subjective rating using ten point rating scale.
Total performance is the combination of skills, playing ability, attack, defense and so on.

1.14. NORM

Norm is a scale that permits conversion from a raw score to a score capable of comparison and interpretation. If a test is accompanied by norms, its usefulness is enhanced. It's characteristic of average and range are known. The norms we prepare should not be accepted at face value. A raw score becomes capable of comparison and interpretations when there is a norm. Norms are representative of some larger population. Sufficient cases alone do not make good norms but coupled with proper sampling this provides a symmetric distribution. If the performance of a group in not similar in range and average to the normative group, then the norms are not appropriate and should not be used for interpretive purpose.11

The norm is a standard point of reference that can provide a basis or judgement. Norms are derived scores that are determined from raw scores obtained by a specific group on specific test. A norm should not be believed as a standard against which students to be judged. Wherever norms are determined for a given group of people, half of the people will fall above the middle of the distribution and half of the people will fall below. There is no inherent value attached to any given norm score. The norm identifies a person in relation to a given sample whose norm has been determined. Any judgement made about the norm is by the person using the norm score.12


The norms scales are accepted as valid and practical criteria for evaluating the individual physical fitness tests. When norms scales are being constructed one must consider the following particle statistical and educational principles.

1) Sampling technique
2) Equivalency
3) Progressively
4) Sensitiveness

Norms are developed by transforming the raw scores of a given norm group into some type of derived score so that they may be interpreted more easily. Raw scores can be converted to percentage correct scores, in which the scores actually determined on the test scores. This type of conversion is useful for tests of motor skills and ambition, but cannot be used for comparison among tests.

1.15. CRITERIA FOR SELECTING NORMS

Even though there are many tests to measure the ability of individual, attempt should be made to construct norms. Norms are very useful in classifying the students in particular activity according to their ability. Norms are also used to grade the students.

Sports authority of India training center, and state sports hostels. are using the physical variables and performance variables to assess the performance of players who seek admission in the centers in southern India. Based upon the performance of the hockey players, they are ranked and admitted in the sports authority of India training centers and in the state sports hostels. No common norm or procedure is being followed now for the selection in the sports training centers in southern India. This motivated the Investigator to conduct the study and to construct the norms for the Hockey boys who come for the selection.
In sports authority of India training center and state sports hostels, admissions of inmates are being made in sports discipline on different age groups, on the basis of some physical fitness tests and games skill tests. So for no uniform norm is being followed. Hence the investigator being a SAI Hockey coach felt that it has become necessary to construct a general uniform norm for the SAI training center and state sports hostels and this motivated the investigator to take up this study.

1.16. STATEMENT OF THE PROBLEM

The purpose of this study was to construct norms for physical and performance variables for sports authority of India training center Hockey Boys and for state sports hostel hockey boys in south India.

1.17. SIGNIFICANCE OF THE STUDY

In view of the fact that very little research has been done on the norm construction for the SAI training center and state sports hostel hockey players. The study has the following significant contribution to make.

1. This study may help to provide clear guidelines in selecting the talented hockey players.

2. This study may help to assess the physical variable and also performance variables of the SAI training center and state sports hostel hockey players.

3. This study may be of great significance because it would provide opportunity to the coaches to understand and to classify the students on the basis of their performance.

4. This study may help to stimulate the students interest in activities through self evaluation of the performance they made and the importance they show.
5. This norm construction may be used as a measuring scale for the admission of players into the SAI training center and in State Sports Hostel in Southern India.

6. This study may be significant in comparing the physical & performance level among the group, as well with other groups.

7. This study may motivate further research study on norm construction related variables.

8. This study may contribute to the body of knowledge with specialised area of norm complication.

1.18. DELIMITATIONS

The study was delimited in the following respects.

1. Total 2000 hockey players were selected as subjects for this study. For each age groups (for 16, 17, 18 & 19 years) 500 subjects were selected.

2. The age groups of the subjects was between 16 to 19 years only.

3. The study was conducted only on boys.

4. The study was conducted on SAI training centers hockey players, state sports hostels hockey players, along with the hockey players who attend the selection trials to get admission in SAI and SSH.

1.19. LIMITATIONS

1. The effect of the external factors like climate, atmospheric temperature, height, weight, body structure which may have an effect on the result of the study was considered as limitation of this study.
2. No motivation techniques was used during the collection of data.

3. The differences that may exist among the subjects due to the varied social, cultural, economical, religious, background was considered as limitation.

1.20. DEFINITION OF THE TERMS

1.20.1. Hockey

Hockey is an out door game played on a closely cut grass or hard dirt surface with a ball by two opposing teams of eleven players on each side, using hooked or bent sticks with which each side attempts to drive the ball into the others goals.

Now a days field hockey is played on the artificial surface.

1.20.2. Norm

Norms are standard points of reference that provides a basis for judgement.\(^{14}\)

1.20.3. Performance

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


1.20.4. Speed

It is the capacity of the individual to perform successive movement of the same pattern at a fast rate.\(^{15}\)

1.20.5. Agility

It refers to the controlled ability to change position and directions rapidly and accurately.\(^{16}\)

1.20.6. Power

It is a function of force and time (power is work/time) and is defined as the rate of performing work. \((\text{work} = \text{force} \times \text{distance})\).\(^{17}\)

1.20.7. Endurance

Endurance is the ability to keep on exerting force against a resistance. Cardio vascular endurance relates to the whole body. Local muscle endurance relates to specific limbs or muscle groups.\(^{18}\)

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1.20.8. Muscular Strength

Muscular strength is defined as "the maximum force or tension level that can be produced by the muscle group."\(^9\)

1.20.9. Dribbling

Dribbling is to proceed further having control over the ball in a required speed and towards some directions preferably towards the opponents goal.\(^20\)

1.20.10. Hitting

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

1.20.11. Pushing

To propel the ball in a desired direction by bringing the flat side of the stick immediately behind the ball neither the raises from the ground and to pass or to score a goal.

1.20.12. Scooping

Scooping is the technique used by the player to lift the ball in the air with the flat side of the stick by abiding the rules of the game of hockey.

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1.20.13. Trapping

Trapping is to restrict the movement of an on coming ball and bring it complete control in such way, that the ball comes to a place, from where the next possible stroke, can be executed without wasting time.