CONSTRUCTION OF NORMS ON KUHN'S SOCCER TEST FOR UNIVERSITY PLAYERS

Thesis
submitted to the University of Calicut
for the award of the Degree of
DOCTOR OF PHILOSOPHY
IN
PHYSICAL EDUCATION

By

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2007

DECLARATION

I, Abdussalam. K., hereby declare that the thesis entitled **"Construction of Norms on Kuhn's Soccer Test for University Players"** submitted to the University of Calicut for the award of the Degree of **Doctor of Philosophy** in **Physical Education** is an original record of study and bona fide research carried out by me under the guidance of **Dr. P.T. Joseph** and that it has not been previously formed the basis for the award of any degree or diploma in any Indian or foreign University.

Calicut University Campus,
20-11-2007. **ABDUSSALAM. K.**

Dr. P. T. JOSEPH
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CERTIFICATE

I, Dr. P.T. Joseph, do hereby certify that the thesis entitled **"Construction of Norms on Kuhn's Soccer Test for University Players"** is a record of bona fide study and research carried out by **Mr. Abdussalam. K.,** under my supervision and guidance.

Kannur University Campus,
20-11-2007

Dr. P.T. JOSEPH

APPROVED _____

Dr .P. T. JOSEPH

ACKNOWLEDGEMENT

It is with immense pleasure and gratitude I submit this thesis for evaluation and discussion. I have consulted many academicians, coaches, managers and players. I am sure that the list will be pretty long and run into pages. But there are a few who deserve individual recording as a token of my unbounded gratitude.

My beloved guide and supervisor Dr. P.T. Joseph, Director of Physical Education, Kannur University, has been a powerful source of support and guidance for me all through this period, without whom the enquiry would have been incomplete. He has been kind enough to correct my procedure and findings and also to trim my unorganized thoughts despite of his busy official engagements.

The Department of Education, University of Calicut is my alma-mater and I acknowledge its involvement in shaping the research.

Dr. Pradip Dutta, Senior Lecturer and Indian Coach, LNIPE Trivandrum is gratefully acknowledged for his unfathomable support and co-operation.

Obligation is bestowed upon Dr. Dhinu, Asst. Director of Physical Education, SSUS Payyannur Centre, for his constant help throughout the course of the present study.

Dr. T.I. Manoj, Head of the Department of Physical Education, Kerala Agricultural University, Vellayani, is acknowledged with gratitude for his kind and generous help.

I put forth sincere thanks to Dr. A. M. Antony, Head of the Department of Physical Education, MES KVM College, Valancherry for his valuable suggestions and support.

Heartfelt gratitude to Mr. K.V. Hari, Lecturer in English, Government College, Kasaragode, for his unstinted co-operation during the final stage of this study.

I record my sincere thanks to Dr. Reginold Varghese (Head of the Department of Physical Education, Marthoma College, Thiruvalla), Dr.Sabu P. Samuel (Head of the Department of Physical Education, Medical College, Calicut), Dr. A. Hameed (Lecturer in Education, Farook Training College, Calicut) and Mr. Devakumar (Lecturer in Physical Education, Guruvayurappan College, Calicut) for their kind and generous help rendered during the different phases of this study.

I acknowledge the immense support and wholehearted co-operation rendered by coaches, players and managers of various university teams during the collection of data required for the study.

I specially thank Mr. C. Ramakrishnan, (CR.Com. University of Calicut) and Mr. Jabir. K., (Designer, Dept. of Mass Communication, University of Calicut) for the secretarial work.

I underline that the sense of profound indebtedness which I undoubtedly owes to my parents and family members for their passionate moral support throughout the study. The constant emotional support from my wife Mrs. Haseena has helped me to move steady whenever I slipped off.

Above all it is true that it is the grace and blessings of GOD ALMIGHTY which made this endeavour a success.

ABDUSSALAM. K

CONTENT

LIST OF TABLES

LIST OF FIGURES

Chapter I

INTRODUCTION

Chapter I

INTRODUCTION

"Of all events in human history, the one to attract the largest audience was not a great political occasion nor a special celebration of some complex achievement in the arts and sciences, but a simple ball game – a soccer match. On a day in June 1978, it is claimed that more than a thousand million people turned up in the world cup final between Argentina and Holland. This means something like one quarter of the entire population stopped, whatever they were doing and focused their attention on a small patch of grass in South America where 22 bright clad figures were kicking a ball with a frenzy of effort and concentration."[1]

Football or soccer is the most popular sporting event in the world. It is the king of sports. There is not a single country in the world where soccer is not played in some form or other, and it is popular particularly among the youth of the world. "Soccer is the game of educated feet."[2] For the first time in history soccer has become the national sport of more than 125 countries. The 'World

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[1] . Desmond Morris, *The Soccer Tribe.* London: Jonathan Cape Ltd., Bedford Square, 1981, p.7.

Cup Football' extravaganza which has been celebrated by billions of people world over once in four years, steeped in its rich traditions and simply fascinating in many ways, is the single largest of all sporting celebrations in the world. It surpasses even the great 'Olympics' in terms of popularity. In India also, it is the second most popular game, which has its fans and spectators in the farthest corners of the country. Football is played all over the world and the sun never sets on this beautiful game.

"From a simple, child-like ball game, soccer has come a very long way and it shows no sign of retreating to the play room shelter of its humble origin. As long as the human race is able to concern itself with more than mere survival, the soccer will have its place."[3]

Among all these tremendous realities usually a question arises. "What is so special about Football?" 'Why does it continue to excite billions of people world over?'

Definitely there is something very inherent in the game, which has an unabated appeal, both to the player and to the spectator. It appeals to all due to its easiness of understanding, the marvelous skills and exciting tactics. "Soccer is a game which calls for

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[2] . Sharad Chandra Mishra, *Handbook of Games.* New Delhi: Sports Publication, 2005, p.331.

[3] . Desmond Morris, *The Soccer Tribe.* London: Jonathan Cape Ltd., 1981, pp. 7-10.

strenuous, continuous thrilling action and therefore, appeals to the youth the world over. The skills involved in the game are simple, natural and yet are highly stimulating and satisfying to any one who participates in the game."[4] Soccer or Football as it is popularly called in India is a game where the foot is used much more than any part of the body. Bernard Shaw's comment is underlines this reality that "Footballers think with their feet".[5]

John Minten[6] is of the opinion that among sports in general, football operates within the wider context of the society in which it is located. The development of the differing codes of football found throughout the world reflects the interaction between the early forms of football and the host cultures.

Football is a sport that can be played with equal benefit and pleasure from the age of six to forty and above. Sir Stanley Mathews, a renowned British player was an international star well in his forties. Roger Mille of Cameroon was forty two years old while he was playing the World Cup Football in 1994 held at U.S.A

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[4] . J. P. Thomas, *Let Us Coach Soccer.* Madras: YMCA College of Physical Education, 1964, p.1.

[5] . *Ibid.,* p. 3.

[6] . John Minten, "Football and Society: The Case of Soccer Hooliganism," *Science and Soccer*, ed, by Thomas Reilly. London: E & FN Spon, p.313.

Football appeals to the spectators because it is an exciting sport that is easy to understand. William Leister, a football lover wrote in his book “The best game of them all” summed up the reaction most fans experience when they are first exposed to a football match. The crowd (near two lakh people), which gathered in 1950 for the legendary world cup final between Brazil and Uruguay at Maracana stadium in Brazil still exists as a world record . Most youngsters like to emulate the outstanding stars whose names appear on the sports pages. Soccer has its own heroes and super stars. Pele, Diego Mara Dona, Beckon Boer, Gird Muller, Ronal do, Zidane are some of the names that the football world never forget.

The sport appeals to participants for various reasons. It is a sport in which size is not a significant factor because it does not require unusual height or weight. An equal chance for all players is one of the inherent values of the sport. It requires a minimum of equipment. Some of the notable outcomes of football are furnished below.

1. It promotes physical fitness because endurance, speed, agility and other components of physical fitness play important roles in the game.

2. It enables all the players to learn scientific skills with movements, which are constant and spontaneous.

3. It promotes co-operation and teamwork because all the players must combine their talents to achieve success.

4. In a world shrinking in size, soccer is and has been a good link among people of different traditions. The World cup tournament points out the usual language of the game.

5. The rules of the game are simple.

6. The strategy of the game involves a scientific approach that can be readily understood.

7. It creates mental situations, which call for split, sound decisions and constructions of patterns.

8. The sport is dynamic in character.

Origin and development of Soccer

It is not possible to say exactly when the football began. It started in that remote time when man began started kicking on objects by chance and then purposefully. And then he found some pleasure in kicking and the game started in its crudest form.

Peiser[7] states that the origin of modern football is rooted in pagan blood rituals. Many hold the credit for themselves and boast about the origin of football. But the true origin of football is still shrouded in mystery. There is evidence that football game was played in both Babylon and Egypt. Depending upon the information and assumptions, the speculation about the origin of the game is sliding from place to place and nation to nation. But football was broadly interpreted to embrace all codes, amateur and professional, including the rugby union, rugby league, American Football, Australian rules and Gaelic Football.

"Soccer, the most attractive and popular game in the world is certainly not a sort of fashionable sport which come today and gone tomorrow. It has been played in some form or the other for centuries. "Tzu chu' a game similar to soccer was played in China as far back as the 3rd and 4th century BC. Modern soccer, however, has evolved from England; where one of the earliest references to the game was a royal proclamation, in the city of London in 1314. The game was standardized in 1863 with the formation of Football

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7 . Benny Joseph Peiser, "Football Violence: An Inter Disciplinary Perspective" *Science and Soccer*, ed by Thomas Reilly. London: E & FN Spon, 1996, pp.328-329.

Association and the present concept of eleven players to a team was arrived at in 1870."[8]

The second mention given to football as an ancient game is by Norman Gardiner, in his book "Athletics of the ancient world" published by the Oxford University Press, in England in which he quotes from the papers written, perhaps in the late 19th century by Prof. H.A.Giles.[9]

In olden days, a game similar to that of football played by Greeks was 'Episkyros'. It started from Greece around 700 B.C used for the Spartan soldiers. During the middle ages it spread from Greece to Rome where it was called as 'Harpastum'. It was played in many countries in many forms. The Chinese called it as 'Tsu Chu' and the Japanese called it as 'Kemari'. The Aztec Indians were also played the game in another pattern. There were not many rules and regulations and no limit to the number of players. So, it was also called mob football. The game was very rough and sometimes dangerous and the players used to sustain injuries. It did not involve any passing of ball from one player to another. The game was not

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[8] . Narottam Puri and Krishna Swamy, *Book of Records*. Bombay: Limca, Bislari Beverages Ltd., 1992, pp. 235-236.

[9] . E Norman Gardiner, *Athletics of Ancient World: The New Encyclopedia of Sports*, ed. by Frank G Menke. New York: A.S. Barners & Company, 1947, p.40.

played with the ball. Sometimes a bag stuffed with straw or an air-filled animal bladder was used. It is maintained that the Romans legions introduced this type of game in Britain about 2000 years ago. There is, however, evidence of the game being played in Britain in the twelfth century. A team in Derbyshire, England has still today an annual game in which the most of the people of the town participate. They move a large inflated object in any way by pushing, throwing or kicking from one end of the town to another. This may look strange but this is a legacy left to commemorate the game. The game was very popular in England in the 14th century and the game was developed in that country. Due to injuries sustained by players and because of foul play, King Edward forbade it. Some English kings thought the game was too popular and they forbade it by law. They warned that the soldiers should spend their time in practicing archery, which was necessary for the defense of the country and not waste their time in this game. But the game could not be wiped out. One town against another in the middle ages played the game. The contents were, however, rough. The English soldiers revived the game in the 18th century in various forms.

According to Desmond Morris,[10] English public schools with the dictum ‘a healthy mind in a healthy body’ began to encourage various forms of football among their pupils. At Harrow, and certain other schools a kicking game was played that was to grow into the modern association football, first called ‘socker ‘ and then to ‘Soccer’.

Morris explains the history behind the distinction of Rugby from Association football as follows. “After the invention of ‘Rugby’, there was a confusion in these countries about the sport that was known as ‘Football’.” But when the London Football Association was formed in 1863, it voted to stick to the old system of play. That form of football was known as ‘Association Football’ abbreviated to Assoc-football. . At that time, a favorite form of slang among schoolboys was to add ‘er’ after shortening a form. So, the association football was first known by its shorter name “assoc” and then “soccer”. Eventually the abbreviation gave way to ‘Soccer Football’ and finally to ‘Soccer’. Thus it was distinguished from Rugby Football.”[11]

The name football given to the game soccer is most appropriate as ball is played by foot. So, this is rightly called by this

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[10] . Morris, *op. cit.,* p. 14.

[11] . *Ibid*., pp.7-10.

name or a similar name in many countries. The Spanish and Russians call it Futbol. The Norwegians call it Fotball, and the Swedes calls 'Fotbal' and in many countries the game is called by such terms which are in resemblance with the term 'football'.

Grombach in his 'The 1964 Olympic Guide' wrote as follows: "To the beginning of the 17th century several new types of football game were played which were not as rough as the original game. These developed into rugby and at about 1870, Association Football which is also known as 'Soccer' came into picture."[12]

It was England and Scotland who played the first international match on November 30, 1872 and the result was a goalless draw. In 1873, The Scottish Football Association was formed and three years later it was the turn of Welsh Association and for Ireland it was in 1880.

Football from its start in England in the 11th century, right along until the middle of the 19th century was strictly a kicking game, first merely across goal line, but in later years of revival, goal posts and cross bars came into existence. Soccer as it is seen today has undergone a tremendous improvement since its birth. In the history of mankind, no event has ever witnessed like to that of football in

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[12] . John V Grombach, *The 1964 Olympic Guide.* Japan: Manichi Publishers, 1963, p. 200.

terms of popularity. If we examine it more carefully we would soon realize that each soccer match is a symbolic event of some complexity. One great strength of the game is its simplicity. At its current level, all that are needed is a ball and an open space, with something to act as a goal post. No other sport is so easily available and so immediately inspiring. Going back further to the football of medieval times, there were no special areas. The game was played in village streets, across the fields and meadows and even banks of rivers and streams; everywhere the charm of the game became a crowd puller.

The biggest date in the development of soccer, besides 1863 and 1872 would be 1904 – the year FIFA (Federation Internationale de Football Association) formed. With several nations already having formed national associations, international play among countries was a high need. Following a match between Belgium and France in Brussels on May 1, 1904, the secretaries of these two countries discussed the formation of the association. On 21st may 1904, with the presidentship of Robert Guerin; who was the association secretary of France, Federation Internationale de Football Association – which translates into International Federation of Association Football - was formed. Though delegates from France, Belgium, Denmark, Holland, Spain, Sweden and

Switzerland attended, the English board (FA) hesitated to join. Later in 1905 they also joined in the group. Football was included as a medal event in the 1904 Olympics at St.Luis and Great Britain won the gold.

After several attempts to organize a championship on its own, FIFA finally established one in 1930, the beginning of the World Cup. With it the game could grow phenomenally. The quest for soccer's holy grail has created legends like Pele, Bobby Charlton, Dino Zoff, Franz Beckon Bauer, Diego Mara Dona, Ronal do, Zinedane Zidane, and Ronaldhinho. The simplicity and appeal to the common man and woman would make soccer grow throughout the 21st century to continue to be the world's most popular sport.

Thirteen nations participated in the first World Cup in 1930 with an average attendance of 24,139 for the 18 games. Because of world war, there were no championships during 1942 and 1946. In 1950, in Brazil, an average of 60,000 saw the 22 games involving 13 teams, including a record 1,99,854 for the final at Rio de Janeiro's famed Maracana Stadium. Uruguay were the first champions of the World cup in 1930 and also were the champions in 1950. Italy were the champions in 1934, 1938, 1982 and in 2006 –the defending champions. Brazil has a coveted achievement of

winning five times. They could also possess the ‘Jul Re met Cup‘ permanently by winning world cup in 1958, 1962 , and in 1970 with the superb performance of Pele who is known as the ‘Football King’ in addition to their victory in 1994 and in 2002 with the magical boots of Romario and Ronaldo respectively. Besides these countries, Germany (three times), Argentina (two times), France (once), and England (once) have also won this coveted trophy.

In 1958 FIFA increased the field to 16 teams and by 1982 that was hiked to 24 and was further enhanced to 32 teams in the 2002 world cup held in Japan and Korea. While in 1990 in Italy, 2.5 million attended the 52 game championships with another 1.5 billion watching at some point on television. Almost two third of the world population has watched the world cup football held in Germany in the year 2006. The next World Cup will be held at South Africa in 2010.

Football is a game that can be played the year round. On a conservative estimate there were over 800 million football devotees the world over. The game itself has more than 10 million active participants and 80,000 clubs meet every week all over the world to play 1,10,000 matches generating a turnover which surpasses the annual budgets of most of the developing countries.

Football in India

In India, football is the second most popular game. It was introduced in India by the British forces. The matches played by the British army teams and witnessed by the Indians, promoted the game here. It was one of the legacies left to us by the British. Record reveals that the first football match was played in 1802 at Bombay between the military team and Island. Hence, Bombay claims the honor of being called the birthplace of Football in India. In the first half of 19th century, Allahabad played a dominant role for the promotion of football by way of organizing matches. Various teams from different parts of the country used to play matches, but were dropped in 1876.

In 1893, the Indian Football Association (IFA), Calcutta was formed. The story of the organized football in India is connected with the history of this organization. The first football league to be run in India was in Calcutta in 1898.

The game first became popular in Calcutta where some of the clubs such as the Mohan Bagan club have brought credit to the game. Two important football tournaments were organized. One was the Durand Football Tournament and the other the 'Trader Cup' that is now known as the IFA shield. The Durand Cup Tournament

is the oldest football competition in India and only second in the world in seniority, next to the famous FA Cup of England.

The All India Football Federation came into existence on 23rd June 1937. Nowadays this is the governing body of the game in India. The meeting that was held on this day in Simla were attended by Bengal, Bihar, U.P., Mysore, Rajasthan, Delhi, Madras, Punjab and Bombay. As a result of Federation, all the state Associations and Referees' Boards came under the supervision of this Federation.

India entered the international field as an independent nation in 1948, when the Indian team participated in the London Olympics. The overall performance of the team was high but they lost the first match to France by 1-2.It was S Raman who scored the first international goal for India in this match against France. In the Melbourne Olympics in 1956, India finished fourth. It is, however, unfortunate that India has not been able to qualify for the Olympic games since 1964. In the Asian youth Soccer which is open to players below 19 years, India won in 1974 at Bangkok.

In the Asian Games, India has won twice, beating Iran 1-0 in the match played at New Delhi in 1951 and South Korea 2-1 in the match played at Jakarta in 1962, India won a bronze medal in the

Sixth Asian Games played at Bangkok in 1970. It was in 2004, India could win an International trophy (L G Cup) held in Vietnam. India created a history by winning Nehru Gold Cup International Tournament by defeating Syria in August 2007.

The main trophies for football in India are Durand Cup - the second oldest tournament in the world next to FA Cup, IFA Shield, Santosh Trophy (National Football Championship), Senior National tournament for Women, Rovers Cup, Federation Cup (India's Club Championship); Jawaharlal Nehru Gold Cup Invitation International Cup, Dr. B.C.Roy Trophy (Junior National Football Tournament), Mir Iqbal Hussein Trophy (The Sub-Junior National Football Championship), Sir Ashutosh Mukherjee Memorial Shield (All India Inter-University Football Tournament) and Dutta Roy Trophy (under–20 National Football Championship).Besides these tournaments, the Indian League Football (I –league)which has been launched in order to raise the standard of Indian football by bringing professionalism in a gradual way.

Nature of the Game

The game football is both an art and science. There is a distinction, which gives a specialty to football compared to that of other games. It is the natural behavior of human beings to use their hands and arms for doing almost all activities. In all other games,

hands are dominantly used. But in football, the use of hand has been restricted which is only used for throw in (Exception is given only to Goal Keeper-that too inside the penalty area) and all other parts of the body are allowed to play, especially to use the foot. Thus, when trying to control the ball using all parts of the body except hand in order to score a goal, it becomes a beautiful game. It involves techniques of running, passing, kicking, tackling, blocking, heading, juggling and dribbling. All these activities have often to be performed at great speed. Though these individual skills are very important, it should not be forgotten that it is a team game and the players have to work together in offence or defense. A player must therefore, develop his skill and should understand his contribution according to the situation demands in the team play. Working in a competitive situation can therefore; best develop the skills though individual practice is necessary. The game of football contains physical challenges. Though two players may be equal in their skill, because of different physical and mental response, there can be much difference in their performance. A player must be quick in assessing a situation and thus to respond rapidly. A forward has to decide between a pass and shot; a defender between marking and covering and a goalkeeper has to decide whether to advance or to be in the goal. A player may specialize for

play in a particular position. It is better if he develops skills necessary for other positions. All players should be aware of both the attacking and defensive principles of play. A player must learn from his own observations and mistakes.

The game football or soccer requires a lot of skill, speed, stamina and strength. "To play soccer at any level, we need a fair measure of a number of attributes – speed, strength, stamina, judgment, courage, agility, tactical ability and so on – but above all, you need the basic skill "[13]

Two teams play the game, each having eleven players. The playground is divided into two halves occupied. The game starts from the center spot by moving the ball forward, which is called 'kick off'. The players of each team are in formations as considered appropriate to them with a goalkeeper in the goal. The formation consists of forwards, halfbacks and defenders. The main responsibility of the forwards is to score goals. The halfbacks support forwards to score goals. The duty of defenders including goalkeepers is to prevent the opponents from scoring goals for which the other teammates assist them. The goalkeeper can use any part of the body including hands inside the 'penalty box' where as others can use all parts except hands and arms. Three

[13] . Norman Barett, *Young Footballer's Pocket Book.* Great Britain: Purnell Publications Ltd, 1982, p.10.

substitutes are allowed but those who substituted once are not allowed to return again. The duration of the game is 90 minutes with two halves of 45 minutes and an interval in between which should not exceed 15 minutes. A match which ends as draw extends to extra time and still draw moves to tiebreaker and then to sudden death kicks if required to decide the winner. A referee controls the game with the help of two assistant referees who patrol the touchlines. They assist the referee to control the game in accordance with the laws. The fourth official is there who handles substitution and assists the referee in administrative duties before, during and after the match as required by the referee.

Fundamental skills in soccer and its importance

The game of soccer is very complicated in terms of skills and teamwork. Control of the soccer ball is perfected by the development of fundamental skills like kicking, passing, dribbling, trapping, tackling, heading etc. The unpredictability of the action sequences fosters imaginations of a kind that can be transformed instantly into physical movements. Physical fitness components like strength, co-ordination, flexibility, agility, endurance, speed, power etc., are considerably required to carry out these movements effectively. When one has mastered the fundamental skills of the game, he gains a feeling of well-being; thus high level of

performance in soccer depends upon the mastery over the fundamental skills. Football is a game that revolves around the effective utilization of fundamental skills such as kicking, passing, heading, trapping, throwing, etcetera and a general aptitude of ball sense and ball control.

The fundamental skills in soccer are quite different from those of most sports because the entire body can be used to play the ball with the exception of the arms and hands being the sole allowance to the goalkeeper. All sports involve the application of skills of some kind of cognitive, intellectual, perceptual or motor. football involves all three-skill types operating simultaneously in a rapid changing environment. Soccer skills involve making correct decisions and then executing that which has been decided upon. A technical practice involves players working in isolation on the various aspects of the game such as shooting, passing, and ball control. The execution of a technique or soccer action such as passing or dribbling is a part of skilled performance essential but relatively valueless as lone facet. The players are judged to be truly skillful in the game of soccer when they can make the best decisions about where and when to play the ball and then to perform the skill accurately.

Kicking and its importance

Soccer is a game of kicking and running. "Since kicking the ball is the essence of soccer, this is one of the first fundamentals to be learned. Kicking is the most common method used in moving the ball to a team mate, controlling the ball from loosing possession, shooting for score, clearing the defensive area, and placing the ball back into play after a violation."[14]

Kicking can be mainly categorized as inside of the foot kick, instep kick, and out side of the foot kick, volley kick, and bicycle kick. Although several varieties exist, the basic kick that possesses power, distance, controlled elevations, and controlled direction is the instep kick. The fully mastered instep kick is a free natural ballistic type of movement that immediately identifies a skillful soccer player. Kicking is vital in soccer because it is the most common means to score goals. The more shots to goal a team takes, the greater is their chance of scoring goals and winning matches.

Kicking skill includes the mastery of shooting techniques, when kicking the ball under severe pressure from opponents. Obviously the ability to shoot with either foot under pressure from defending opponents is essential for a player who would like to excel in the game.

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[14] . Irvin R Shimid, *et.al., Skills and Strategies of Successful Soccer.* Englewood Cliffs, New Jersey: Prentice Hall Inc., 1968, p.43.

The type of kicking differs from situation to situation and hence the mastery over all types of kicks is highly essential to deliver a top class performance. Kicking is essential to different aspects of the game such as clearing the ball, scoring the goal, distribution of the ball etc.

Passing and its importance

Passing is the life of football. Without passing, there is no football. The renowned footballers are noted for their outstanding ability to pass. To pass ball to an apt player at right time is one of the most important qualities of a soccer player. "On average, eight times out of ten that you receive the ball you will pass it to a team mate. Passing is the lifeblood of a football team, the link between its components; the only collective means a side has of achieving a common goal. And just as a measure of a good team is how well they find each other, even under pressure, so poor passing is the most common cause of attacks breaking down and the quickest way to destroy confidence as well as any chance of success."[15]

Though passing is basically kicking, it is somewhat different from a mere kick. Passing involves an understanding of the problems of receiving the ball as well as mastering the techniques of

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[15] . Richard Widdows, *Soccer Techniques and Tactics.* New York: Arco Publishing, Inc., 1983, p. 64

kicking it. A pass does not just involve the player making it but also the player receiving it. The quality of a pass is not measured by the way it is struck; it is measured by the ease with which the receiver can control it or lay it off first time. The three main factors in passing are accuracy, weighing and timing. Eventhough there are lot of openings to pass, an intelligent player tries to pass to a player who is in the most advantageous position to score the goal which at the same time will be by deceiving the opponents.

"Good passing is knowing where and when to place the ball, with the right weight and accuracy. It can only come with the correct techniques and an understanding and appreciation of where and when to apply them."[16]

Passing consists of almost endless variety of types and permutations of them: long and short, high and low, straight or curled; played with the inside of the foot, the outside of the foot, the instep, the heel or even the toe. Each may suit a certain player in a particular situation and within limits, individuals will always develop their own style.

Dribbling and its importance

Dribbling is propelling the ball from one place to another without losing the control. But according to the situations the way of

[16] . *Ibid*.

dribbling will differ. According to Yaxley[17] "the good dribble must have the ability to keep the ball within the playing distance whilst running with the ball, to change direction quickly without losing the ball, to change special (from slow to top special instantly) without losing the ball, to screen the ball from his opponent when necessary, i.e. place his body between the ball and his opponent while dribbling thus be able to see team mates, opponents and own position relative to goal."

Eventhough dribbling is one of the most valuable fundamental skills in soccer, when it is done too often and for too long a time, it can completely distort a team's offense or defense pattern. Therefore it is very important to remember that dribbling is never justified if there is an unguarded teammate waiting for a pass. A safe pass is always better than unnecessary dribble.

The importance of dribble comes into picture when good passing opportunities are not available. The significance of dribbling becomes clear when the attacker beats an opponent and takes a shot at the goal. Dribbling can be used as the strongest weapon in technique-training in principle of penetration. Whenever a man who is dribbling beats an opponent, the team in possession of the ball may often gain a numerical advantage in attack since the beaten

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[17] . Mike Yaxley, *Competitive Sports series soccer*. London: Batsford Academic and Educational Ltd., 1982, p.30.

opponent now finds himself behind the ball and temporarily out of play. However, it is generally foolish to take on a second opponent since this will take time that can permit the first man beaten to recover and place him back in a defending position. Therefore effective uses of dribbling are actually the true expression of individuality.

Eventhough much importance is not given for dribbling in modern soccer, due to the concept of space and power, there will be many situations where this skill is effectively carried out to initiate attack and ball possession. Therefore, in modern soccer, dribbling is used as a catalyst, to drag an opponent out of position before passing, to get around an opponent if there is a clear field beyond him, to get by an opposition before a shot at goal if other teammates are tightly marked, or likely to violate the offside rule, to move the ball to a proper position before taking a shot and to initiate attack down the wing before crossing.

Lauffer and David[18] were of the opinion that, dribbling is one of the most exciting parts of the game of soccer in one – on –one confrontation. A player with good dribbling skills can destroy the

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[18] . Butch Lauffer and Sandy David, *Soccer Coaches Guide to Practices, Drills and Skill Training*. New York: Sterling Publishing Company, Inc, 1991, pp.7-8.

best-organized defense. An example of this was Diego Mara Dona's second goal against England in the 1986 world cup held in Mexico. The solo goal of Syed Ovairan using his magical dribbling against Belgium in the 1994 world cup may also be cited in the context. Dribbling is a player's way of self-expression during the game. As the game has matured with defensive systems of play, coaches, physical education teachers and sports organizers should develop players who have the technical ability and bravery to dribble and take opponents on.

Ball Control and its importance

A good player brings and moves the ball according to his interest. That is, the ball works for the player and not the player works for the ball. Ball control includes ball reception from the air and rolling balls on the ground. Controlling the ball from the air can be done effectively with the instep, inside of the foot, out side of the foot, thigh, chest, and head. The rolling balls can be controlled with the help of sole of the foot, inside of the foot, instep, and out side of the foot.

"The term 'ball control' refers to the technique of receiving a ball and bringing it under full control. It is used synonymously with the term 'trapping' but when trapping generally denotes killing a ball

such as wedging it between a foot and ground, ball control also includes receiving a ball without completely stopping its motion and playing it after bringing it under control."[19]

According to Bennet[20] two principles underline any type of trap. The first one is to withdraw the part of the player's body that is contacting the ball in order to cushion the impact and kill the rebound. The second is to angle the contact surface toward the ground in order to deflect the ball down ward to the player's feet.

The mastery over the ball in all respect will be helpful for the soccer player to contribute himself creatively to the group teamwork. Perfect ball reception results in good scoring, distribution of passes and saving the team from dangerous situations. The technical perfections over the ball will develop confidence in a player, which in turn contribute much to his effective execution of skills and combined team play.

Ball control is one among the highly essential qualities of a good soccer player. Ball control mainly refers to the reception of the moving ball and diverting it to a successful pathway without killing it. Soccer players with technique, good ball control and intelligence are

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19 . George Beion*, Principles of Modern Soccer.* Boston: Houghton Mifflin Company, 1977, p. 260.

20 . Bruce L Bennet, Fundamentals of Soccer. *The Athletic Journal,* 36:5, Jan. 1956, p.7.

always assets to every team. A successful team reflects control over the ball in every moment of the game while the players execute different skills. Good ball sense and control definitely gives an overall control of the game itself, which in turn leads to success.

Norms and its importance

A norm is a standard point of reference that can provide a basis for judgment. Norms are used to interpret relative standing to compare scores or groups and either to combine or average scores. Norms are derived scores that are determined from the raw score obtained by a specific group on specific test. Whenever 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 given sample whose norms have been determined. Any judgment made about the norms is by the person using the norms score.[21]

Transforming the raw scores of a given group into some type of derived score so that they may be interpreted more easily, develops norms. Raw scores can be converted to percentage

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[21] . Safrit Margaret J*, Introduction to Measurement in Physical Education and Exercise Science.*" New Jersey: The CV Mosby College Publishing, 1984, p.243.

correct scores in which the scores are actually determined on the test scores. This type of conversion is useful for tests of motor skills and abilities. The norm scales are accepted as valid and practical criteria for evaluating the individual tests. When norm scales are being constructed, one must consider the following practical statistical and educational principles.

1) Sampling Techniques
2) Equivalency
3) Progressivity
4) Sensitiveness

Grade, Age, Percentile and Standard score norms are the four types of norms which have been most commonly used. Computing the average or raw scores for each grade and using the grade equivalent in place of the average determine grade norms. Computing the average of the raw scores for each age, and using the equivalent in place of the average determine age norms. Percentile norms are determined by the percentage of individuals in the norm group who fall below an individual score. Standard score norms are represented by the distance of a given raw sore above or below the mean of the norm group as expected in the standard deviation units. Although all types of norms have advantage and

disadvantage; the use of standard scores or percentile is generally recommended.[22]

Criteria for selecting Norms

Eventhough 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.

Educationists have also been interested in this function of measurement. One way of knowing how much a student has achieved is to examine his score in relation to the score of others on the same test. In essence, a student's score is compared with the scores of other students. Here, individual differences are anticipated because some students are expected to perform better than others. This function identifies the test as norms referenced.[23]

Need for a Test Norm in India

Though the game of football has come to India in the middle of the 19th century, still India could not emerge as a power even in Asian level. There was a golden period for India in international level just after the period of independence. The country had

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[22] . *Ibid*., p. 9

[23] . *Ibid*.

participated in the 1948 Olympics, and they could fight well against France, who was the FIFA world champion in 1998. Nowadays, India cannot cope up with the standard of other countries.

In order to assess the playing ability of soccer players, there are no standardized norms in the country. Since universities are creating a lot of players in the youth level, any study relating to university level will be worthwhile. There are a number of universities in the country which are following different modes for the selection of players. Most of them are following subjective evaluations in which there are lots of chances to get biased. If there is a single norm for the selection of players; it will help coaches, selectors, physical educationists and sports scientists to a great extent. Besides, uniformity in selection trials will give a transparency in selection. A standardized norm that measures the skill level of soccer players will be of great use for various club authorities that are looking for university players for selecting them to different club teams.

Statement of the Problem

The problem of the present study is entitled as "Construction of Norms on Kuhn’s Soccer Test for University Players."

Significance of the Study

It is quite obvious from the ratings of FIFA that the standard of Indian football has gradually come down over these years. India had its small stint in the international arena immediately after independence till sixties. The recent championship victory of Indian football team in the LG International Tournament held in Vietnam and the prestigious Nehru Gold Cup Tournament held at New Delhi have invigorated the Indian football which is on the path of revival.

The most important factor in achieving the best performance in any sport is the right selection of sport depending upon the quality of the individual. In India, soccer at university level has been getting great importance and recognition. Most of the educational institutions have their own soccer teams. National level championships of universities are conducted with great importance and many players are proving their talents in these tournaments. Eventhough there is no dearth of talent in universities, there is no set standard or objectivity in assessing the quality of players. This has adversely affected the selection procedures as it has given room for favoritism, regionalism and several other such inhibiting factors. Hence objectivity in the selection of players is of utmost importance to ensure optimum performance. The present system very much demands the construction of norms for the evaluation

and selection of university players. This need has prompted the investigator to construct norms for university soccer players.

Thus the study is significant in the following ways:

(1) This study will help physical educationists, soccer coaches and sports scientists to accept as a common mean and a standard norm for various needs on the basis of the soccer skill techniques of players.

(2) This may be helpful to the various soccer clubs in the country to accept as a common norm for the selection of players.

(3) By evaluating the scores of the players, the coach/trainer can give specific emphasis to players who are lacking in their specific skills.

(4) By knowing the scores, the players themselves can understand their level of skill in the game and it may motivate them to achieve further.

Limitation

1. The Kuhn's soccer test was used for the construction of norms.
2. The Kuhn's soccer test included only nine test items namely goal kicking for accuracy with preferred and non preferred foot, air passing for accuracy with preferred and non preferred foot,

ground passing for accuracy with preferred and non preferred foot, dribbling test and two types of juggling (juggling-1 and juggling -2).

3. Since the test measures only the skill techniques, which will not be an accurate measure of one's playing ability especially at high level competitions, where the psychological level of player also play a dominant role; merely by the test itself it will not be possible to find out the natural playing ability of the players.
4. The test comprises of four main components namely kicking, juggling and dribbling and ball control. The other main offensive and defensive techniques of the game such as tackling, heading, goal keeping etc have not been measured in the test. Hence it may not be an encompassing test, which measures the exact playing level of a player.

Delimitation

The study was delimited to soccer players who represented their respective University teams that participated in Inter University Championships from the year 2001 to 2007.

The study was delimited to 720 university players in different field positions including goalkeepers.

Further, the study was delimited to university teams from the southern states of India.

Definition of Terms

Soccer: "It is the passing and running game of an unpredictable and constantly changing pattern, demanding an accurate awareness of other players and an ability to make quick decisions."[24]

Norm: "A Norm is a scale that permits conversion from a raw score to a score capable of comparisons and interpretations."[25]

"A Norm as the term used in relation to test scores is the average of typical test scores (or other measures) for members of a specific group norms are after presented in tables giving the typical score value for a series of different homogeneous groups in a given grade or students of a given age."[26]

Test: "It refers to any specific instrument, procedure or technique used by a test administration to elicit a response from the subjects."[27]

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[24] . Alan Gibbon & John Cartwright, *Teaching Soccer to Boys*, London: G Bells and Sons Ltd., 1972, p.15.

[25] . Harold M. Barrow and Rose McGee*, Practical Approach to Measurement in Physical Education*. Philadelphia: Lea and Febiger, 1971, p.45.

[26] . Robert L Ebel*, Measuring Educational Achievement.* New Delhi: Prentice Hall B India Private Limited, 1966.

[27] Barry L. Johnson and Jack K Nelson, *Practical Measurement for Evaluation in Physical Education.* New Delhi: Surgeet Publications, 1988, p.2.

Technique: Technique is to find a suitable solution for an existing motor action on the basis of qualities of human apparatus of locomotion, of mechanical environmental conditions and of completion rules.

Tactics: Tactics is the theory of conduction and organization of sports struggle.

Chapter II

REVIEW OF RELATED LITERATURE

Chapter II

REVIEW OF RELATED LITERATURE

A serious and scholarly attempt has been made by the scholar to go through the related literature and a brief review of the studies related to the present problems described in this chapter.

Varghese[1] conducted a study to construct norms for the predicted skills, physical and anthropometrical variables for college men soccer players in Kerala. To achieve the purpose of the study, initially 100 soccer players from various colleges throughout Kerala were selected as the subjects. The chosen subjects were between 18 and 25 years. The data corresponding to the fundamental skills (kicking, dribbling, ball control), physical variables (speed, endurance, explosive power) and anthropometrical variables (height, leg length, thigh girth) were collected from the one hundred chosen subjects. Out of the nine variables, the important variables

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[1] . Reginold Varghese., *Construction of Norms for the Predicted Skills, Physical and Anthropometrical Variables for College Men Soccer Players in Kerala.* Unpublished Doctoral Thesis, Department of Physical Education and Health Sciences, Alagappa University, Karaikkudy, 2000.

(ball control, power, dribbling and endurance) were predicted in the order of importance using Wherry Doo Little Method of multiple correlation for variable selection. After prediction was over, totally as many as 2075 men soccer players between 18 and 25 years, who participated in the inter collegiate tournament were chosen as subjects from various colleges throughout Kerala, for the norm construction. The data collected from the players were statistically analyzed. Mean, standard deviation and Hull scale were computed. The raw scores were converted into Hull Scale and the norm was constructed using the data.

Prof. Prayoko Susthi[2] conducted a study to construct a soccer skill test norm for male and female students for higher education level in Thailand to be used by teachers and coaches as a guideline in measuring and evaluating soccer skill techniques based on Mc Donald standard soccer test.

Chellappa[3] conducted a study on the construction of norms for soccer goal keepers on selected skill physical psychological and anthropometrical variables. Sixty goal keepers were taken for the study from the various districts of Tamilnadu. In kicking test, as per

[2] . Related Articles, *Links.* Soccer Test Norms, August 29, 1999, pp. 8-11.

[3] . N. B. Chellappa, *Construction of norms for soccer goal keepers on selected skill, Physical Psychological and Anthropometrical Variables.* Unpublished thesis, Alagappa University, July, 1993.

the qualitative grading for constructed norms it was evident that 14 goal keepers were poor and 46 were found to be good. In sit and reach test it was evident that 9 goal keepers were poor, 19 were found to be good and none of them were excellent.

Gupta[4] conducted a study on validation and construction of norms of the soccer test for Tripura state players. The study was to compute norms and validation of McDonald soccer test. 250 male soccer players who played in the first division tournaments registered in Tripura State football association were selected as the subjects. The Mean and Standard Deviation was computed. Based on this 't' scale was computed and norms were constructed.

Vernon and Crew[5] devised a skill test battery for soccer players at university level and using the Mean, Standard Deviation and Hull scale value of performance scores of players, they constructed test norms for the university level players.

For classifying soccer players according to their general soccer playing ability Mackenzie[6] constructed a test norm based on

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4 . Shivaji Sen Gupta, *Validation and Construction of Norms of the Soccer Test for Thripura State Players*, Unpublished Ph D Thesis, Jiwaji University, Gwalior, 1986.

5 . Crew, Vernon N., *A Skill Test Battery for Use in Service Program Soccer Classes at the University Level.* Un Published Master's Thesis, University of Oregon, 1968.

6 . Mackenzie, J. *The evaluation of a battery of Soccer Skill Tests as an aid to classification of general soccer ability.* Unpublished Master's

the performance scores of selected soccer players for different age levels.

Joseph R Johnson[7] developed a soccer test battery for college men and using this test, he constructed a test norm based on the performance of subjects. The Achievement scale he constructed was as follows.

Superior	42 +
Good	37 – 41
Average	31 – 36
Below Average	25 – 30
Poor	24 – below

To make use of the Mc Donald test for upper elementary school boys, Mitchell[8] modified the Mc Donald test and he constructed a norm based on the performance of subjects.

Thesis, University of Massachusetts, Amherst, 1968.

7 . Joseph R Johnson. *The Development of a Single-item Test as a measure of Soccer Skill*. Master's thesis, University of British Colombia, 1963.

8 . Mitchell, J.R. *The modification of the Mc Donald Soccer Skill Test for Upper Elementary School Boys*. Unpublished Master's thesis, University of Oregon, Eugene, 1963.

Bonnie[9] constructed a test norm on Mc Donald soccer test to measure the soccer playing ability of Junior High school girls based on the performance scores of girl players. The Mean, Standard Deviation and Hull scale value of the scores were calculated and Percentile scale was constructed.

For the Mc Donald soccer test consist of kicking soccer ball for a duration of 30 seconds which designed to measure the general soccer playing ability, Leory Scott[10] constructed a Test Norm based on the performance scores of 50 students for four different categories namely College Varsity players, Junior Varsity players, Freshmen Varsity players and for the combined group. The Mean, Standard deviation, and Hull scale value of the scores were found and the Percentile scale was created. The Achievement scale he constructed was as follows.

College men	**Performance level**	**College women**
24 and above	Advanced	18 and above
20 – 23	Adv-intermediate	15 –17
11 – 19	Intermediate	7 – 14
8 – 10	Adv – beginner	2 – 6
0 – 7	beginner	0 – 1

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9 . Streck Bonnie, *An Analysis of the Mc Donald Soccer Skill Test as applied to Junior High school Girls.* Unpublished Master's Thesis, Fort Hayes State college, 1961.

10 . Mc Donald, Lloyd, G. *The Construction of a Kicking Skill Test as an Aid to Classification of General Soccer Ability,* Unpublished Masters thesis, University of Massachusetts, 1968.

Jean[11] constructed test norms of fundamental soccer skills for fifth and sixth grade children by using the performance of selected students of fifth and sixth grade students.

Evelyn[12] constructed a test norm of girls of ninth and tenth grade to determine the soccer playing ability based on the performance score of limited number of girl players. The Mean, Standard Deviation and Hull scale value of the scores were calculated and Percentile scale was constructed.

Venkatesh[13] compiled norms for the physical fitness variables of physical education degree students of Gulbarga University. He took data from 158 (133 males and 25 females) students who studying for B.P.Ed. course (with 21–30 age group) in the various colleges affiliated to Gulbarga University. The fitness variables viz shoulder strength, abdominal strength, agility, power, speed, endurance, and flexibility were tested. The Mean and Standard Deviation of the above mentioned seven variables were found. The

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11 . Bontz Jean, *An Experiment in the Construction of a Test for Measuring Ability in Some of the Fundamental Skills Used by Fifth and Sixth Grade Children in Soccer*. Unpublished Master's Thesis, State University of Iowa, 1942.

12 . Schaufele Evelyn, *The Establishment of Objective Tests for Girls at the Ninth and Tenth Grades to determine Soccer Ability*. Unpublished Master's Thesis, State University of IOWA, 1940.

13 . Venkatesh P, *Compilation of Norms for the Physical Fitness Variables of Physical Education Degree Students of Gulbarga University*. Unpublished M. Phil. Thesis, Alagappa University, Karaikkudy. 2004.

Hull Scale value was computed and using the same, the Percentiles were calculated.

Antony[14] in his doctoral research constructed norms on AAHPERD Health Related Physical Fitness Test for College men students in the state of Kerala. Six thousand three hundred and seventy five college men between the age group of 18 to 23 from fourteen districts of Kerala state –consisting three colleges from each district- were randomly selected for the purpose of the study. Cardio respiratory function (one mile run), body composition (sum of triceps and sub scapular skin folds) and abdominal and low back-hamstring musculoskeletal function (modified timed sit–ups and sit and reach) were tested. Besides these tests, BMI (Body Mass Index) was computed by measuring height and weight using the equation:

BMI = Weight in Kilograms / (Height in Meters)$^{2.}$

Mean and Standard Deviation of the scores on all the tests were calculated and the data was converted into percentile to construct norms.

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[14] . Antony A.M., *"Construction of Health Related Physical Fitness Norms For College Men in Kerala."* Unpublished Doctoral Thesis, University of Calicut, 2004.

Appasaheb et al., conducted a study to construct norms for the physical fitness variables of students of certificate course in physical education in Bagalkot and Bijpur districts. The study was designed to construct norms for selected physical fitness variables namely speed, shoulder strength, abdominal strength, power, agility, flexibility and endurance for students who seek admission for certificate course in Bagalkot and Bijapur districts in Karnataka. To achieve this purpose, as many as 240 students (men and women) from 5 colleges from Bagalkot and Bijapur districts were selected as the subjects. The data collected from 167 men and 73 women subjects were statistically analysed with the help of mean and standard deviation. After finding the mean and standard deviation, hull scale value was computed. Hull scale value was serially added and subtracted from the mean value to compile norms for each variable.[15]

Payne N, Gledhill N, Katzmarzyk P.T., Jamnik V.K. Keir P of the Department of Kinesiology and Health Science, York University, Toronto, Ontario, Canada conducted a study to provide representative norms for measurements of musculoskeletal fitness (partial curl ups, vertical jump, and leg power) for which Canadian

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[15] . Appasaheb, Shivamurthy, Ligade, *Construction of norms for the physical fitness variables of students of certificate course in Physical Education in Bagalkot and Bijapur Districts*. Unpublished M.Phil. thesis, Alagappa University, Karaikudy, 2003.

norms are not currently available. Partial curl ups, vertical jump, trunk flexion (sit and reach), grip strength, muscular endurance (push ups), body mass index, and subcutaneous adiposity (sum of five skin folds) were assessed, and leg power was calculated in 571 self reportedly healthy participants (312 females and 259 males) aged 15=69 year. The sample was confirmed by statistically comparing the fitness characteristics of the participants in the present study to those in the Canada fitness survey of 1981 and the Campbell's survey of 1988.[16]

Pichaiappa[17] conducted a study on construction of norms for the predicted fundamental volleyball skills of Tamil Nadu school boys at different age levels. The purpose of the study was to construct norms for the predicted fundamental volleyball skills for school boys in Tamil Nadu in the age group of 16, 17, and 18 years. Initially 100 volleyball players in each age group participated in the inter school competition were selected as the subjects for prediction. The following variables, namely underhand pass, overhead pass, spiking, serving, setting, blocking and playing ability

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16 . Related Articles, *Links*, Can J. Appl. Physiol. 2000 Dec. 25 (6): 430-42 (Pub Med-indexed for Medline).

17 . Thsangavel Nattar Pichiappa, *Construction of Norms for the Predicted Fundamental Volleyball Skills of Tamil Nadu School Boys at Different Age Level.* Unpublished Ph.D. Thesis, Alagappa University, Karaikudi 1999.

were chosen as the variables. Wherry doo little method of variable selection and multiple correlation was used for selection of variables and prediction. Data from 2000 volleyball players were colleted in each group for the construction of norms on the predicted skills. Mean, Standard Deviation and Hull scale were the statistical techniques used. The following results were obtained. Among all the skill variables analyzed, service and underhand pass are found to be significantly related to volleyball playing ability for all this 16, 17, and 18 years of age group. Spiking was found significantly related to volleyball playing ability for 16, and 17 years age group. Setting was found significantly related to volleyball playing ability for 16 and 18 years age group. Overhead pass and blocking was found to be significantly related to volleyball playing ability for only age group 17 and 18 respectively. On the basis of Hull scale norm, qualitative grading for the different age groups were also computed.

Howard[18] conducted a study of the physical abilities of academically high-achieving children. The purpose of this study was to compare academically high achieving and average boys and girls in grades 4 and 5 on accepted tests of balance, coordination, strength, endurance and flexibility; as well as measures of age,

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[18] . Stern William Howard, "A Study of the Physical Ability of Academically High Achieving Children," *Dissertation Abstract International* 59 (January 1999), 2421-A.

height, and weight, to see if, as some researchers have found, high achieving children are taller, heavier, stronger, more flexible, exhibit better balance; and are better coordinated than their non gifted classmates. Grades earned in physical education class were compared to see if high achieving children performed better in physical education than average children. All boys and girls in grader 4 and 5 in an upper middle class school district were tested on the variables of balance, coordination, physical education grade, pull ups, push ups, sit and reach, sit ups, and the 600 yard run. In addition, age height and weight were compared to national norms. Only students completing all tests were used in the study of949 children. A 2x2 factorial design was used with gender and IQ group as independent variables. Multiple analysis of covariance was used on the independent variables of balance, coordination, physical education grade, pull ups, push ups, sit-and-reach, sit-ups and the 600 yard run.

Helina[19] conducted a study on construction of norms for the AAHPERD Youth Fitness Test variables for the physical Education professional college men and woman students in Tamil Nadu.

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[19] . M Grace Helina, Construction of Norms for the AAHPERD Youth Fitness Test Variables for the Physical Education Professional College Men and Women Students in Tamil Nadu. Unpublished Ph.D Thesis, Alagappa University, Karaikudi, 1997.

Vairamani[20] conducted a study on the construction of test and computation of norms for the measurement of agility of Kendriya Vidyalaya boys of Madras region. 4848 boys were selected from all the Kendriya Vidyalaya of Tamil Nadu state. The test scores were correlated using Pearson's Product Moment Correlation and inter class correlation method. The result of the study revealed a reliability coefficient of different group and tested population varying from 0.75 to 0.99 which was highly significant. The validity coefficient ranged from 0.85 to 0.93 which showed a high validity. Further a norm scale using Hull scale was also computed for measured of agility.

Surjit Singh[21] conducted a study on establishing norms for physical fitness of primary school children of Punjab and Haryana. The data relating to male, female rural and urban elementary school of age group 6–11 years of Punjab and Haryana were collected by using Glover (1962) physical test battery on (N = 2500) each from Punjab and Haryana. To assess physical fitness of elementary school children of age groups (6-11 years) mean standard deviation,

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20 . Shanmugam Viramani, Construction of Test and Computation of Norm for the Measurement of Agility of Kendriya Vidyalaya Boys of Madras Region. Unpublished Ph D Thesis, Alagappa University, Karaikudi , 1996.

21 . Surjit Singh, *Establishing Norms for Physical Fitness of Primary School Children of Punjab and Haryana*. Unpublished Ph D Thesis, Punjab University, Patiala, 1996.

were computed and to determine the differences in selected variables among five levels one way analysis of variance was computed. 't' ratio was computed to analyze the significant difference if any, existing in inter groups as well as on physical fitness test battery., Further Scheffe's post hoc test was applied to analyze the significant difference in pairs and finally percentile scale, T scale and Hull scale were computed for norms for various age groups and in different variables of physical fitness of Punjab, Haryana, male, female, rural, urban elementary school children. Based on the findings and within the limitations of the study, the following conclusions were drawn. (1) The subjects belonging to age groups 6-11 years of Punjab–Haryana showed varied performance in standing broad jump, shuttle race, sit ups and seat crawl. (2) There were variations in performance in Punjab, male, female, rural, urban elementary students in ages 6 -11 years in standing broad jumps, shuttle race, sit ups and seat crawl. (3) There were variations in performances in Haryana male, female, rural, urban elementary school children in ages 6 -11 years in standing broad jump , shuttle race, sit ups and seat crawl.

Manojkumar[22] developed norms on selected motor fitness components in the age group of 13 to 17 year students of schools of Gwalior District Test items to measure the motor fitness components were 50 metres dash, standing broad jump, sit ups for one minute, stork for balance and 600 meter run/walk.

Clayton and Cornish[23] constructed test norms for college men for the five test items 30 second volley, the front wall placement, the back wall placement and the power test by using the performance scores of college men players.

Muthusamy[24] computed norms on physical fitness variables for school girls of union territory of Pondichery. For 600 students within 13–16 age group he collected data using AAHPERED Youth fitness test for the variables strength, endurance, speed, power and agility. The tests used were flexed arm hang, bend knee sit ups, shuttle run, standing long jump, 50 yard dash, and 600 yard run/walk. After finding the Mean and Standard Deviation, he computed norms for the said variables.

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22 . Manojkumar, *Development of Norms on Selected Motor fitness Components in the Age Group of 13 to 17 Year Students of School of Gwalior District.* Unpublished Master's Thesis, LNIPE, Gwalior, 1996.

23 . Cornish, Clayton " A Study of Measurement of Ability in Handball" *Research Quarterly,* October, 1996 (20 : 215 – 222).

24 . Ayyakkannanar Muthusamy, *Computation of Norms for Physical Fitness Among School Girls of the Union Territory of Pondicherry*. Unpublished Thesis, Alagappa University, Karaikkudy, 1995.

Maud and Schultz[25] conducted a study on the construction of norms for the Wingate anaerobic test with comparison to another similar test. The study was undertaken in order to develop norms for the Wingate test for physically active young men and women and also to compare mean power measures. Obtained from Wingate test with those obtained from another similar cycle ergo meter test. A total of 112 male and 74 females aged 18 to 28 years comprised the subject pool. Data collected from the Wingate test included mean power of 30s peak power of 5s and a perfect fatigue index. Data from the second test (Katch test) included the mean power for both 30s and 40s. Percentiles norms and descriptive statistics were generated as were multiple regression equation for prediction of mean and power between the two different among the data derived form this study and reported for other athletic groups were also given.

Inbarajan[26] conducted a study on construction of norms in selected athletic events for under-graduate physical education men students in Tamilnadu. Mean standard deviation and hull scales were the statistical techniques used. The variables selected for this

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[25] . Peter J Maud and Barry B Schultz, " Norms for the Wingate Anaerobic Test with Comparison to Another Similar Test." *Research Quarterly for Exercise and Sports,* 60:2, 1995, p.144.

[26] . Gurusamy Inbarajan, *Construction of Norms in Selected Athletic Events for under-graduate Physical Education Men Students in Tamil Nadu,* Unpublished M.Phil.Thesis, Alagappa University,l July,1994.

study were 100 mts. 150 mts. long jump and shot-put. The following conclusions were drawn. In 100 mts. 53 subjects were poor and 92 subjects were good. In long lump 45 subjects were poor and 58 subjects were good. In shot-put 62 subjects were poor and 35 subjects were good.

Grace Mary[27] conducted a study on construction of norms in basketball skills for college women basketball players. For this purpose 384 subjects were selected on random basis from 22 colleges under six universities in Tamil Nadu. The following variables were selected for this study; shooting test, throw for accuracy and dribbling test. Mean, standard deviation and hull scale were the statistical techniques used for the study. In shooting 22 women basketball players were poor and 96 were good, 17 players were excellent. In throw for accuracy 76 players were poor, 64 were good and 23 players were found to be excellent. In dribbling test, 72 players were poor, 65 players were good and 13 players were excellent.

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[27] . Grace Mary, *Construction of Norms in Basketball Skills for College Women Basketball Players.* Unpublished M.Phil. thesis, Alagappa University, July, 1994.

Bhaskaran[28] conducted a study on "Construction of norms of agility, co-ordination test for Tamil Nadu College men players." One thousand eighty five players of basketball, football, hockey and volleyball games were selected randomly from 63 colleges in Tamilnadu. It was found that 240 players out of 1805 players were found to be good; 210 players were very good; and nobody was found to be excellent.

Rao[29] conducted a study on construction of norms for health-related physical fitness tests for high school boys on fifteen years of age in Andhra Pradesh. He selected 1005 subjects from various schools in Andhra Pradesh. The following variables were selected for this study; aerobic endurance, body composition muscular strength and upper body strength. Mean standard deviation and hull scales were the statistical techniques used. In acerbic endurance test 185 students were poor, 182 students were good and 58 students were excellent. In muscular strength 334 students were poor, 97 were good and 55 were excellent. In upper body strength 296 were poor, 170 were good and 38 were excellent.

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[28] . Bhaskaran, *Construction of Norms of Basketball Skills for College Women Basketball Players*, Unpublished M.Phil.Thesis, Alagappa University, July, 1994.

[29] . Boomadevaraya Hanumantha Rao, *Construction of Norms for Health Related Physical Fitness Tests for High School Boys of Fifteen Years of age in Andhra Pradesh*, Unpublished M.Phil. Thesis, Alagappa University, July 1993.

Jasan[30] conducted a study on construction of norms for hockey goal keepers on selected physical, psychological and anthropometric variables. 60 hockey goal keepers were selected from all districts of Tamil Nadu. The variables selected for this study were agility, flexibility, power, reaction time, standing height, arm length and leg length. Mean standard deviation and hull scale were computed and the following conclusions were drawn. In agility 7 subjects were poor and 14 were good. In power 7 subjects were poor and 17 were good. In reaction time 15 subjects were poor and 21 were good. In arm length 11 were poor and 10 were good and in leg length, 5 were poor and 6 were good.

Rubbier[31] undertook a study to investigate the muscular fitness of seventh grade children in a small town in south western Okdahoma. Other purposes of the study were to compare the results of the six subjects of the Kraus Webber Battery and determine it participation in sports activities out side of school makes a difference.

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30 . Jasan, *Construction of norms for hockey goal keepers on selected physical, psychological and anthropometric variables,"* Unpublished M.Phil thesis, Alagappa University, July, 1993.

31 . Omer John, Rubbier, "Physical Fitness of 7th Grade Children." *Research Quarterly*, 32:3 (October 1991): 420.

Athicha Pillai[32] conducted a study on computation of norms for 12 minutes run and walk among school boys. Data were collected from 20 districts except the Niligiris district in Tamil Nadu. Two way analysis of variance was applied to find out whether there was any significant difference between the district and age group in 12 minute run/walk performance. Norms were constructed for the different age group by using mean, standard deviation and Hull scale.

A total of 1064 men students and 460 women students studying in seven physical education colleges in Tamil Nadu were selected as the subjects for this study. AAHPERD Youth Fitness Test variables namely shoulder strength, abdominal strength, agility, power, speed and endurance were selected for norm construction separately for men and women. Mean, standard deviation and Hull scale were used as the statistical techniques to construct the norm.

The results of the study were as follows. Regarding the shoulder strength of men section 5.92 percent were found in outstanding category, 5.7 percent were in good category, 29.5 percent in above average category, 41.73 percent in average category, 13.53 percent in below average category and 3.6 percent

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32 . Athicha Pillai, *Computation of Norms for 12 Minutes Run and Walk Among School Boys.* Unpublished Ph D Thesis, Alagappa University, Karaikudi, 1991.

in failing category. In the women section, 6.3 percent, 10.4 percent, 21.1 percent, 53.3 percent, 8.9 percent and zero percent were found in the above respective category.

Regarding abdominal strength of men section 4.6 percent were found in outstanding category, 7.42 percent in good category, 38.6 percent in above average category, 3.9 percent in average category, 13.9 percent in below average category, 2.44 percent in failing category. In the women section, 3.7 percent, 9.3 percent, 38.5 percent, 34. 8 percent 6.96 percent, 6.7 percent were found in the above respective category. Regarding the agility of the men section 2.3 percent were found in outstanding category, 8.1 percent in good category, 4.3 percent in above average category, 33.1 percent in average category, 11.94 percent in below average category and 4.3 percent in failing category. In the women section, 7 percent, 51.7 percent, 33.9 percent, 5.2 percent and 2.2 percent were found in the above respective category. Regarding power of the men section, 3.8 percent were found in the outstanding category, 8.8 percent in good category, 35 percent in above average category, 41.8 percent in average category, 7.6 percent in below average category, and 2.5 percent in the failing category. In the women section, 5.2 percent, 7.6 percent, 38 percent, 36.3

percent, 9.3 percent and 3.5 percent were found in the above respective categories.

Regarding speed of the men section, 1.1 percent were found in outstanding category, 4.6 percent in good category, 41.1 percent in the above average category, 43.2 percent in the average category, 6.95 percent in the below average category, 3.01 percent in the failing category . In the women section, 0.6 percent, 5 percent, 49.3 percent, 32.4 percent, 6.7 percent, and 5.9 percent, were found in the above respective categories.

Regarding the endurance of the men section, 1.5 percent were found in the outstanding category, 4.6 percent in the good category, 49 percent in the above average category, 33.3 percent in the average category, 8.2 percent in the below average category and 3.5 percent in the failing category. In the women section, 0 percent, 2.17 percent, 90.4 percent, 6.7 percent, 0.21 percent and 0.4 percent were found in the above respective categories.

Senthil kumar[33] conducted a study on the construction of norms for health related physical fitness test for Kanyakumari, Thirunelveli, Chidambaranar and Madras district school boys. Two

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[33] . Senthilkumar, *Construction of norms for health related Physical Fitness for Kanyakumari, Thirunelveli, Chidambaram and Madras District School boys.* Unpublished M.Phil. Thesis, Alagappa University, July 1990.

thousand and eleven students in the age group of 13 to 14 years were selected as the subject for this study. For nine minute run/walk, 298 were poor, 457 were fair, 482 were average, 432 were good, 2120 were very good and 112 were excellent. For sit-ups 313 were poor 372 were fair 533 were average, 458 were good and 270 were very good and 65 were excellent.

Jayaveera Pandiyan[34] conducted a study on norm construction for health-related fitness test for high school boys in Madurai Kamaraj, Ramnad and Coimbatore districts. Two thousand boys from the above districts were selected randomly. The following variables were selected for the study nine minutes, run, sit ups, triceps and subscapular, skinfold and sit and reach. Mean, standard deviation and hull scale were the statistical method used for this study. In nine minutes run 251 subjects were very poor, 348 subjects were poor and 203 were good.

According to Loony and Phowman[35] study was to determine the percentage of 6-18 years old students who passed the fitness gram criterion scores for present body fat, body mass index, mile

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[34] . Jayaveera Pandiyan, *Construction of Norms for Health Related Physical Fitness Tst for High School Boys in Madurai Makaraj University, Ramnad and Coimbatore districts.* Unpublished M.Phil. Thesis, Alagappa University, July, 1990.

[35] . Marifyn A. Loony and Sharon A. Phowman, “Passing Rates of American Children and Youth on the Fitnessgram Criterian Referenced Physical Fitness Standards,” *Research Quarterly*, 61:3, September (1990) 215-223.

run, sit ups, pull pups and sit and reach and to suggest an illustrated, uninstructed, mastery non-mastery technique for the validation of criterion referenced cut off scores. The data base consists of the National children and youth fitness studies; first and second rational probability samples of students. Results showed that the most frequently paired item was the sit and reach, followed by the two body composition item the mile run, sit ups and finally the pull ups. The results shows that approximately 75% of the boys and 50% of the girls would have earned “I am fit” awarded. The study was evaluated by the National children and youth fitness studies modified pull ups test for use in grade k-6. The first objective was to determine the reliability of test. The second was to determine how the scores relate to the subjects’ body weight. More recently AAHPERD physical test included pull-ups and the flexed arm hand and the national children and youth fitness study second includes a modified pull-ups test for both boys and girls. ANOVA was used to determine the interclass reliability of the modified pull ups test. They pointed out that performance scored are markedly unfounded by body weight as many as 25 percent of 10 to 11 years old boys cannot perform one pull up to 15 percent of girls are unable to hang for one’s.

Holding[36] and Jackson conducted a study on physical fitness. The norm referenced standards were developed from scores of over 15000 men and women who were tested a different young men Christian association throughout United States scores associated with selected percentile. A maximal up to 50 ml/kg feel in the ninth fifth, percentile for men in the age group of 35 years and below. This means that of all men tested who were thirty five years and younger, ninety five percentage had a score of 54 ml/kg minimum or lower and only five percentage had a score higher than 54 ml/kg minimum. The result of the study revealed that the agility, cardiovascular endurance and power correlated significantly, obtained value 0.7, 0.55 and 0.52 respectively, whereas speed did not show relationship to performance (obtained value is 0.08).

Yadav[37] conducted a study on standardization of physical fitness norms for the school children of Haryana (13–17 years of age) with the purpose of estimating the fitness and comparing the standard of physical fitness of urban and rural boys of Haryana. For the purpose of the study 3600 school boys from the 12 districts of Haryana were randomly selected and the performance of the boys

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[36] . Leurence A. Holding and Andrew S Jackson, "New National Norms," Y Way Physical Fitness, *Journal of Physical Education*, 78:8, (November-December, 1988), 44-45.

[37] . Bhup Singh Yadav, *Standardization of Physical Fitness Norms of School Children of Haryana (13 to 16 years of age),* Unpublished Ph.D Thesis, Kurukshetra University, Kurukshetra 1986.

were recorded on 50 meter dash, shot –put, standing broad jump, zigzag run, sit ups, step up test. The norms in terms of percentile rank of said group were developed.

Singh[38] prepared physical fitness norms for high school boys of Punjab State. Data were collected in five thousand subjects from various school in the state. The test administered consisted of eight items i.e. Standing board jump, sit and reach test, agility run, knee bent, sit ups, 50 meter dash, push ups (chairs) cricket ball through and 600 mts walk. The percentile norms for physical fitness tests were found to be valid and suitable to assess the physical fitness level of high school boys of 12 to 15 years of age. The subjects were given practice in these items so that they were able to give the correct performance in each item. The assistants were properly oriented to record measurements accurately so that mistakes could be avoided. Test items were administered to the subjects on two days, three items each day. After a day's rest the same students were tested again for establishing the reliability. The value or 'r' obtained was 0.87 which showed that the subjects have achieved consistency of performance in the test items. The data were collected during forenoon session. Norms were computed for the

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[38] . Reet Mohinder Singh, *Physical Fitness Norm for Punjab High School Boys.* Unpublished Doctoral Thesis, Chandigarh: Punjab University, 1986.

six physical fitness items. The norms used for classifying children into ability groups by observing their physical fitness.

Ajmer[39] constructed physical fitness norms four thousand male students belonging to pre-university classes of Punjab University, Chandigarh. Fleishman's Physical fitness Battery was administered on them. The three scales namely Percentile scale, Hull scale, and T-scale were prepared. It was also concluded that physical fitness improved linearly with age and the students belonging to rural areas were significantly superior in their performance when compared to the students of urban areas.

Steven et al[40] conducted a study on health-related physical fitness in young children and defined the results of this study were important because they provided much need, new information about health related physical fitness in young children. The data presented here suggested strongly that physical education programmes out of school activity, habits, and parental activity habits has a significant impact an cardio respiratory endurance and body composition because of the participants in this study were drawn as a random

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39 . Ajmer Singh, *Normative Study of Physical Fitness of Punjab University Men Students.* Unpublished Doctoral Thesis, Punjab University, Chandigarh, 1986.

40 . Steven N. Blair, Harold Falls and Russell R. Pate, "A New Physical Fitness Test. "*The Physician and Sports Medicine*, 11:4 (April 1983), p.83.

sample the findings can be extended to the population of American third and fourth graders.

The Vermont Governors Council on Physical Fitness[41] had provided a motor fitness test battery for students from kindergarten to grade twelve for use by the schools in the state. To keep school level intact and is utilized the AAHPERD battery when applicable, the modified tests were recommended for the elementary school and AAPHERD test battery compose standing board jump, bent knee, sit-ups, desk push ups and a figure of 8 run are optional for secondary school boys and girls in order to enter achievements for special Vermont fitness awards. Norms for the test item were available separately for boys and girls at each age for five to eighteen years. They take the form of performance required for four award levels, known as certificate, 30th percentile, standard 50th percentile, merit 80 percentile, governor 85th percentile.

Leshkevitch[42] and others studied the influence of sequence of exercises in training undertakings in the development of physical foundations; speed, strength and endurance in young sportsmen.

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41 . R.E. Sparks (ed). *Vermont School Fitness Test Manual* Montelior: Governor's Council on Physical Fitness, 1982.

42 . C.C. Leshkevitch et al., 'The Influence of Sequence of Exercise in Training Undertaking in the Development of the Physiological Foundations of Speed Strength and Endurance of Youth Sportsmen.' *Research Quarterly,* 83:2 (October 1982), p.500.

Three groups of boys 12-14 years were given physical training for four times a week for 3 months to determine the effect of sequence of exercises. The observed changes were noted in speed, strength and endurance.

Elnashar[43] conducted a study on 399 males and 311 females aged 9-18 years enrolled in physical education classes in Fayoum, Egypt and were evaluated using the 6 items AAHPER Youth Fitness test comparison of 50% with American norms revealed that Egyptian Sample was substantially below average fitness on both sexes across all age groups. Only pull ups in males and flexed arm in females in the early age groups were above the American standard. Comparison between males and females revealed males significance superior across all ages even when age, height and weight were held constant by ANOVA. An eight week physical fitness programmes produced significant improvement in all tests in both sexes.

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[43] . Add M. Elnashar, "A Study of AAHPER Youth Fitness Test Results for Egyptian Males and Females, *Completed Research in Health Physical Education and Recreations* 24 (1982): 58.

Young[44] administered AAHPER fitness test, Tennessee self concept, scale and questionnaire concerning academic achievement, estimation and perception to grade seventh and ninth boys and girls, in his study on relationship amongst achievement, physical fitness and self concepts, significant correlation were reported between various sub scales and dependent variables. A significant 0.05 relationship between self concept and physical fitness was indicated for 7^{th} grade boys (r=.41) but not for girls of ninth grade.

Sitmann[45] conducted a study to develop norms for North East Missouri State University students enrolled in the health and physical fitness concept classes. 372 male and 648 female subjects were tested for the sum of 6 skin folds, predicted % fat, predicted V_{02} max, grip strength, leg strength, back strength, vertical jump distance and vertical jump power. Mean, standard deviation and range for all variables were calculated. Classification was based on sex, percentiles increments of 5 were constructed for each variables in each classification.

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44 . Mary L. Young, "Physical Fitness Estimation of Fitness and Physical Ability and Self Concept," *Abstracts of Research papers, AAHPER Convention Boston* (1981), p.152.

45 . Lucinda E. Sitmann, "Physical Fitness Norms for North East Misouri State University Students"*Completed Research in Health, Physical Education and Recreation* 23 (1981), 182.

In 1957 the AAHPER Youth Fitness Test was proposed and percentile norms were established from a national sample of school children in grades four to twelve[46] in 1965 and 1976. American samples were again tested and normative comparisons of the different year were made. The result revealed that, the children made substantial improvement in motor fitness between 1957 and 1965, but remained almost the same between 1965 and 1976.

The Presidents Council of Physical Fitness and Sports is to promote physical fitness and sports. This group recommends the Youth Fitness Test (AAHPER) as the most effective physical fitness test battery for public school. The youth fitness test which includes health related and Athletic performance related fitness items based test results. Information and award obtained from the AAHPERD fitness gram is a programme designed to measure physical fitness. Either Youth Fitness test of health related physical fitness may be used for public school students. Availability of consultant to help selected districts programme large computer systems to produce the cards and statistical analysis locally.[47]

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46 . A.M. Moorthy, "AAHPER Youth Fitness Test for Norms,: American Alliance for Health Education, *Recreation and Dance,* (Washington: AAHPER, 1981), p. 10.

47 . Margret J. Safrit, *Introduction to Measurement in Physical Education and Exercise Science*,1980, p. 249.

The Central Board of Secondary Education[48] took the lead in introducing physical education as an academic subject at school level. The board appointed a committee with S.D.Chopade as the Chairman to frame a curriculum on physical education. It was also suggested to frame a standard norm which enables to compare the standard of students' performance. Later it was introduced as a required common subject for a junior secondary (ninth and tenth classes) and senior secondary education (eleventh and twelfth classes). In the syllabi and courses (1980) for secondary school examination physical fitness play an important role in the curricula of physical education, in addition to the various objectives of physical education. The physical fitness could be realized only through physical education activities. There are no special periods allotted for physical fitness in the syllabus of the central board of secondary education. It is expected that the students would develop a certain amount of physical fitness through participation in other physical education activities. However, there is provision for assessing physical fitness. In the scheme of examination, a student is permitted to sit for examination at the end of class ten only. If he has obtained Grade Four (fair in health and physical education). Maximum of seventy five marks are allotted for physical education.

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[48] . Central Board of Secondary Education, *Syllabi and Courses for Secondary School Examination*. New Delhi: Central Board of Education, 1980: 118.

Twenty marks are allotted for theory and fifty five marks for practical, out of which ten marks are for fitness. The battery A of National Physical Efficiency Drive has been adopted as the standard test for evaluating physical fitness in classes ninth and tenth in the schools under the local norms. The battery A is an adhoc norm. Therefore a computed norm on the basis of performance of comparable student group is needed. Though the scheme of required physical education got implemented over a number of years. Yet no state board of Education has taken up any research works for preparing suitable norms.

Roche[49] examined the performance of 2811 boys and girls aged 7 to 17 in a minute run/walk test for students aged 7 to 17 and a 12 minute run/walk test for students aged 11 to 17. Scores from this test were percentile ranked according to age and sex, and were presented for use as a field test of running endurance.

Das[50] conducted a study of norms in physical fitness tests for boys of class 9-11 of government schools of Delhi with the purpose of computing a norm for evaluating performance in physical fitness as required in the curriculum for the required programme of physical

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49 . D. Paul Roche, 'Development of Norms for Run/Walk Tests for Children Aged 7 to 17, *AAHPER Journals*, 46:6 (1980), p.6.

50 . Tapan Kumar Das, *Norms in Physical Fitness Tests for Boys of Classes IX-VI of the Government School of Delhi Administration*, Unpublished Master's Thesis, Jiwaji University, Gwalior, 1980.

education. AAHPER Youth Fitness Test and NPED Battery 'A' were administered and norms were worked out. A comparison of obtained date with American students shows that Indian students seems to be poor in abdominal strength and shoulder girdle strength.

Australian Council of Health, Physical Education and Recreation[51] had constructed the survey throughout Australian to ascertain the current levels of fitness, health and physical performance of school children between the ages of seven and fifteen years. The results were used to establish sex and age norms for a cross section of the school based population. Information gathered was intended to aid future planning and evaluation of school physical education programmes. The physical performance tests would provide the basis for a fitness scheme to be introduced for school children.

Robson[52] and others conducted a study on a simple physical fitness test battery for elementary school children. 152 boys and 150 girls of Kendriya Vidyalaya, Gwalior, studying from grades one through five acted as the subjects. All the subjects and the assistants were oriented to the test battery comprising 1750 m

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51 . *The Management Committee VII Curl on Sport, Physical Education Dance, Recreation and Health Trend and Development in Physical Education.* New York: University Press, 1980, p. 372.

52 . Robson et al. Á Simple Physical Fitness Test Battery for Elementary School Children," *SNIPES Journal*, 1:2 (April 1978):29.

dash, 600 m run and walk, straight leg strides, vertical jump, 4 x 10 m shuttle run and modified push ups. The subjects were given practice in these items so that they were able to give the correct performance in each item. The assistants were properly oriented to record measurements accurately so that mistakes could be avoided. The tests were administered to the subjects on two days allotting three items each day. After a day's rest, the test items were administered again to the same students. On the fourth and fifth day, for finding out the reliability, the value of 'r' obtained was 0.87 which revealed that the subjects had achieved consistency of performance in the test items. The readings were taken during forenoon session. Norms were computed for the six physical fitness test items. The norms can be used for classifying the children into ability groups by assessing their physical fitness.

Zuti and Corbon[53] conducted a research on physical fitness norms for college freshmen. They took 3,000 freshmen from Kansas State University within the age from 17.6 to 19.5 years. The tests were conducted for strength, flexibility, body composition, and cardio-vascular fitness. The results appear to indicate that the college freshmen at Kansas State University were above average and the standards were appropriate for use at national level.

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[53] . William B. Zuti and Charbein B. Corbin, "Physical Fitness Norms for College Freshman," *Research Quarterly*, 48 (May, 1977), p.499.

Beckford[54] conducted a study to evaluate the Physical Fitness level of Navoha girls who were 14 to 16 years old. AAHPER youth fitness test was administered on the subjects selected from 7 schools of the region to measure the physical fitness level. It was also established on the basis of scores obtained from test result from these schools. These norms were compared to National norms found in the manual accompanying the AAHPER Youth Fitness Test. The result of the study gave an indication of the overall fitness level of 14, 15 and 16 years old Navajo girls of seven test items. The Navajo norms were below the National norms on 5 times and above on the soft ball throw and 600 yard run/walk.

Patrick[55] had constructed a motor fitness test battery for girls in lower elementary grades. The items included in this test were Clarke's strength composite, McCloy's endurance ratio, leg extension and flexion well's sit and reach dodging run, Bass length wire stick balance and vertical jump. It measured the essential components of motor fitness such as muscular strength, muscular

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54 . Patricin A Beckford, "A Normative Study of the Physical Fitness of 14, 15 and 16 years Old Novajo Girls using Youth Fitness Test," *Completed Research in Health, Physical Education and Recreation*, 14 (1976), p. 159.

55 . Cobb Ross Patrick, *The Construction of a Motor Fitness Test Battery for Girls in Lower Elementary Grades*. *Dissertation Abstracts International*, 33 (Nov. 1972).

endurance, cardio vascular endurance, flexibility, agility balance and power.

In order to find out the ability to hit the irons in Golf, Doyice Cotton and Jerry Thomas[56] constructed a norm based on the source of seventy students. The Mean, Standard Deviation and Hull scale value of the scores were found and using the same, the percentile scale was calculated. The achievement scale they constructed was as follows.

No. Seven iron test	Performance Level	Total of All four Irons
25	Advanced	94
20	Adv. Intermediate	76
15	Intermediate	58
10	Adv. Beginner	40
5	Beginner	22

Barrow and Mcgree[57] have reported that Grover constructed a Physical Fitness Test Battery for boys and girls for primary grade children. The items included in this test were standing broad jump (to measure power and leg strength), shuttle run (to measure leg

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[56] . Cotton, Doyice J., Jerry R, Thomas and Thomas Plaster. "A *Plastic Ball Test for Golf Iron Skill.* Paper presented at AAHPER National Convention, Houston, Texas, March 24, 1972.

[57] .Harold M.Barrow and Rose Mcgree, *Practical Approach to Measurement in Physical Education*. Philadelphia; Lea and Febiger, 1971, pp.228-229.

strength, speed, endurance and agility). The test measured the essential components of motor qualities of primary grade children. The norms were prepared for the four items and were also used for classifying the children into ability groups by assessing their physical fitness.

Rasmussen[58] conducted on south Dokota high school association activities for this study. One school was selected to represent each region or section. The number of subjects selected from each school was in proportion to the school enrolment. The AAHPER Youth Fitness test was administered to 1000 south Dokota School boys in grades 7 through 10. Norms were established by computing every fifth percentile. The scores of South Dokota boys were compared with these of national boys only on age. He found that the medium scores of South Dokota boys at all age were higher than those for national boys on all items except the pull ups, the shuttle run and the 50 yard dash.

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[58] . Glen L.Rasmussen,, "A Normative Study of AAHPER Youth Fitness Test for Boys in Grades Seventh Through Tenth in the State of South – Dakota," *Completed Research in Health Physical Education and Research*, 1 (1970), 207.

Busch[59] conducted a study on South Dakota high school girls. One school was selected to represent each region. The selection and the number of students selected from each school was in proportion to the school enrolment. 1000 South Dakota girls were selected as subjects from all the high schools from grade 7 through 10 AAPHER Youth Fitness Test was administered. Norms were established by computing every fifth percentile. The scores of South Dakota girls were higher than those for national girls in all items except fixed arm hang.

To measure the ability to serve high and deep to the rear of the court in Badminton, Poole, James and Nelson[60] constructed a norm based on a limited number of beginner course students. The achievement scale he constructed was as follows.

Preliminary skill level	**Performance Level**	**Final Skill Test**
16 & above	Advanced	22 & above
9 – 15	Intermediate	11 – 21
0 – 8	Beginner	0 – 10

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59 . Judy G. Busch, "A Normative Study of AAHPER Youth Fitness Test in Grades Seven Through Ten in the State of South Dokota," *Completed Research in Health, Physical Education and Recreation,* XII (1970), 201.

60 . Poole, James and Jack Nelson. *Construction of a Badminton Skills Test Battery*. Unpublished study, Louisiana State University, 1970.

For the AAHPER volleyball test which was designed to measure the fundamental skills (volleying, serving, passing and set ups) in volleyball, Shay (2)[61] constructed a test norm based on the performance scores of students. The percentile scales for all the five skills are constructed using Mean, Standard Deviation and Hull scale of the scores.

A norm was constructed for Hewitt's[62] Tennis achievement test which designed for measuring the service and forehand and back hand drives based on the performance scores of a limited number of beginning students. The Mean , Standard Deviation and Hull scale value of the scores were found and using the same, the Percentile scale was constructed. The achievement scale (based on percentile scale) constructed was as follows.

College Men	***Performance level***	***College women***
20 - 60	Advanced	14 - 60
16 - 19	Advanced Intermediate	10 - 13
7 - 15	Inter mediate	4 - 9
3 - 6	Advanced Beginners	1 - 3
0 - 2	Beginners	0

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61 . Clayton Shay, *AAHPER Skill Test Manual: Volleyball.* Washington DC: American Alliance for Health Physical Education and Recreation, 1969.

62 . Hewitt's Tennis Achievement Test " Research Quarterly 39 : 552-555, Oct.1968.

To measure the ability to pass and recover the ball accurately, while moving or playing in Basketball, Nelson[63] Louisiana State University (LSU) constructed a test norm based on a limited number of college men and college women.

As a part of measuring the skill in shooting at the standard 48 inch target from different distances for boys and girls between 12 and 18 years of age, Brace[64] constructed a test norm based on the performance of subjects. The Mean, Standard Deviation and Hull scale value of the scores were found and Percentile scales were calculated.

Thomas[65] states that the Madras Physical Efficiency Test was constructed for secondary school boys. The physical ability of boys was assessed in five item tests comprising basic natural activities like 1) climbing, 2) jumping, 3 running, 4) running long jump, 5) running high jump 6) 100 metres run and throwing cricket ball for distance.

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63 . Nelson Jack K. *The Measurement of Shooting and Passing Skills in Basketball.* Unpublished Study, Louisiana University, 1967.

64 . David Brace, AAHPER *Skills Test Manual ; Archery.* Washington DC: American Alliance for Health Physical Education and Recreation , 1967

65 . J.P. Thomas, *Organisation of Physical Education.* Madras: Gnanodaya Press, 1967, pp.160-161.

Only medically fit students were allowed to take part. Students were graded class I, class II and class III in each events and consolidated grading was given under “All round efficiency.”

He further adds that Bombay Achievement test prepared by Joseph was a very progressive type of test. The tests were conducted in 50 yard dash for elementary and sub juniors 75 yards run for seniors, jump and reach (vertical jump test) ball throw for distance, pull ups and running broad jump. Marks were allotted separately for each part. (a) achievement tests, (b) tests in physical activities and (c) attendance. The performances were converted into points by using a scoring table by him.

He also stated about Bengal athletic test which was conducted to assess physical efficiency of the high school students in each district by the district organizer of physical education. The successful candidates were awarded certificates of merit.

Events of the Tests are:

100 yards	13.4 sec.
50 yards	7 seconds or less
880 yards	3 min. and 30 sec.
Running high jump	4 ft.
Running broad jump	14 ft.
Press ups	8 times
Pull ups	5 times.

Coutts[66] conducted a study to establish norms for the Coopers 12 minute run/walk test applicable to young males. Eighty boys of 11 to 14 years of age served as the subjects. The difference between the two groups was statistically (P.01). The correlation coefficient between aerobic capacity and run/walk performance was 0.65 while the correlation was statistically, significant (P.01). Caution was advised in attempting to predict aerobic capacity from run/walk performance with youth urban subjects.

A comparative study on physical fitness among normal boys and mentally retarded boys was conducted by Sengstock[67] Thirty educable mentally retarded boys were matched with thirty normal boys of comparable chronological age and another group of thirty boys of comparable mental age. All groups took AAHPER youth fitness test battery. In analyzing the group test scores, it was found that mean performance of mentally retarded boys were almost midway between the mean performance of the two normal groups.

Tillman[68] in his study employed 386 high school junior and senior boys and administered a physical fitness test. The boys who

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66 . Kenneth D. Coutts, "Application of Cooper's 12 minute Run/Walk Test to Young Males," *Research in Health Physical Education and Recreation*, (8: 1966).

67 . Wayne L. Sengstock, "Physical fitness of Mentally Retarded Boys," *Research Quarterly*, 37: 1 (March 1966), 113.

68 . Kenneth Tillman, "Relationship between Physical Fitness and Selected Personality Traits." *Research Quarterly*, 36: 6 (December 1965) 430-448.

finished in the upper fifteen per cent on the test were compared by the use of a battery of three personalities with the boys who were in the lower fifteen per cent. Significant personality differences were found in the second phase of his study. The low physical fitness group was divided into a control and an experimental group. A nine-month physical fitness programme for the experimental group resulted in a significant gain in physical fitness.

Cray[69] conducted three fitness tests; push ups, sit ups and pull ups for four separate days to elementary and junior high school boys to determine relative reliabilities of using a single trial, better of two trials and average of two trials. A trend analysis of data revealed significant improvement during the four trials, scores increased significantly from trial to trial on push ups. Neither the better of two trials nor the average of two trials was found to be anymore reliable than a single total.

AAHPER[70] constructed a test norm for measuring the fundamental football skills which comprise of ten basic skills; namely forward pass for accuracy, fifty yard dash with football, blocking, forward pass for accuracy, football punt for distance, ball changing

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69 . Lynn W. McCray, "Reliability of Fitness Strength Tests," *Research Quarterly*,36:3 (October 1965), p. 289.

70 . AAHPER, *Skills Test Manual: Football, David K Brace, Test Consultant.* Washington DC. American Alliance for Health Physical Education and Recreation, 1965.

zigzag run, catching the forward pass, pull out, kick off and dodging run. From the collected data, Mean and Standard Deviation were calculated. Using Hull scale, percentile scale were created by adding and subtracting the Hull scale value from the Mean value.

Fabricus[71] contrasted the physical fitness development of fourth grade boys and girls who participated in a regular elementary school physical education curriculum with those who participated in a regular elementary school physical education curriculum with the addition of selected calisthenics in this study. Physical fitness was measured by the Oregon motor fitness tests, in each class, a period of three minutes and nine seconds were spent on the added calisthenics. The classes met four times a week. Results showed that both groups improved significantly in physical fitness in six months. The experimental group having the added calisthenics improved significantly more than the control group.

Wolf[72] administered AAHPER Youth Fitness test to a sample of fifty six boys including 20 athletes and 36 non athletes in September 1960, the regular programme of physical education was

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71 . Helen Fabricus, "Effect of Added Calisthenics on the Physical Fitness of Fourth Grade Boys and Girls,: *Research Quarterly*, 35:2 (May 1964), 135.

72 . J.G. Wolf, "The Effect of Accelerated Physical Conditioning Programme on Athletes and Non Athletes at Saint Edward High School," *Completed Research in Health Physical Education and Recreation*, 5 (1963), 98.

given to all classes until the first week of 1961. The test was again administered after which classes were exposed to an acceleration programme of conducting (running and Calisthenics). The test was repeated in the first week of May 1961. Significant increase was noted in both the groups as a result of accelerated conditioning programme in pull ups perhaps and 600 yards run and walk. The run Athletic group showed significant improvement form accelerated programme in all events except standing broad jump.

Roy[73] selected 60 subjects each on random basis from tribal group and non-tribal group. All subjects were day scholars living with their parents. Their age ranged from 14 to 18 years. AAHPER Youth Fitness Test battery was administered to obtain the physical fitness status of all subjects. He concluded that there was no significant difference between tribal and non tribal students.

Frank[74] conducted a research study on some physical fitness components and sports skills of rural, urban and parochial school background. He examined the effects of different elementary school experiences upon achievement in certain aspects of physical fitness and sports skills. He tested 85 grade 9th boys (27 with rural

[73] . Bijay Krishan Roy, "Comparison of Physical Fitness of Urban and Tribal Students in Tripura." *Research Quarterly*, 34 (1963) 170-171.

[74] . Siwert Frank, "A Comparison of Some Components of Physical Fitness and Sports Skills of 9th Grade Boys of Rural, Urban and Parochia School Background, *Completed Research, Health, Physical Education and Recreation* 5 (1963): 96.

background, 38 with urban backgrounds, and 20 with parochial school background) for speed, power, muscular endurance and skills in different games. The study of the total score showed that boys with rural, parochial and urban experiences did not differ in physical fitness but boys from urban and parochial schools were superior in sports skills.

Espenschade[75] tested 1600 California school children of 10 to 18 years, to determine the relationship between performance, age, height and weight. In this study she found changes in performance with age was seen both in boys and girls. Pull-ups and sit-ups had correlation coefficient of 0.31 and 0.19 respectively with age. Mean score of boys at each succeeding age was significantly superior to the preceding ages 10 to 17 in dash broad jump and throw; 10 to 13 years in sit ups and 12 to 27 years in pull ups. When the researcher repeated this study for a different sample, she found increased mean scores in broad jump, throw and pull-ups with age up to 18 years.

The AAPHER[76] youth fitness project represented the first attempt by the physical education profession established national

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75 . Annas Espenschade, 'Relationship Between Physical Performance of School Children and Age, Weight and Height." *Research Quarterly*, 34 (1963) 144-53.

76 . American Association of Health, Physical Education and Recreation, *Youth Fitness Test Manual*. Washington D.C., AAHPER, 1962.

norms. The test battery was originally developed in 1957 by a special committee of the AAPHER recreation council. The youth fitness test norms consist of six items for both boys and girls of age group 10 to 17 years. The norms were revised and made up-to-date to make more scientific after comparing the achievement of the youth Great Britain, Japan, etc. with the American Norms.

Mistkawi[77] prepared national norms for one minute basketball throw for goal, pull-ups, potato race, standing hop, step and jump, push-ups, standing broad jump and softball throw, items of the YMCA national athletic achievement programme. YMCAs throughout the United States tested 2000 boys in each age groups and the other obtained 5% of the score at the saleim YMCA origin.

Dorothy[78] evolved norms of physical fitness for college women from 57 colleges and data of 3300 subjects were collected for seven test items. In order to be constant with the already published norms for children, youth and college men percentile norms were calculated from 0 to 100 interval of 5.

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[77] . John J Mistkawi, "Norms of Eight, Nine and Ten Years Old Boys and YMCA Athletic Achievement Test." *Completed Research in Health, Physical Education and Recreation* 8 (1961):101.

[78] . Mohr. R. Dorothy, *Journal of Health, Physical Education and Recreation*, (28, 1960), p.28.

Barnam[79] studied the AAHPER Youth Fitness Test Battery and administered the test to 78 girls in grade VIII at Mitchell Junior High School. The girls were classified by the Neilson Cozens classification index and compared with national norms. The girls were above the average in sit ups, standing broad jump, 600 yards, run walk 50 yard dash and shuttle run but below in the soft ball throw and modified pull ups. The differences were attributed to their physical education programme.

AAHPER (American Association for Health Physical Education and Recreation)[80] constructed a test norm for both boys and girls in order to evaluate the Basketball playing ability

The All India Seminar on Physical Education Institutions[81] recommended the motor ability test as prescribed on the national plan to be conducted in schools all over the country to ascertain its validity and supply proper norms for various age groups. The seminar also recommended to achieve norms for Kraus Weber Test and the Canadian Fitness Tests.

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79 . Blanche Kramer, Barnam, A Study of Youth Fitness of English Grade Junior High School Girls of Mitchell, as Measured by AAHPER Youth Fitness Test, *Research Quarterly* (1960): 67.

80 . AAHPER, *Skills Test Manual Basketball for Boys, David K Brace, Test Consultant.* Washington DC. American Alliance for Health Physical Education and Recreation, 19660.

81 . Ministry of Education, Government of India, *Report of All India Seminars of Physical Education of Principals of Physical Education Institution.* New Delhi: Government of India Press, 1959.

In order to measure the ability to serve high and deep to the court in Badminton, Scott and French (1)[82] constructed a Long serve Test, for High school to College students (both sexes) with a validity score 0.54 and a reliability coefficient 0.77. They constructed Norms for college men and women students based on the scores of 70 beginning male students and 91 beginning college female students. The Mean, and Standard deviation of the scores were found and using Hull scale, the percentile scores were calculated. The Achievement scale using the percentile scale they constructed were as follows.

College men	**Performance level**	**College women**
39 and above	Advanced	33 and above
31 – 38	Advanced Intermediate	26 - 31
22 - 30	Intermediate	14 - 25
17 - 21	Advanced beginners	9 - 13
0 - 16	Beginners	0 - 8

A National plan of physical Education and Recreation[83] was prepared by the Central Advisory Board of Physical Education and Recreation. It suggested the following Physical efficiency test items

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82 . Scott, M Gladys, and Ester French, "Measurement and Evaluation in Physical Education, (Dubuque, Iowa: Wm .C. Brown Company Publishers, 1959) Chapter VI.

83 . Ministry of Education, Government of India, *A National Plan of Physical Education and Recreation.* New Delhi: Government of India Press, 1956, p.24.

for boys and girls of the age group 10 to 17 years. Based on the performance of students a standardized norm was constructed to compare the performance of students.

Boys - Age group 10 to 12.

Test items:

1) 50 mts. Run 2) High jum.

3) Long jump 4) Cricket ball throw.

Boys – Age Group 13 to 17

Test items

1) 100 mts. Run 2) High Jump

2) Long jump 4) Cricket ball throw

5) Chin ups, Dands and Baithaks.

Girls - Age group 10 to 12

Test items

1) 50 mtrs. Run 2) Skipping 30 sec

3) Ball bouncing – 30 sec. 4) Cricket ball throw

5) Sit ups – 30 secs.

Girls – Age Group 13 to 17

Test items

1) 100 mtrs. Run 2) Long jump

2) Cricket ball throw 4) Sit-ups (1 minute)

For evaluating the accuracy of placement and ability in the low, short serve in Badminton Esther French and Luis Kuhl[84] constructed a Norm based on the performance of 385 college women.

[84] . Scott, M Gladys, Aileen Carpenter, Esther French and Luis Kuhl. "Achievement Examinations in Badminton." *Research Quarterly*, 12: 242-53, May 1941.

Chapter III

METHODOLOGY

Chapter III

METHODOLOGY

Soccer is a team game which demands high output of individual's skill techniques, physical and psychological efficiency along with anthropometric structure and development. The plenitude in performance of a soccer player is highly related to these qualities. Apart from the above mentioned factors, there are various other factors which influence the performance of a player in soccer. Among all, it is the 'skill' of a player which makes him 'outstanding'. It is because of these skill, a player like Mara Dona who came from the quagmire streets of Argentina with a podgy contour could conquer the world and become the primus with his charismatic performance. The solo goals of Mara Dona and Syed Ovarian in the 1986 and 1994 World Cups respectively were the classical examples of their cognoscente abilities in soccer skills. According to Singh[1] "The performance of a sports person is significantly affected by the skill with which these actions or movements are executed by a sports person. It is highly erroneous to think that

[1] . Hardayal Singh, *Science of Sports Training*. New Delhi: D.V.S. Publications, 1997, pp.15–16.

sports performance is determined exclusively by the physique and physical qualities."

Worthington[2] also points out the importance of skill on performance. "To play soccer at any level, we need a fair measure of a number of attributes – speed, strength, stamina, judgment, courage, agility tactical ability and so on – but above all, you need the basic skill."

The investigator hence concentrated in this area and opted to conduct the research so as to construct norms for skill techniques of men university soccer players.

Design of the Study

The researcher in this study attempted to construct norms for the fundamental skill techniques for university men soccer players between the age group of 18 and 25 using single group normative design. Accordingly, the procedure adopted for the Selection of Subjects, Selection of Variables, Criterion Measure, Reliability of Data, Instrument Reliability, Tester Competency, Subject Reliability, Orientation of Subjects, Collection of Data and Statistical

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[2] . Eric Worthington, *Teaching Soccer.* Edinbourough: Henry Kempton, p.1.

Techniques employed to analyze the data, are described in this chapter.

Selection of Subjects

The study was designed to construct norms for University men soccer players who represented their respective teams which participated in the Inter University Football championships from the year 2001 to 2007. Hence players from the universities of South India who fulfill these conditions were selected for the study. The upper age group of players has been limited to 25 years.

The data were collected from 720 university soccer players from various universities of South India on the chosen variables viz (a) Goal kicking for accuracy (b) Ground passing for accuracy (c) Air passing for accuracy (d) Slalom dribble (e) Juggling–1 (f) Juggling–2.

Selection of Variables

The research scholar in this study selected certain fundamental skills which were considered as the essential skill components for the game of soccer. In this regard, the investigator reviewed the available scientific literature pertaining to the game of soccer from periodicals, journals, magazines, research papers, books and internet. On the basis of discussion with experts regarding the feasibility criteria, availability of instruments,

equipment and related literature, relevance of the variables to the present study, it was found that Kuhn's soccer test battery is the suitable tool for the collection of data. Hence, the components come under the test are selected for the study which are as follows.

1. Kicking
2. Passing
3. Dribbling
4. Ball Control

Kicking

Soccer is a running and kicking game, and kicking is one of the fundamental skills to be mastered by every soccer player. The type of kicking differs from situation to situation and hence the mastery over all types of kicks is highly essential to deliver a top class performance. Kicking is essential to different aspects of the game such as clearing the ball, scoring the goal, distribution of the ball etcetera. Taking into consideration the above importance of kicking, the investigator selected kicking as a variable.

Dribbling

Dribbling is the ability to propel the ball from one place to another without loosing control. In modern football, once versus

one situation occurs frequently and to overcome the same, controlled dribbling is very essential. Dribbling is highly helpful in the following ways.

(i) To advance to the target through the open space

(ii) When there is no other teammate to receive the pass

(iii) To maintain the ball possession and to hold the time

(iv) To beat the opponents mainly in one versus one situation

Taking into consideration of the above importance of dribbling, the investigator selected dribbling as a variable.

Passing

Passing is the vital core of football. To pass ball to an apt player at right time is one of the most important qualities of a soccer player. Passing is the life blood of a football team, the link between its components, the only collective means a side has of achieving a common goal and it is the yardstick of a good team to prove how well they find each other, even under pressure. Though passing is basically kicking, it is somewhat different from a mere kick. Passing involves an understanding of the problems of receiving the ball as well as mastering the techniques of kicking it. A pass does not just involve the player making it but also the player

receiving it. The quality of a pass is not measured by the way it is struck; it is measured by the ease with which the receiver can control it or lay it off first time.

The investigator after going through the various aspects of passing, opted it as one of the variables to gather data.

Ball Control

Ball control is one among the highly essential qualities of a good soccer player. Ball control is the mother of fundamental skills. Ball control mainly refers to the reception of the moving ball and diverting it to a successful pathway without killing it. Players with good ball control and intelligence are always assets to every team. A successful team reflects control over the ball in every movement of the game while the players executing different skills. Good ball sense and control definitely give an overall control of the game itself, which in turn leads to success. Because of the above qualities, the investigator opted 'ball control' as a variable.

Reliability of the Data

The reliability of the data was ensured by establishing the instrument reliability, tester's competency, reliability of the test and the subject reliability .

Instrument Reliability

The stop watches and the measuring tapes used for tests were considered reliable as they were procured from reputed firms and were on use for research purpose. Further, these instruments had been calibrated in standard units.

To determine the reliability of instruments, the measurements on each of the variable were recorded five times under similar conditions using the same instrument and scores obtained were the same. Also, the scores were compared with other scores taken from the instruments procured from other reputed firms. Thus, they were considered reliable and precise for the purpose of this study.

Tester's Competency

The tester's competency was assessed together with the reliability of the tests. For this purpose, the performance of ten subjects were selected at random and all the variables were recorded twice under identical condition by the investigator on two different occasions. This was done by the test-retest method on consecutive days. The scores thus obtained for each variable by test-retest method were correlated using Pearson's Product Moment Correlation as suggested Garrett. The coefficient of correlation is presented in Table 1.

TABLE 1

TABLE SHOWING THE COEFFICIENT OF CORRELATION OF VARIABLES

Sl No	Variables	Coefficient of Correlation
1	Goal Kicking	0.94
2	Ground Passing	0.95
3	Air Passing	0.88
4	Dribbling	0.89
5	Juggling -1	0.93
6	Juggling –2	0.87

Table value at 0.05 level = 0.665

df = 8

Since the obtained correlation values were more than the tabulated value or 'r', the tests were considered reliable at 0.05 level of confidence.

Subject Reliability

The test-retest coefficient of correlation shown above may be taken as the subject reliability because the same subjects were used under similar conditions by the same tester. No motivational techniques were used at the time of testing.

Orientation of Subjects

The subjects were assembled prior to the test. The purpose of the test and testing procedures were explained in detail to the subjects to ensure proper understanding and effective co-operation and thus to obtain accurate and reliable data. The researcher himself demonstrated each and every step of the test and cleared the doubts of the subjects.

Collection of Data

The data for the said variables (Goal Kicking, Ground Passing, Air Passing, Slalom Dribble, Juggling-1, and Juggling-2) to construct norms were collected by administering the appropriate standard tests. The procedure for administering the test is explained below. Before administering the test, the purpose and procedure were explained to the subjects in detail. The variables of Kuhn's soccer test were used for the collection of data. They are given in detail as follows.

(1) Goal kicking for accuracy with preferred foot

Purpose

The purpose of the test was to measure the general kicking ability of a soccer player.

Equipment

Balls, cones, goal posts, marking material, whistle.

Procedure

The test consists of kicking soccer balls to the goal from a distance of 16.5 meters. The player is asked to take his position near the markings which has been done using cones in front of the goal away from the said distance. He is directed to take kicks only with his preferred foot. On getting the signal whistle, he kicks the ball to goal with his preferred foot. He repeats the kick four more times comfortably to get a total of five.

Scoring

For each valid kick which enters into goal, three points are given. There will not be any point for the kicks which goes outside the goal and for the kicks which rebounds from the goal posts and cross bars. A total of fifteen points may be scored from all the five kicks.

(2) Goal kicking for accuracy with non preferred foot

The purpose, procedure and scoring of the test item is same to that of the previous one except use of non preferred foot. Hence the test may be repeated with the non preferred foot of the player.

(3) Ground passing for accuracy with preferred foot

Purpose

The purpose of the test was to find out the accuracy of passing on ground balls with the preferred foot of players.

Equipment and facility

Balls, Cones, Marking material, whistle

Procedure

In order to find out the ground passing ability of soccer players, proper markings are done. For that, cones are placed 30 meters away from the goal. The specific goal is made by cones with one feet high and five feet apart. The player is asked to take kicks from the 30 M marking with his preferred foot. On the signal whistle, player takes the kicks to the goal. The procedure continues till five kicks are over in a comfortable manner.

Scoring

Three points are awarded for each legal kick which enters the goal provided the ball should not rise above one foot height. A total of fifteen points may be scored for all the five kicks. Ball which touches the cones and enters the goal will also be counted as goal and points will be awarded accordingly.

(4) Ground passing for accuracy with non preferred foot

The purpose, equipment and materials, procedure and method of scoring are same to that of test item (4) except the kicking foot. Here, all the kicks should be performed with non preferred foot of the player with the same conditions of previous test.

(5) Air passing for accuracy with preferred foot

Purpose

By this test item, it is intended to assess the passing ability of a soccer player through air with his preferred foot.

Equipments and Materials

Balls, Cones, Specific goal with required dimensions, marking materials, whistle.

Procedure

In this test item, it is intended to assess the passing ability of player through air with his preferred foot. Hence, a goal with specific dimension is created with a width of five feet and with height of eight feet. A marking with cones is made on 30 meters away from the goal. Balls are placed near the kicking point. On the signal whistle,

the player kicks ball to the goal with his preferred foot. Five kicks are given with comfortable time gap in between the kicks.

Scoring

Three points are given for each legal kick. A legal kick is one which passes into the specific goal through air with a minimum height of one foot. Ground balls will not be considered for scoring. Balls which pass into goal by touching posts will be counted but balls that hit and rebounds posts or cross bars will not be counted. A maximum of fifteen points may be scored for all the five kicks.

(6) Air passing for accuracy with non preferred foot

The purpose, equipment and materials, procedures and method of scoring of this test item are same to that of the previous one except the kicking foot. In this test, the non preferred foot of the player is used to take kicks and the test is repeated to get the required data.

(7) Slalom Dribble (The Dribble test)

Purpose

The purpose of the test item was to find out the speed and accuracy of a player to carry the ball on ground using feet within the shortest possible time.

Equipments and Materials

Balls, flag posts, stop watch, marking materials, and whistle.

Procedure

In order to assess the dribbling speed, specific markings are needed. Nine flag posts are kept on a straight line with five feet apart in between each flag post. A marking is made from five feet behind from the first flag post. On the signal whistle, the player has to dribble from the first flag post in a zigzag manner in between the flag posts. When he reaches the last flag post, he makes a turn and dribbles back in the same way and stops the ball when he reaches on the starting point. If ball goes out of control, he has to recover the same ball and should continue the dribbling till he completes the stipulated distance.

Scoring

The time elapsed for the trial is noted in one by hundredth of a second. Two trials are given and the best trial with lesser time is taken as the data.

(8) Juggling – 1

Purpose

By this test item, it is intended to assess the ball control (basic level) of soccer player.

Equipment and materials

40 x 20 meters free area, Balls, whistle,

Procedure

Juggling is a way to show the ball control of a player by kicking the ball and to control the same ball without dropping it on the ground. It needs comparatively a high level of control as the kicking should be done in way which enables him to control the falling ball in a comfortable and easy manner. The falling ball should be simultaneously trapped and should be kicked for the next count without losing control

The subject is asked to take a comfortable position to start juggling. He can take the ball either with his hand or using his foot. But it is encouraged to take the ball with the foot. When whistle blows, player starts to juggle. He can use any part of the body to juggle the ball except hand. He may move to any direction so as to control the ball from falling to ground. If ball goes out of control, the trial ends.

Method of scoring

The test consists of two trials. For one juggle, one point is awarded. If player completes one hundred successful juggling, he scores full marks, i.e. hundred marks. If he fails to complete the

stipulated number, he can have a second trial. The best trial out of the two will be taken into consideration as the standard score of the subject.

(9) Juggling – 2

Purpose

The advanced level ball control of soccer player is assessed by this test item.

Equipments and materials

40 x 20 meters free area, Balls, whistle.

Procedure

Since the test is intended to assess the advanced ball control level of players, this test has a distinction from the ordinary way of juggling. In normal juggling, the player can use any part of body (except hand) at any time without any restriction. But in this test, the player is not allowed to use the same body part which he used for his previous juggle. Instead, he is asked to use another body part to continue juggling. i.e., the ball may not hit the same part of the body twice in succession. By this way, he has to complete the required number without losing control. When whistle blows, he starts juggling abiding the rules. He can move to any part of the field with

ball, provided the ball should not go out of control. If ball goes out of control, the trial ends.

Method of scoring

The test consists of two trials. For one juggle, one point is awarded. If player completes one hundred successful juggling, he scores full marks, i.e. hundred marks. If he fails to complete the stipulated number, he can have a second trial. The best trial out of the two will be taken into consideration as the standard score of the subject.

Statistical techniques employed for analysis of data

The very purpose of the study was to construct norms for skill related variables of university soccer players. The raw scores of the nine variables were collected. The Mean, and Standard Deviation of the raw scores were computed by using the formula suggested by Donald K Mathew.[3]

For the same, the Mean and standard deviation of the scores were calculated on the following way.

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[3] . Donald K Mathews, *Measurement in Physical education.* Ed 4, Philadelphia: W.B. Saunders Company, 1973, p. 222.

$$\textbf{Mean (M) = AM+ (}\sum\textbf{fd / N) i}$$

where

M = Mean,

AM = Assumed Mean

$\sum$ = Summation

f = Frequency

d = Deviation

i = Size of the class interval

N = Number of scores

Standard Deviation[4]

$$\sigma = i\sqrt{(\Sigma fd^2/N) - (\Sigma fd/N)^2}$$

where

σ = Standard deviation

i = Size of class interval

fd = Frequency deviation

Σ = Summation

N = Number of scores

After calculating the mean and standard deviation the scores were converted into Hull Scale using the following formula:

[4] *Ibid*., p. 39.

Hull Scale = 3.5 x σ/50

where

σ = Standard deviation

To obtain the Hull Scale, multiply the standard deviation by 3.5, divide by 50 and serially add to and subtract from the mean for determining the values to assign on the 0 to 100 scale.[5]

[5] *Ibid.,* pp.46-47.

Chapter IV

ANALYSIS OF DATA AND RESULTS OF THE STUDY

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ANALYSIS OF DATA AND RESULTS OF THE STUDY

The study was designed to construct percentile norms on the variables of Kuhn's soccer test for university soccer players of south India.

To achieve the purpose of the study, as many as seven hundred and twenty university players from various university teams of south India were selected as the subjects. The chosen subjects were between eighteen and twenty five years of age. The data collected for the corresponding nine variables of Kuhn's soccer test were statistically analyzed. Mean, Standard Deviation and Hull Scale were computed. The raw scores were converted into Hull Scale and thus norm was constructed for each item.

The percentile scale was calculated from 0 to 100^{th} percentile. For all variables (goal kicking, ground passing, air passing, juggling - 1 and juggling-2) except dribbling, the scaling is done in the usual way. For dribbling, the elapsed time and dribbling speed are inversely proportional. That is, least time is the best score. Hence

scaling is done in the reverse order. Thus, scores with least time have been kept at the 100th percentile and scores with more time were kept at the 0th percentile.

DISCUSSION ON FINDINGS

The proposed study was to construct norms for soccer skill techniques of university players for the variables of Kuhn's soccer test. The variables were kicking for accuracy with preferred foot and with non preferred foot, ground passing for accuracy with preferred foot and non preferred foot, air passing for accuracy with preferred foot and non preferred foot, dribbling speed test, juggling-1 (basic level) to assess basic ball level control and juggling-2(advanced) for measuring advanced level ball control.

Kicking

The most common skill used in soccer is kicking. It is told that soccer is a game of kicking and running. Since kicking the ball is the essence of soccer, this is one of the first fundamentals to be learned. Kicking is the most common method used in moving the ball to a team mate, shooting to score goal, clearing the ball from defensive area, and placing the ball back into play after a violation and so on. . Kicking is vital in soccer because it is an important means of scoring goals. The more shots to goal a team takes, the greater is their chance of scoring goals and winning matches. Kicking skill includes

the mastery of shooting techniques when kicking the ball under severe pressure from opponents. Obviously, the ability to shoot with either foot under pressure from opponents is an essential quality for a top class player.

Goal Kicking For Accuracy With Preferred Foot

In the study, the kicking ability of players was shown to be consistent with a good standard. For the variable, the mean score was 12.71 and Standard Deviation was 2.12. The calculated S D is multiplied by 0.07 to get the Hull Scale value. The Hull Scale value is serially added and subtracted to the Mean score to get the Percentile Scale.

TABLE 2

DESCRIPTIVE SCORE OF GOAL KICKING FOR ACCURACY – PREFERRED FOOT

No. of subjects	Mean	SD
720	12.71	2.13

TABLE 3

HULL SCALE NORM FOR GOAL KICKING FOR ACCURACY WITH PREFERRED FOOT

Hull Scale	0	1	2	3	4	5	6	7	8	9
00		9	9	9	9	9	9	9	9	9
10	9	9	9	9	9	9	9	12	12	12
20	12	12	12	12	12	12	12	12	12	12
30	12	12	12	12	12	12	12	12	12	12
40	12	12	12	12	12	12	12	12	12	12
50	12	12	12	12	12	12	12	12	12	12
60	12	15	15	15	15	15	15	15	15	15
70	15	15	15	15	15	15	15	15	15	15
80	15	15	15	15	15	15	15	15	15	15
90	15	15	15	15	15	15	15	15	15	15
100	15									

Out of the seven hundred and twenty players, 216 players have scored full marks by scoring 15 points for the five kicks (3 points for one successful kick). 324 players scored 80 % marks by scoring 12 points by converting four successful kicks out of the five kicks given and 180 players scored 60% marks by converting 3 successful kicks out of the five kicks given.

On the basis of the above constructed table, the subjects were given qualitative grading as follows.

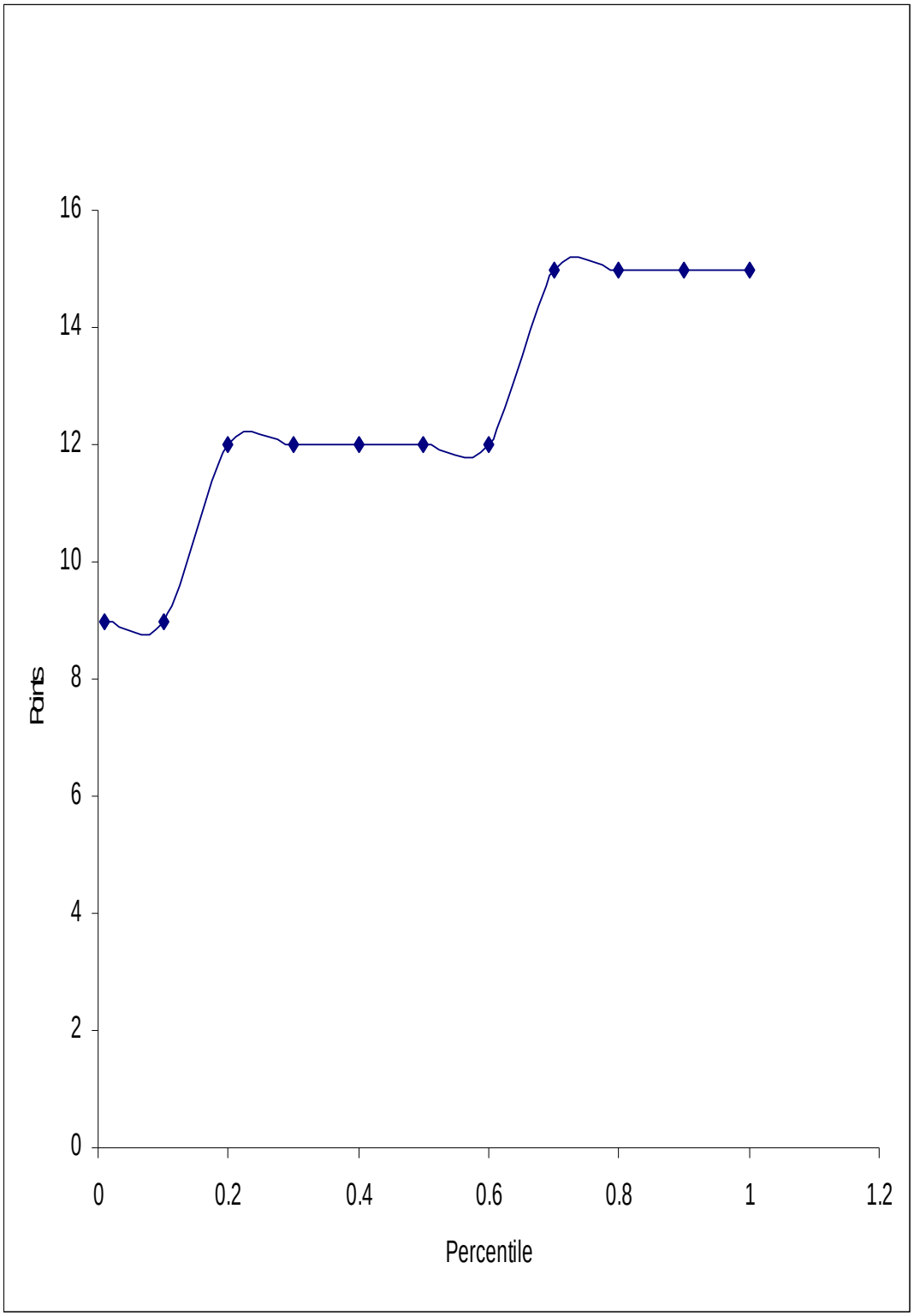
TABLE 4

QUALITATIVE GRADING OF THE CONSTRUCTED NORM FOR THE PERFORMANCE OF GOAL KICKING FOR ACCURACY WITH PREFERRED FOOT

Score	Qualitative grading	No.of subjects in each grade
0 TO 20	VERY POOR	NIL
21 TO 40	POOR	NIL
41 TO 60	AVERAGE	180
61 TO 80	GOOD	324
81 TO100	EXCELLENT	216

FIGURE 1

GRAPH SHOWING PERCENTILE SCORES OF GOAL KICKING FOR ACCURACY WITH PREFERRED FOOT



Goal Kicking for Accuracy with Non Preferred Foot

For the variable, the mean value was 12.78 and a score of 2.14 was obtained as Standard Deviation. The calculated S D is multiplied by 0.07 to get the Hull Scale value. The Hull Scale value is serially added and subtracted to the Mean score to get the Percentile Scale.

TABLE 5

DESCRIPTIVE SCORE OF GOAL KICKING FOR ACCURACY – NON PREFERRED FOOT

No. of subjects	Mean	SD
720	12.77	2.14

TABLE 6

HULL SCALE NORM FOR GOAL KICKING FOR ACCURACY WITH NON PREFERRED FOOT

Hull Scale	0	1	2	3	4	5	6	7	8	9
00		9	9	9	9	9	9	9	9	9
10	9	9	9	9	12	12	12	12	12	12
20	12	12	12	12	12	12	12	12	12	12
30	12	12	12	12	12	12	12	12	12	12
40	12	12	12	12	12	12	12	12	12	12
50	12	12	12	12	12	12	12	12	12	12
60	15	15	15	15	15	15	15	15	15	15
70	15	15	15	15	15	15	15	15	15	15
80	15	15	15	15	15	15	15	15	15	15
90	15	15	15	15	15	15	15	15	15	15
100	15	15	15	15	15	15	15	15	15	15

In this test, out of the seven hundred and twenty players, 287 players scored full by scoring 15 marks for five successful kicks, 339 players scored 80% marks by converting four kicks out of five kicks given, and 94 players scored 60% marks by converting 3 successful kicks out of five given.

On the basis of the above constructed table, the subjects were given qualitative grading as follows.

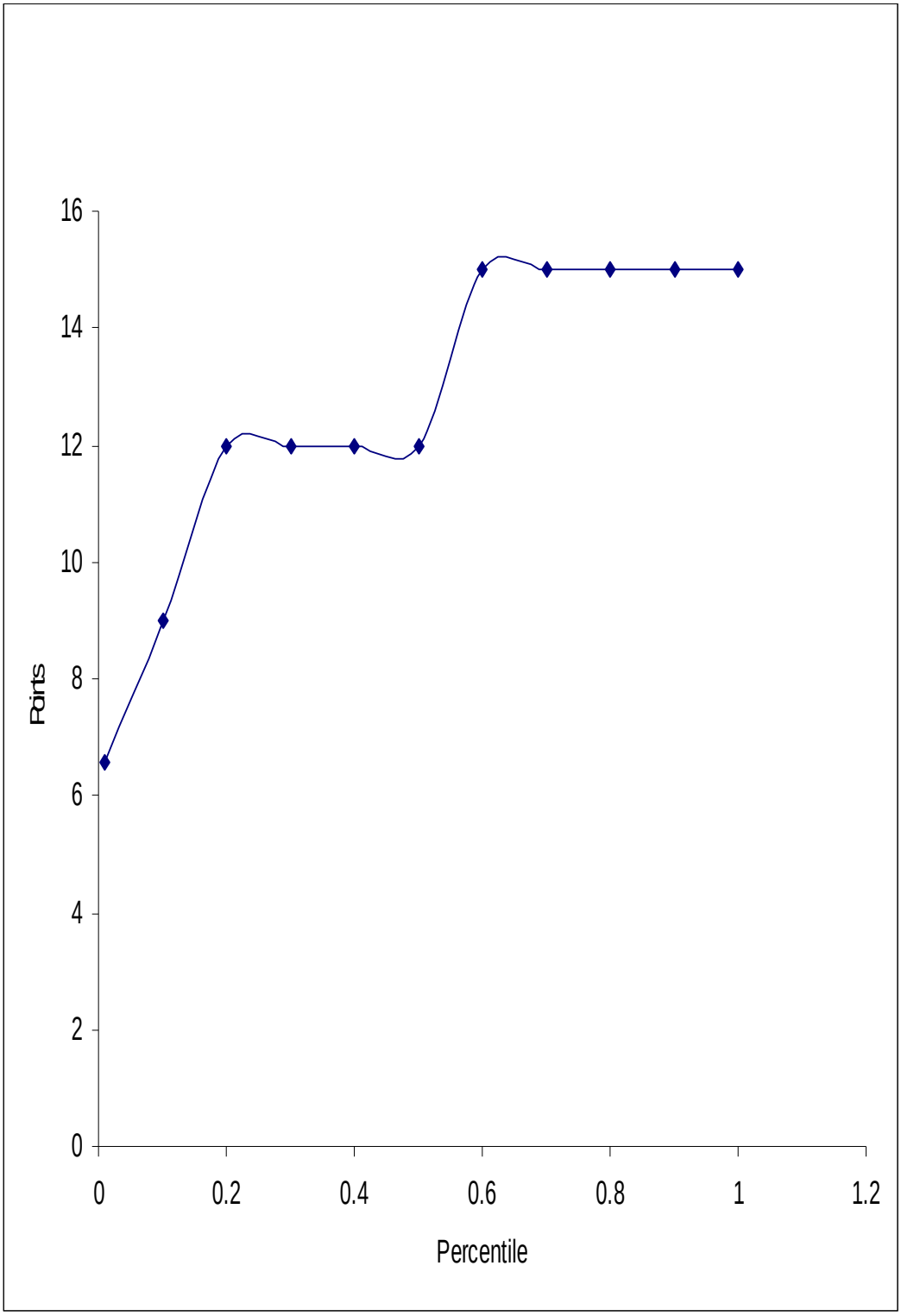
TABLE 7

QUALITATIVE GRADING OF THE CONSTRUCTED NORM FOR THE PERFORMANCE OF GOAL KICKING FOR ACCURACY WITH NON PREFERRED FOOT

Score	Qualitative Grading	No.of subjects in each Grade
0 to 20	Very poor	Nil
21 to 40	Poor	Nil
41 to 60	Average	94
61 to 80	Good	339
81 to100	Excellent	287

FIGURE 3

GRAPH SHOWING PERCENTILE SCORES OF GOAL KICKING FOR ACCURACY WITH NON-PREFERRED FOOT



Passing

Football is a team game. No single player, however great he may be, cannot take the whole responsibility to win a team in a match. It is the passing of ball from one player to another helps the team to take the ball from one place to another, and thus to find a suitable gap to score goal. Passing makes the game lively and beautiful. Great players are known not only for their unique ability to score to goal but also for their outstanding ability to give accurate and intelligent passes to their team mates. In the modern football, almost all great players belong to midfielders are greatly known for their magnificent ability to create good movements by creating space and thus to give shrewd passes to their team mates for scoring goals. Passing is the life of football. In this modern era, without a systematic and controlled way of passing, it is hardly possible for a football team to win a match.

Ground Passing

Ground passing (passing through ground) is the most common method used by teams especially in higher level matches. The slogan “High the team, low the ball” indicates the importance of giving ground level passes. It can easily be seen that in all situations except where the situation demands for a high ball, all teams prefer ground

balls. The logic for selecting ground ball for passing is so simple. It is very easy to trap and control a ground ball using foot than controlling a ball coming from height. It will take more time to trap a high ball than a ground ball. By the time to trap a high ball, opponents will get enough time to come close and also will have more chance to challenge for possessing the ball. It is because of this reason; ground passing sessions are given more emphasis in advanced level coaching.

Ground Passing for Accuracy with Preferred Foot

In the present study, ground passing ability using the preferred foot shows comparatively a low scoring rate. For the variable, the Mean score was 8.10 with Standard Deviation 2.71. The calculated S D was multiplied by 0.07 to get the Hull Scale value. The Hull Scale value was serially added and subtracted to the Mean score to get the Percentile Scale.

TABLE 8

DESCRIPTIVE SCORE OF GROUND PASSING FOR ACCURACY – PREFERRED FOOT

No. of subjects	Mean	SD
720	8.11	2.72

TABLE 9

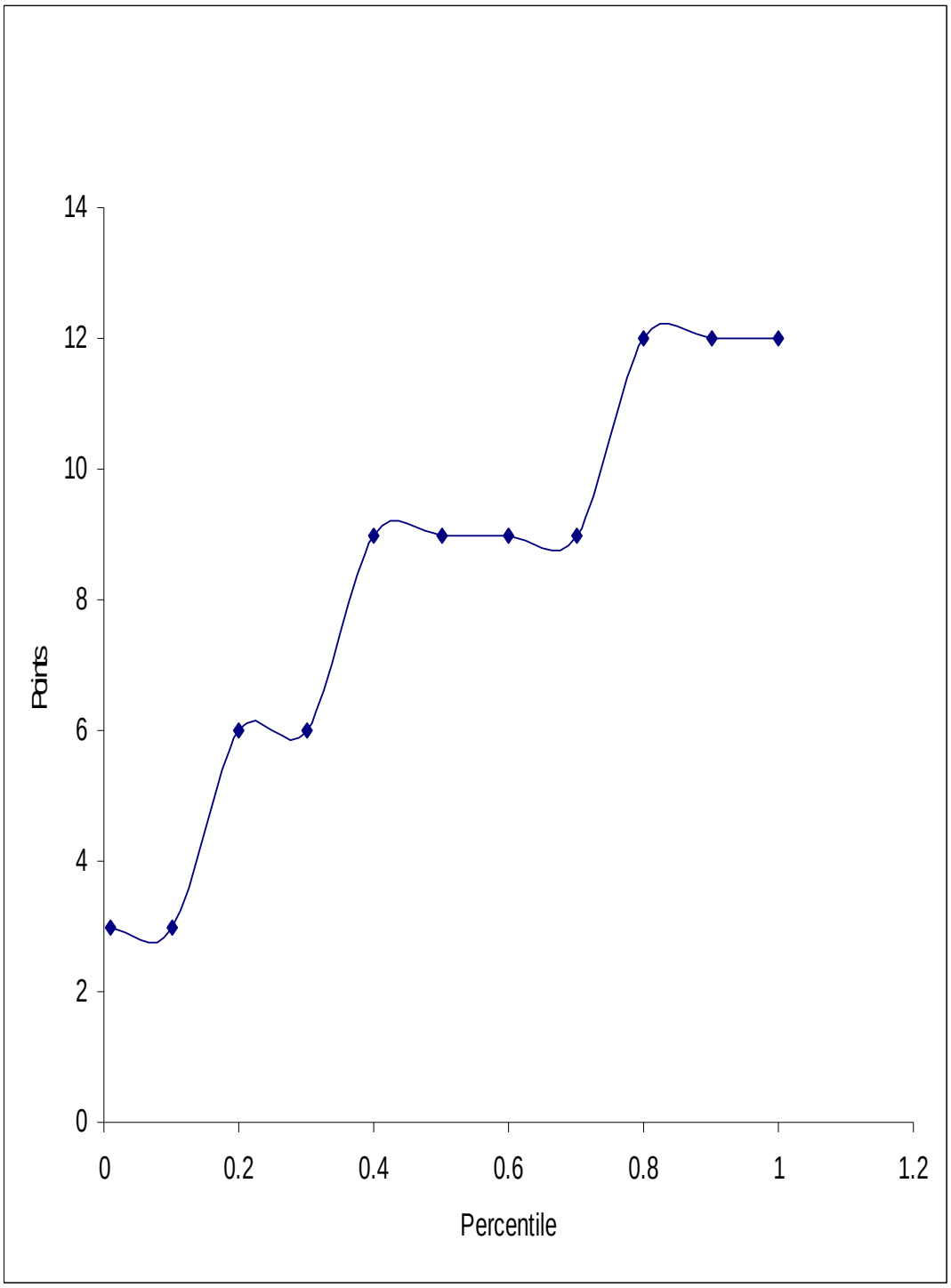
HULL SCALE NORM FOR GOAL PASSING FOR ACCURACY WITH PREFERRED FOOT

Hull Scale	0	1	2	3	4	5	6	7	8	9
00		3	3	3	3	3	3	3	3	3
10	3	6	6	6	6	6	6	6	6	6
20	6	6	6	6	6	6	6	6	6	6
30	6	6	6	6	6	6	6	6	6	6
40	9	9	9	9	9	9	9	9	9	9
50	9	9	9	9	9	9	9	9	9	9
60	9	9	9	9	9	9	9	9	9	9
70	9	9	9	9	9	9	9	9	9	9
80	12	12	12	12	12	12	12	12	12	12
90	12	12	12	12	12	12	12	12	12	12
100	12	12	12	12	12	12	12	12	12	12

Nobody could score full marks by converting all the five passes through the specified goals. Out of the seven hundred and twenty players, 144 players scored 80 % marks by converting 4 successful passes out of five. 288 players scored 60% marks by making three successful attempts. 216 players scored 40% marks by completing two successful attempts and 72 players could only score 20% marks (3 points) by converting one successful kick out of the five given.

FIGURE 5

GRAPH SHOWING PERCENTILE SCORES OF GROUND PASSING FOR ACCURACY WITH PREFERRED FOOT



On the basis of the above constructed table, the subjects were given qualitative grading as follows.

TABLE 10

QUALITATIVE GRADING OF THE CONSTRUCTED NORM FOR THE PERFORMANCE OF GROUND PASSING FOR ACCURACY WITH PREFERRED FOOT

Score	Qualitative Grading	No.of subjects in each Grade
0 to 20	Very poor	72
21 to 40	Poor	216
41 to 60	Average	288
61 to 80	Good	144
81 to100	Excellent	Nil

Ground Passing for Accuracy with Non Preferred Foot

For the variable, the Mean value was 6.65 with Standard Deviation 2.41. The calculated S D was multiplied by 0.07 to get the Hull Scale value. The Hull Scale value was serially added and subtracted to the Mean score to get the Percentile

TABLE 11

DESCRIPTIVE SCORE OF GROUND PASSING FOR ACCURACY – NON PREFERRED FOOT

No.of subjects	Mean	SD
720	6.65	2.42

TABLE 12

HULL SCALE NORM FOR GOAL PASSING FOR ACCURACY WITH NON PREFERRED FOOT

Hull Scale	0	1	2	3	4	5	6	7	8	9
00		0	0	3	3	3	3	3	3	3
10	3	3	3	3	3	3	3	3	6	6
20	6	6	6	6	6	6	6	6	6	6
30	6	6	6	6	6	6	6	6	6	6
40	6	6	6	6	6	6	6	6	6	6
50	6	6	6	6	6	6	6	6	6	6
60	6	9	9	9	9	9	9	9	9	9
70	9	9	9	9	9	9	9	9	9	9
80	9	9	9	9	9	9	9	9	9	9
90	9	9	9	9	9	9	9	9	12	12
100	12									

Twenty two players could not score any point in all the trials. 108 players scored three points by converting one successful pass out of five trials. 302 players scored six points by making two successful passes .While 266 players scored nine points by making three successful passes, only 22 players could score 12 points by making four successful passes. Nobody could score full points in this category.

On the basis of the above constructed table, the subjects were given qualitative grading as follows.

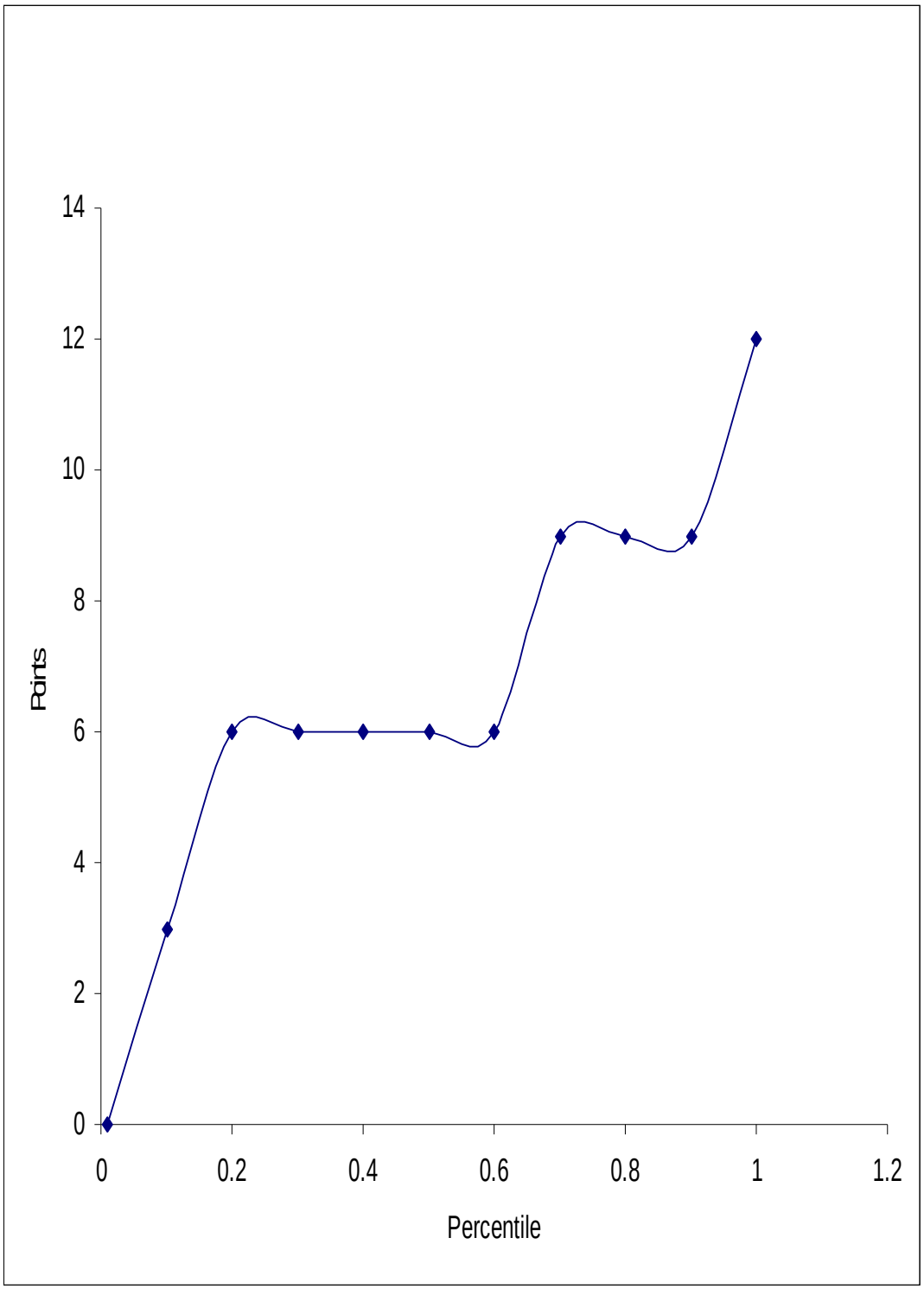
TABLE 13

QUALITATIVE GRADING OF THE CONSTRUCTED NORM FOR THE PERFORMANCE OF GROUND PASSING FOR ACCURACY WITH NON PREFERRED FOOT

Score	Qualitative Grading	No. of subjects in each Grade
0 to 20	Very poor	130
21 to 40	Poor	302
41 to 60	Average	266
61 to 80	Good	22
81 to100	Excellent	Nil

FIGURE 7

GRAPH SHOWING PERCENTILE SCORES OF GROUND PASSING FOR ACCURACY WITH NON PREFERRED FOOT



Air Passing

Air passing is another way of combining teams for ball possession and thus to score goals. This method is commonly used when no space is available to pass the ball through ground. It is also used for clearing ball to distance by defense including goal keeper in addition to score goals when opponent goal keepers are standing away from the goal posts (out of position) anticipating straight shots. 'Falling leaf kick' by Ronaldinho of Brazil in the 2002 world cup is a classic example for this type of kick. Accurate air passing is an essential quality of a good player. Out standing mid field players are always keen in giving good air passes (chipping passes) above the head level of defenders in order to beat them for scoring goals. Hence proficiency in accurate air ball passing is definitely a remarkable quality of a top class football player.

Air Passing for Accuracy with Preferred Foot

For this variable, the Mean score was 7.72 with Standard Deviation 2.61. The calculated S D was multiplied by 0.07 to get the Hull Scale value. The Hull Scale value was serially added and subtracted to the mean score to get the percentile Scale.

TABLE 14

DESCRIPTIVE SCORE OF AIR PASSING FOR ACCURACY – PREFERRED FOOT

No.of subjects	Mean	SD
720	7.73	2.62

TABLE 15

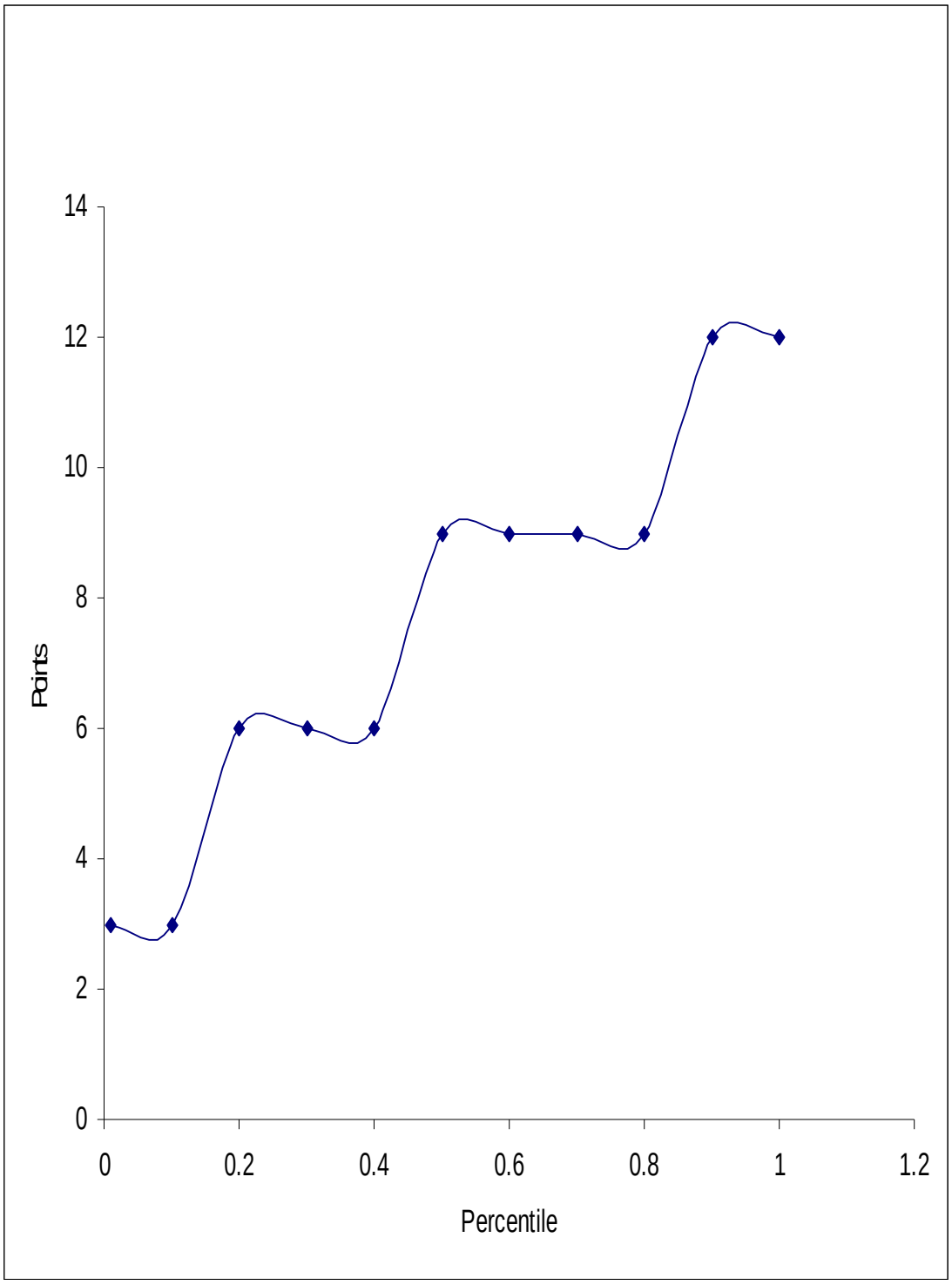
HULL SCALE NORM FOR AIR PASSING FOR ACCURACY WITH PREFERRED FOOT

Hull Scale	0	1	2	3	4	5	6	7	8	9
00		3	3	3	3	3	3	3	3	3
10	3	3	6	6	6	6	6	6	6	6
20	6	6	6	6	6	6	6	6	6	6
30	6	6	6	6	6	6	6	6	6	6
40	6	6	6	6	6	9	9	9	9	9
50	9	9	9	9	9	9	9	9	9	9
60	9	9	9	9	9	9	9	9	9	9
70	9	9	9	9	9	9	9	9	9	9
80	9	9	9	9	9	9	9	12	12	12
90	12	12	12	12	12	12	12	12	12	12
100	12	12	1							

Eighty two players scored three points by making one successful pass. While 232 players scored six points by converting two successful passes, 304 players scored nine points by making three successful passes out of five attempts. Though 102 players scored 12 points by converting four successful attempts, no player could score fifteen points by converting all five attempts into successful passes.

FIGURE 9

GRAPH SHOWING PERCENTILE SCORES OF AIR PASSING FOR ACCURACY WITH PREFERRED FOOT



On the basis of the above constructed table, the subjects were given qualitative grading as follows.

TABLE 16

QUALITATIVE GRADING OF THE CONSTRUCTED NORM FOR THE PERFORMANCE OF AIR PASSING FOR ACCURACY WITH PREFERRED FOOT

Score	Qualitative Grading	No.of subjects in each Grade
0 to 20	Very poor	82
21 to 40	Poor	232
41 to 60	Average	304
61 to 80	Good	102
81 to100	Excellent	Nil

AIR PASSING FOR ACCURACY WITH NON PREFERRED FOOT

For the variable, the Mean score was 7.25 with Standard Deviation 2.75. The calculated S D was multiplied by 0.07 to get the Hull Scale value. The Hull Scale value was serially added and subtracted to the Mean score to get the Percentile Scale.

TABLE 17

DESCRIPTIVE SCORE OF AIR PASSING FOR ACCURACY – NON PREFERRED FOOT

No. of subjects	Mean	SD
720	7.25	2.76

TABLE 18

HULL SCALE NORM FOR AIR PASSING FOR ACCURACY WITH NON PREFERRED FOOT

Hull Scale	0	1	2	3	4	5	6	7	8	9
00		0	0	0	3	3	3	3	3	3
10	0	0	0	0	6	6	6	6	6	6
20	6	6	6	6	6	6	6	6	6	6
30	6	6	6	6	6	6	6	6	6	6
40	6	6	6	6	6	6	6	6	6	6
50	6	6	9	9	9	9	9	9	9	9
60	9	9	9	9	9	9	9	9	9	9
70	9	9	9	9	9	9	9	9	9	9
80	9	9	9	9	9	9	9	9	9	9
90	9	12	12	12	12	12	12	12	12	12
100	12									

Out of the Seven hundred and Twenty players, 23 players could not score any point as they failed to convert any one of the five attempts into successful pass. 73 players scored three points by converting one successful pass and 275 players scored six points by converting two attempts into successful passes. While 276 players scored nine points by making three successful passes, only 73 players could score 12 points by making four successful passes out of the five attempts. No player out of the seven hundred and twenty could score all the fifteen points by making five successful passes for the five attempts given.

On the basis of the above constructed table, the subjects were given qualitative grading as follows.

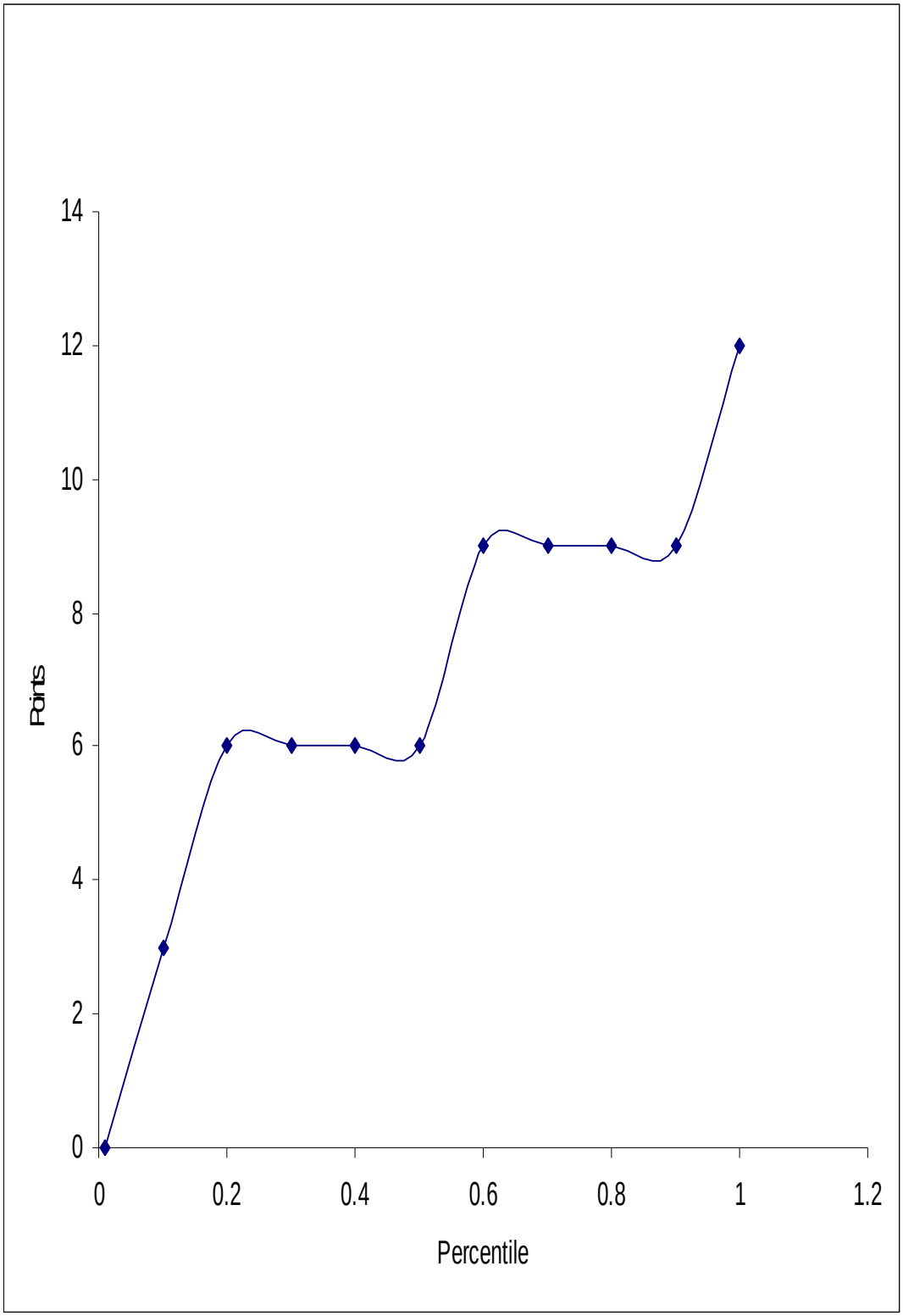
TABLE 19

QUALITATIVE GRADING OF THE CONSTRUCTED NORM FOR THE PERFORMANCE OF AIR PASSING FOR ACCURACY WITH NON PREFERRED FOOT

Score	Qualitative Grading	No. of subjects in each Grade
0 to 20	Very poor	96
21 to 40	Poor	275
41 to 60	Average	276
61 to 80	Good	73
81 to 100	Excellent	Nil

FIGURE 11

GRAPH SHOWING PERCENTILE SCORES OF AIR PASSING FOR ACCURACY WITH NON-PREFERRED FOOT



Dribbling

Dribbling is another fundamental skill that a player has to master. Dribbling often gives advantage to a player to beat the tough defense of the opponents. It also helps to take advantage in one to one situation and to keep the ball in possession. Advanced dribbling with faking and body action is a strong weapon to beat the opponents. The prime strategy of modern soccer is not to concede goal rather than scoring. A skillful dribbler can beat the tight web of the defense and place the marker out of position, which enables the attacker to penetrate into the scoring sector to score. In certain critical occasions dribbling is a constructive tool for keeping the ball in possession to nip the attacking strategy of opponents.

In the dribbling test, the time elapsed to complete dribbling in a zigzag manner through the stipulated route was taken. The Mean score was 14.74 with Standard Deviation 1.157. The calculated S D was multiplied by 0.07 to get the Hull Scale value. The Hull Scale value was serially added and subtracted to the Mean score to get the Percentile Scale.

TABLE 20

DESCRIPTIVE SCORE OF DRIBBLING TEST

No.of subjects	Mean	SD
720	14.74	1.16

TABLE 21

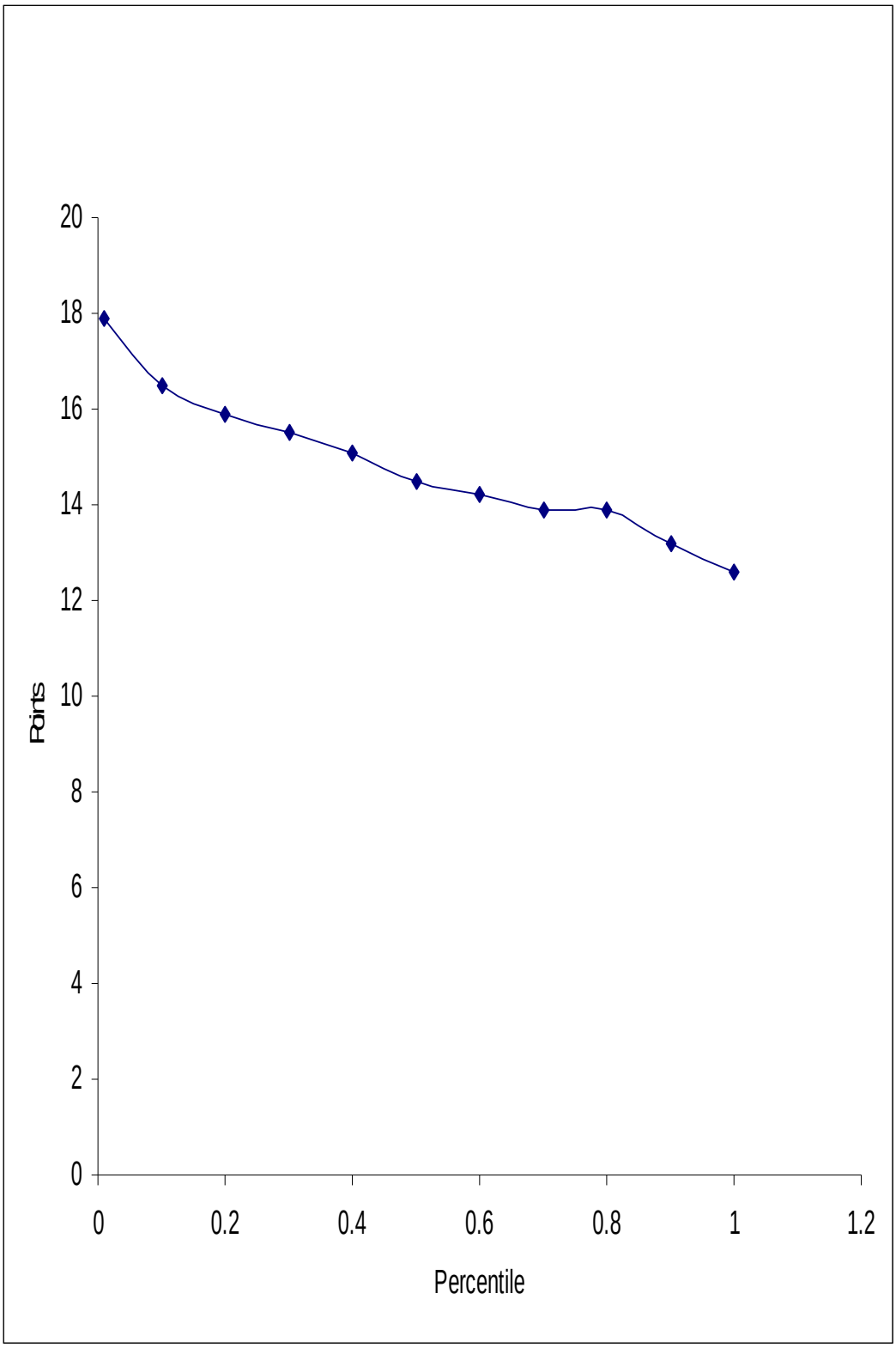
HULL SCALE NORM FOR DRIBBLING TEST

Hull Scale	0	1	2	3	4	5	6	7	8	9
00		17.90	17.16	16.90	16.90	16.90	16.70	16.70	16.60	16.60
10	16.60	16.50	16.30	16.20	16.20	16.20	16.10	16.00	16.00	16.00
20	15.90	15.90	15.80	15.79	15.72	15.70	15.70	15.61	15.60	15.60
30	15.60	15.50	15.40	15.30	15.20	15.20	15.10	15.10	15.10	15.10
40	15.10	15.10	14.90	14.90	14.90	14.900	14.70	14.70	14.66	14.59
50	14.50	14.50	14.40	14.30	14.30	14.30	14.30	14.30	14.30	14.29
60	14.20	14.20	14.20	14.20	14.20	14.10	14.10	14.10	14.10	14.10
70	13.97	13.90	13.90	13.90	13.90	13.90	13.90	13.90	13.90	13.90
80	13.90	13.90	13.80	13.60	13.60	13.60	13.60	13.50	13.49	13.48
90	13.40	13.20	13.20	13.20	13.20	13.10	13.00	13.00	12.90	12.90
100	12.58									

Out of the seven hundred and twenty players, 15 players showed low scores ranging in between 17.1 seconds to 17.9 seconds. 118 players performed in between 16.1 seconds to 17 seconds. 372 players showed scores ranging in between 14.1 seconds to 16 seconds. 200 players performed in between 13.1 to 14 seconds. The highest score ranging in between 13 seconds to 12.576 seconds was performed by 15 players.

FIGURE 13

GRAPH SHOWING PERCENTILE SCORES OF DRIBBLING



On the basis of the above constructed table, the subjects were given qualitative grading as follows.

TABLE 22

QUALITATIVE GRADING OF THE CONSTRUCTED NORM FOR THE PERFORMANCE OF DRIBBLING TEST

Score	Qualitative Grading	No. of subjects in each Grade
0 to 20	Very poor	15
21 to 40	Poor	118
41 to 60	Average	372
61 to 80	Good	200
81 to100	Excellent	15

Juggling

Ball control is one of the fundamental skills that the soccer players are using frequently in football matches. Without proper ball control, a soccer player cannot execute different techniques accurately during the game situation. Ball control is the mother of fundamental skills. Normally all players cannot execute this skill without proper training and practice. When this skill is mastered, the player will become proficient in all other aspects. Kicking is a natural skill, which could be done by any player. Similarly dribbling could also be performed by any body to certain level. But ball control cannot be performed without mastery over the skill. Further, modern

soccer game has over emphasized ball control in attack and prevention of attack in defense at any level of competition. In soccer, dynamic physical adaptation patterns are of immense importance. The real achievement needs supreme proficiency level in all ingredients (skill) of the game. The mastery over dribbling, controlling the ball shooting for the goal, defending against opponents and rhythmic display of all possible elements of the game are determining factors to win the game in one's own favor.

For the assessment of ball control, there were two different tests viz, juggling -1 and juggling -2. By Juggling-1, it is intended to assess the basic level ball control and usingJuggling-2; it was intended to assess the ball control at advanced level.

Juggling -1

For juggling-1, the Mean score was 96.43 with Standard Deviation 6.71. The calculated S D was multiplied by 0.07 to get the Hull Scale value. The Hull Scale value was serially added and subtracted to the Mean score to get the Percentile Scale.

TABLE 23

DESCRIPTIVE SCORE OF BALL CONTROL – JUGGLING 1

No.of subjects	Mean	SD
720	96.43	6.71

TABLE 24

HULL SCALE NORMS OF BALL CONTROL - JUGGLING - 1

Hull Scale	0	1	2	3	4	5	6	7	8	9
00		73	73	78	78	81	81	81	87	88
10	88	88	88	89	89	89	90	90	90	90
20	91	93	93	93	93	95	96	96	97	100
30	100	100	100	100	100	100	100	100	100	100
40	100	100	100	100	100	100	100	100	100	100
50	100	100	100	100	100	100	100	100	100	100
60	100	100	100	100	100	100	100	100	100	100
70	100	100	100	100	100	100	100	100	100	100
80	100	100	100	100	100	100	100	100	100	100
90	100	100	100	100	100	100	100	100	100	100
100	100	100	100	100	100	100	100	100	100	100

The scores taken from seven hundred and twenty players showed high value with Mean 96.43 with minimums score of 73. It could see that, thirty players scored between 73 and 80 points. One hundred and ten players scored in between 80 and 90. Fifty five players scored in between 90 and 97 points and five hundred and twenty five players scored full marks by performing hundred complete juggling without fail.

On the basis of the above constructed table, the subjects were given qualitative grading as follows.

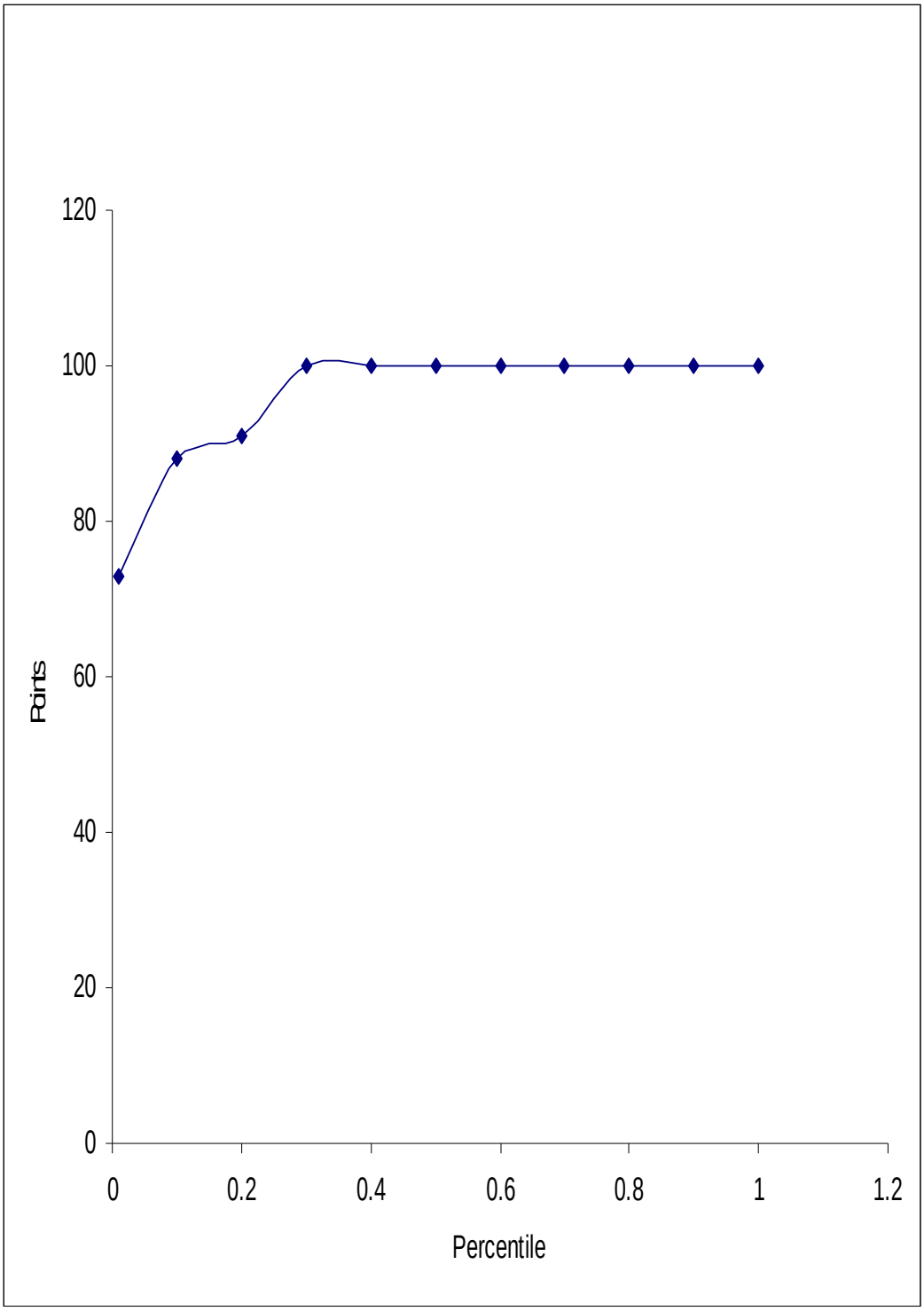
TABLE 25

QUALITATIVE GRADING OF THE CONSTRUCTED NORM FOR THE PERFORMANCE OF JUGGLING –1

Score	Qualitative Grading	No. of subjects in each Grade
0 to 20	Very poor	Nil
21 to 40	Poor	Nil
41 to 60	Average	Nil
61 to 80	Good	30
81 to100	Excellent	690

FIGURE 15

GRAPH SHOWING PERCENTILE SCORES OF JUGGLING - I



Juggling - 2

For the second test to assess the advanced level ball control (juggling – 2), the Mean score obtained was 80.526 with Standard Deviation 16.68. There was a significant range for juggling-2 compared to that of juggling-1. The calculated S D was multiplied by 0.07 to get the Hull Scale value. The Hull Scale value was serially added and subtracted to the Mean score to get the Percentile Scale.

TABLE 26

DESCRIPTIVE SCORE OF BALL CONTROL - JUGGLING - 2

No. of subjects	Mean	SD
720	80.53	16.67

TABLE 27

HULL SCALE NORMS OF BALL CONTROL - JUGGLING 2

Hull Scale	0	1	2	3	4	5	6	7	8	9
00		18	31	41	53	53	56	57	60	61
10	61	61	61	63	63	63	64	65	65	65
20	65	66	68	68	68	68	68	69	69	69
30	69	70	71	73	73	73	75	77	77	78
40	78	79	81	81	81	82	83	84	84	84
50	85	85	85	85	86	86	86	86	86	86
60	87	87	88	88	88	89	89	89	91	91
70	91	92	93	93	94	94	95	98	98	98
80	100	100	100	100	100	100	100	100	100	100
90	100	100	100	100	100	100	100	100	100	100
100	100									

Out of the seven hundred and twenty players, 30 players obtained scores in between 21 and 40. When 51 players scored in between 41 and 60 points, 231 players scored in between 61 and 80. The remaining 408 players could score above 81 points which was considered as 'outstanding' performance.

On the basis of the above constructed table, the subjects were given qualitative grading as follows.

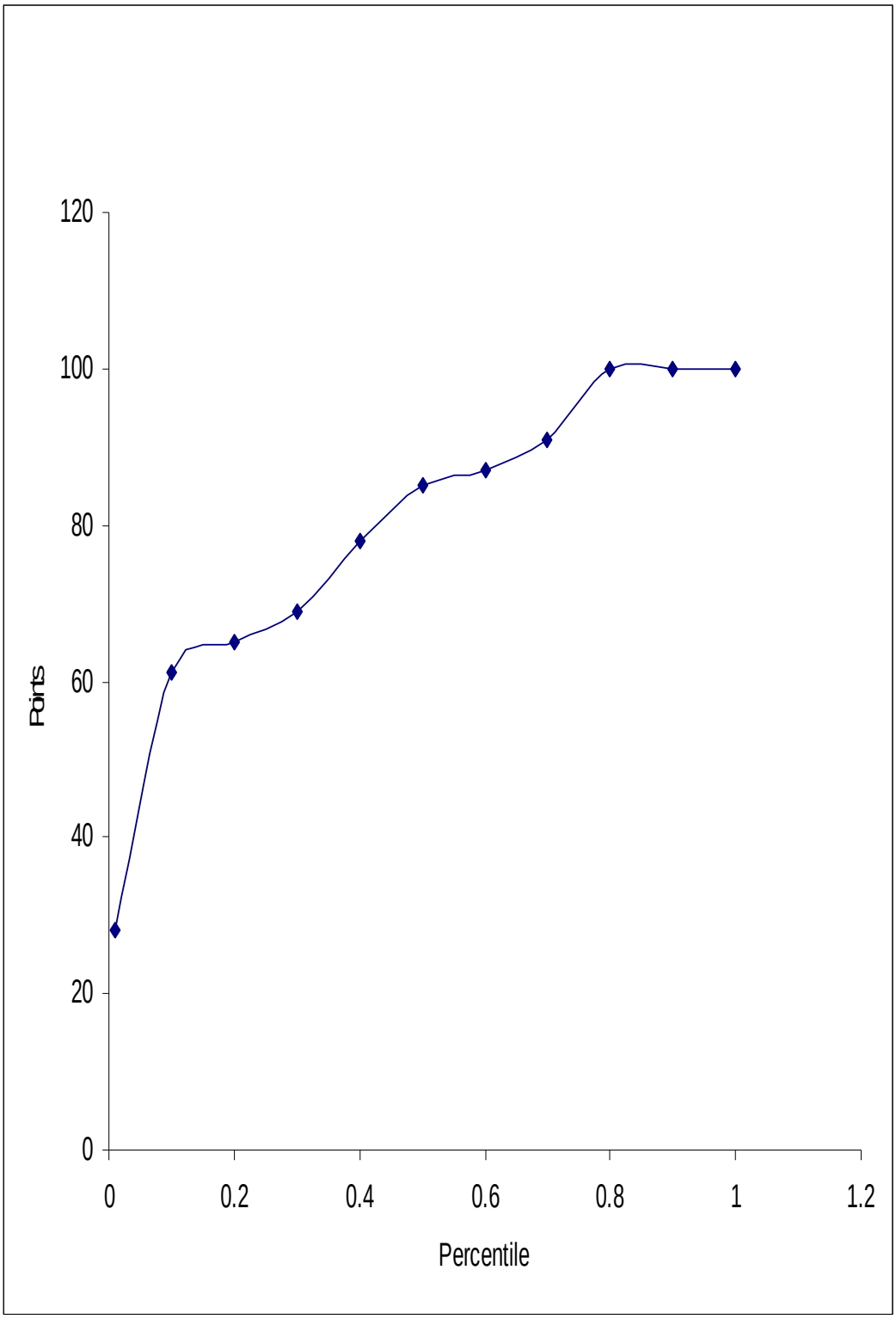
TABLE 28

QUALITATIVE GRADING OF THE CONSTRUCTED NORM FOR THE PERFORMANCE OF JUGGLING –2

Score	Qualitative Grading	No.of subjects in each Grade
0 to 20	Very poor	Nil
21 to 40	Poor	30
41 to 60	Average	51
61 to 80	Good	231
81 to100	Excellent	408

FIGURE 17

GRAPH SHOWING PERCENTILE SCORES OF JUGGLING - II



To summarize, the performance of Indian footballers in the International level has been obviously a topic of heated discussion in many an avenue. One probable conclusion unanimously agreed is the grass root level development. In addition to that, maintenance of standard is also essential. For that, we need authentic data based on which we can progressively walk upon. One among them is the development of proper norms to get a clear cut idea of what and when to walk upon. Universities being the main resource centers of Indian football, such a norm for university players will be very useful in the existing scenario. Hence, this study will open new vistas in the growth and development of Indian football.

Chapter - V

SUMMARY , CONCLUSION AND RECOMMENDATIONS

Chapter - V

SUMMARY , CONCLUSION AND RECOMMENDATIONS

The purpose of the study was to construct norms on Kuhn's soccer test for university players. The test includes nine test items, viz., Goal kicking for accuracy using preferred foot, goal kicking for accuracy with non preferred foot, ground passing for accuracy with preferred foot, ground passing for accuracy with non preferred foot, air passing for accuracy with preferred foot, air passing for accuracy with non preferred foot, dribbling test, juggling-1 and juggling -2. To satisfy this purpose, a sample of seven hundred and twenty university players from different universities of South India was taken. For the nine variables mentioned above, separate standardized tests were utilized in order to gather the relevant data. For goal kicking for accuracy with preferred foot and non-preferred foot, kicking from a specific distance to the goal was used. Five kicks were given to each player for each foot. Three marks were given to one successful attempt and zero mark was given for a failure. Maximum marks for all the five kicks were noted as the score. The method is repeated for the non preferred foot also. For ground passing for accuracy with preferred and non preferred foot, a specific target with special

measurement was used. For air passing for accuracy with preferred foot and non preferred foot, the same target with equal width and different height was used. In all the three variables, the number of successful attempts was taken as the scores. For dribbling test, the time elapsed to complete the stipulated route within the shortest possible duration was noted. For testing the ball control, two types of juggling (Juggling-1 and Juggling-2) were used. In juggling-1, the player was allowed to use any part of body except hand to complete hundred successful attempts. For the test to assess advance level ball control i.e., juggling-2- the same provision was made except the player has not been allowed to take two immediate attempts in succession with the same body part so as to complete the stipulated number.

The collected data were analyzed statistically using Mean Difference Analysis and Standard Deviation separately for each variable. The Hull scale value for each variable was calculated. The calculated Hull scale value was added from the mean serially to get values from 51st percentile to 100th percentile. In the same way, the calculated Hull scale value was subtracted from the mean value to get values from 49th percentile to 0th percentile. Thus, the norm was constructed for each variable separately.

Conclusion

On the basis of Hull Scale norms for nine variables - Goal kicking for accuracy using preferred foot, goal kicking for accuracy with non preferred foot, ground passing for accuracy with preferred foot, ground passing for accuracy with non preferred foot, air passing for accuracy with preferred foot, air passing for accuracy with non preferred foot, dribbling test, juggling-1 and juggling-2, the following conclusions were drawn.

In the variable Goal kicking for accuracy with preferred foot, as per the qualitative grading by the constructed norm, it was found that, out of the seven hundred and twenty players, 216 subjects fall in the 'Excellent' category, 324 subjects come under the 'Good' category and 180 subjects come under the 'Average' category. There are none in the 'Poor' and' Very Poor' categories.

In 'Goal kicking for accuracy with non preferred foot', 287 subjects come under the 'Excellent' category, 339 subjects fall in the 'Good' category, and 94 subjects come under the 'Average' category. There are none in the 'Poor' and 'Very Poor' categories.

In 'Ground Passing for Accuracy with Preferred Foot' 72 subjects come under 'Very Poor' category, 216 subjects come under 'Poor' category, 288 subjects come under 'Average' category, and

144 subjects falls in the ‘ Good’ category. There are none in the ‘Excellent’ category.

In ‘Ground Passing for accuracy with Non Preferred Foot’, 130 subjects come under ‘Very Poor’ category, 302 subjects come under ‘Poor’ category, 266 subjects fall in ‘Average’ and 22 subjects fall in ‘Good’ category. There are none in the ‘Excellent’ category.

In ‘Air Passing for Accuracy with Preferred Foot’, 82 subjects come under ‘Very Poor’ category, 232 subjects come under ‘Poor’, 304 subjects come under ‘Average’ and 102 subjects fall in ‘Good’ category. There are none in the ‘Excellent’ category.

In ‘Air Passing for Accuracy with Non Preferred Foot’, 96 subjects come under ‘Very Poor’, 275 subjects come under ‘Poor’, 276 subjects come under ‘Average’ and 73 subjects come under ‘Good’ category. There are none in the ‘Excellent’ category.

In ‘Dribbling test’ 15 subjects come under ‘Very Poor’, 118 players come under ‘Poor’ 372 subjects fall in ‘Average’ 200 subjects come under ‘Good’ and 15 subjects fall in ‘Excellent’ category.

In the variable Juggling-1, 30 subjects fall in ‘Good’ and 690 subjects come under ‘Excellent’ categories. There are none in ‘Average’, ‘Poor’ and ‘Very Poor’ categories.

In the variable Juggling-2, nobody falls in 'Very Poor 'category. 30 subjects come under 'Poor', 51 subjects come under 'Average', and 231 subjects fall in 'Good 'category. 408 subjects come under 'Excellent' category.

Findings of this study show that our university players are showing excellent performance in goal kicking for accuracy with preferred foot and non preferred foot.

The information gathered show that our players are showing a good performance in goal kicking for accuracy using preferred foot and non preferred foot.

The players are showing a dismal performance in both ground passing and air passing using preferred foot and non preferred foot.

In dribbling, the performance of players are shown to be fair.

In the tests to assess ball control, it could see that though players are showing good performance in basic level ball control, there is no such considerable improvement in advanced level ball control.

Recommendations

1) The results of the study may be helpful for the selectors of different universities for selecting the university level soccer players on the basis of constructed norms.

2) The results of the present study may be used to evaluate the university level soccer players to be groomed for higher level of competitions based on the constructed norms.

3) The results of the present study may help the coaches and physical educationists to compare and evaluate the performance of their players and thus to schedule their training plan giving emphasis to the variables in which their players are lacking.

4) Individualized training programme may be developed for players who scores below 25th Percentile.

5) The results of this study may be used as a guideline to construct norm for the soccer players of other regions of India.

6) A similar study may be conducted to construct norms on the other regions of the country.

7) The constructed norms may be used for the purpose of classification of soccer players in the age group of 18 to 25 years.

8) More research studies may be conducted which measures the other variables of the game.

9) The results of the present study may be used for the developmental activities of different State Associations of South India.

10) A similar study may be conducted to construct norms for school level soccer players in different states.

11) A nation-wide study may be conducted in order to construct a national norm for University players.

12) It is recommended that similar study may be conducted on other team games also.

APPENDIX

Appendix I

Percentile Scores on Kuhn's Soccer Test for University Players

Percentile	GKPF	GKNPF	GPPF	GPNPF	APPF	APNPF	DB	JG-1	JG-2
100	15	15	12	12	12	12	12.58	100	100
99	15	15	12	12	12	12	12.9	100	100
98	15	15	12	12	12	12	12.9	100	100
97	15	15	12	9	12	12	13	100	100
96	15	15	12	9	12	12	13	100	100
95	15	15	12	9	12	12	13.1	100	100
94	15	15	12	9	12	12	13.2	100	100
93	15	15	12	9	12	12	13.2	100	100
92	15	15	12	9	12	12	13.2	100	100
91	15	15	12	9	12	12	13.2	100	100
90	15	15	12	9	12	9	13.4	100	100
89	15	15	12	9	12	9	13.48	100	100
88	15	15	12	9	12	9	13.49	100	100
87	15	15	12	9	12	9	13.5	100	100
86	15	15	12	9	9	9	13.6	100	100
85	15	15	12	9	9	9	13.6	100	100
84	15	15	12	9	9	9	13.6	100	100
83	15	15	12	9	9	9	13.6	100	100
82	15	15	12	9	9	9	13.8	100	100
81	15	15	12	9	9	9	13.9	100	100
80	15	15	12	9	9	9	13.9	100	100
79	15	15	9	9	9	9	13.9	100	98
78	15	15	9	9	9	9	13.9	100	98
77	15	15	9	9	9	9	13.9	100	98
76	15	15	9	9	9	9	13.9	100	95
75	15	15	9	9	9	9	13.9	100	94
74	15	15	9	9	9	9	13.9	100	94

Percentile	GKPF	GKNPF	GPPF	GPNPF	APPF	APNPF	DB	JG-1	JG-2
73	15	15	9	9	9	9	13.9	100	93
72	15	15	9	9	9	9	13.9	100	93
71	15	15	9	9	9	9	13.9	100	92
70	15	15	9	9	9	9	13.97	100	91
69	15	15	9	9	9	9	14.1	100	91
68	15	15	9	9	9	9	14.1	100	91
67	15	15	9	9	9	9	14.1	100	89
66	15	15	9	9	9	9	14.1	100	89
65	15	15	9	9	9	9	14.1	100	89
64	15	15	9	9	9	9	14.2	100	88
63	15	15	9	9	9	9	14.2	100	88
62	15	15	9	9	9	9	14.2	100	88
61	15	15	9	9	9	9	14.2	100	87
60	12	15	9	6	9	9	14.2	100	87
59	12	12	9	6	9	9	14.29	100	86
58	12	12	9	6	9	9	14.3	100	86
57	12	12	9	6	9	9	14.3	100	86
56	12	12	9	6	9	9	14.3	100	86
55	12	12	9	6	9	9	14.3	100	86
54	12	12	9	6	9	9	14.3	100	86
53	12	12	9	6	9	9	14.3	100	85
52	12	12	9	6	9	9	14.4	100	85
51	12	12	9	6	9	6	14.5	100	85
50	12	12	9	6	9	6	14.5	100	85
49	12	12	9	6	9	6	14.59	100	84
48	12	12	9	6	9	6	14.66	100	84
47	12	12	9	6	9	6	14.7	100	84
46	12	12	9	6	9	6	14.7	100	83
45	12	12	9	6	9	6	14.9	100	82

Percentile	GKPF	GKNPF	GPPF	GPNPF	APPF	APNPF	DB	JG-1	JG-2
44	12	12	9	6	6	6	14.9	100	81
43	12	12	9	6	6	6	14.9	100	81
42	12	12	9	6	6	6	14.9	100	81
41	12	12	9	6	6	6	15.1	100	79
40	12	12	9	6	6	6	15.1	100	78
39	12	12	6	6	6	6	15.1	100	78
38	12	12	6	6	6	6	15.1	100	77
37	12	12	6	6	6	6	15.1	100	77
36	12	12	6	6	6	6	15.1	100	75
35	12	12	6	6	6	6	15.2	100	73
34	12	12	6	6	6	6	15.2	100	73
33	12	12	6	6	6	6	15.3	100	73
32	12	12	6	6	6	6	15.4	100	71
31	12	12	6	6	6	6	15.5	100	70
30	12	12	6	6	6	6	15.6	100	69
29	12	12	6	6	6	6	15.6	100	69
28	12	12	6	6	6	6	15.6	97	69
27	12	12	6	6	6	6	15.6	96	69
26	12	12	6	6	6	6	15.7	95	68
25	12	12	6	6	6	6	15.7	94	68
24	12	12	6	6	6	6	15.72	93	68
23	12	12	6	6	6	6	15.79	93	68
22	12	12	6	6	6	6	15.80	93	68
21	12	12	6	6	6	6	15.9	93	66
20	12	12	6	6	6	6	15.9	91	65
19	12	12	6	6	6	6	16	90	65
18	12	12	6	6	6	6	16	90	65
17	12	12	6	3	6	6	16	90	65
16	9.12	12	6	3	6	6	16.1	90	64

Percentile	GKPF	GKNPF	GPPF	GPNPF	APPF	APNPF	DB	JG-1	JG-2
15	9	12	6	3	6	6	16.2	89	63
14	9	12	6	3	6	6	16.2	89	63
13	9	9	6	3	6	3	16.2	89	63
12	9	9	6	3	6	3	16.3	88	61
11	9	9	6	3	3	3	16.5	88	61
10	9	9	3	3	3	3	16.6	88	61
9	9	9	3	3	3	3	16.6	88	61
8	9	9	3	3	3	3	16.6	87	60
7	9	9	3	3	3	3	16.7	81	57
6	9	9	3	3	3	3	16.7	81	56
5	9	9	3	3	3	3	16.9	81	53
4	9	9	3	3	3	3	16.9	78	53
3	9	9	3	3	3	0	16.9	78	41
2	9	9	3	0	3	0	17.16	73	31
1	9	9	3	0	3	0	17.9	73	28

GKPF - Goal Kicking with Preferred Foot
GKNPF - Goal Kicking with Non Preferred Foot
GPPF - Ground Passing with Preferred Foot
GPNPF - Ground Passing with Non Preferred Foot
APPF - Air Passing with Preferred Foot
APNPF - Air Passing with Non Preferred Foot
DB - Dribbling
JG-1 - Juggling – 1
JG-2 - Juggling - 2

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