CHAPTER V

SUMMARY, CONCLUSION &
RECOMMENDATIONS
Sports have pre-historic origins. The need to utilize speed, strength, skill, agility and the need to compete seems to be an instinctive characteristic of human beings. So the enterprise of sports that we know today has a long history and has evolved as a major force in our culture. A person after having chosen sports as a career voluntarily becomes trustees of this complex but culturally vital enterprise in our society and has to come up to the expectations of the society by exhibiting his skills proficiently. This is a responsibility that cannot be taken lightly. Commitment, sacrifice, loyalty, honesty, handling success and failure, relationships with others, living with public scrutiny—and the list goes on—are inherent qualities of sports and life.

There is little in our modern world that creates as much excitement as the thrill of a sporting contest. We could all spend several hours together recalling the great moments in sports—our own small victories as well as the achievements of Olympians and professionals. People adore and encourage the athletes to shoot for the stars and aspire to the top echelons. Most of the athletes work hard to arise to the occasions. But they are not successful all the times. Even after sweating hard in the sunlit day when the temperature sometimes rises up to 40 degree, they try hard to achieve their goals. Their coaches are working hard to get best
possible results in every appearance. At this junction, sometimes it is felt that some players, even after tolling hard, are not performing up to the mark even if they are in top physical condition.

High sports performance is not merely the product of physical, psychic and psychological prerequisites possessed by an individual sportsperson. High performances are attained after prolonged periods of practice for acquisition of basic sports skills. Mastery in the basic skills puts the player into a unique position when the comparisons are made. Whereas some players who in spite of their superior physical fitness and mental set-up fail miserably in competing situation of various kinds, due to lack of polished skill ability. Such a player feels handicapped, blocked inhibited, crippled and doomed in testing situations. The importance of the study stems from this very aspect of sports. When the skill efficiency is not given proper care at the onset of the career of a sportsperson, this type of problems do occur. Therefore it becomes important to test the skill ability level of the novice sportsperson at an early stage. Here the role of the first coach or a physical education teacher of the student comes into question.

The need for scientifically constructed instruments to improve the effectiveness of measurement programs in physical education has long been recognized by leaders in the profession. The future of Physical Education and sports depends largely upon the ability of physical education teachers & coaches to test the probable sportspersons and to use the test scores for guiding
young students in appropriate selection of sports and physical activity programme in accordance with their body potentials.

The evaluation of specific sports skills is one of the most important applications of measurement in physical education. The history of sports skill testing can be traced back to the first decade of 20th century. The initial step in constructing sports skill test was taken by Brace in 1924 when he devised a battery of six achievement tests in basketball. During the decades of 1930s, and 1940s, tests were constructed for appropriate age and gender groups. Since these early developments, sports skill testing has shown a steady growth. Genuine attempts have been made to develop skill tests in different sports. The attempts, to construct sports skill tests, continue today because these early tests were designed to reflect rules and techniques of their day.

The skill tests devised and applied by experts; provide the basis for evaluation in sports and physical education. Skills test batteries have been used in physical education and in sport to assess various elements of the skills of players. These assessments served the teacher and coach to determine a player's level of ability, or their progress, weaknesses and strengths. But most of these test batteries for sports performance usually dealt with the physical fitness components like strength and endurance, or the motor skills components, like speed, agility, power, or accuracy and not much heed was paid to develop skill test batteries to measure the skill abilities of the players on objective lines.

Almost all the Olympic disciplines can boast of having skill tests, but the game of handball in its present form is devoid of tests
of skills in handball. The sport of handball as it is played today certainly has a chequered history. Many famous sports historians claim that man started playing handball much earlier than, say, football.

The modern game of handball was first played towards the end of the 19th century in Denmark, Germany and Sweden. The first set of team handball rules was published on October 29, 1917 by Max Heiser, Karl Schelenz and Erich Konigh from Germany.

Presently, International Handball Federation reports to have one hundred and fifty member federations representing approximately eight lac teams and more than nearly nineteen million sportsmen and women from all over the world. Though the game of handball is growing in popularity, since early in the 20th century, not much has been done to formulate to strengthen the basic skill abilities of the talented handball players.

The researcher was of the firm belief that lack of scientific devices to assess the handball playing ability of potential handball players is one of the reasons of poor showing of our country at international level handball competitions. However, few handball tests do exist for judging the playing ability but are considered very old and do not match the latest game playing situations. Therefore, lack of a measure for testing skill ability of the potential handball player prompted the present investigator to develop a skill test for handball players, which could independently measure the handball playing ability based on latest techniques, fundamentals, strategies and requirements and rules of the game.
For that reason, the researcher undertook the project entitled “Construction of handball skill test”.

The objective of the study was to identify the most fundamental skills and skill combinations for handball. The additional purpose was to construct a standardized battery of skill tests for handball on purely objective lines and to prepare a standardized procedure for grading players according to norms/scores obtained.

The study was delimited to the university level handball players (male) of selected universities taking part in North-East Zone and All India Inter-University Handball tournaments in session 2004-05 held at the sports ground of Panjab University, Chandigarh. Only the subjects ranging in between the age of 17 to 25 years were selected. The study was delimited to the development of team handball, and not the wall handball, skill tests.

The present study was descriptive in design. The focus of the study was on the development of a handball skill test to assess handball playing ability of university level handball players.

The study was completed in two phases. For the pilot study phase, twenty Subjects were the probable players of Panjab University Campus Handball Team. These subjects were selected by using purposive sampling technique.

According to Scott and French (1959), “The subjects used in the development of a new test or battery of tests should be a representative of the population for which the instrument is
designed. There is no magical number, which can be given as the one, which will give satisfactory results in all studies.”

As the purpose of the investigator was to construct a skill test battery for University level handball players, the Population under study was highly unique and representative of the population for which the skill test battery was to construct.

In the second phase of study, one hundred and twelve subjects were purposely selected from seven universities of Punjab, Himachal Pradesh, Haryana and Delhi namely Panjab University Chandigarh, Punjabi University Patiala, Guru Nanak Dev University Amritsar, Punjab Agriculture University Ludhiana, Himachal Pradesh University Shimla, Chaudhari Devi Lal University Sirsa Haryana and Delhi University Delhi for the standardization of handball skill test battery.

All these University teams participated in North East Zone and all India Inter-University Handball Championship in the session 2004-2005 at Panjab University, Chandigarh’s sports ground. These seven teams comprised of sixteen members each thereby totaling the number of subjects to one hundred and twelve. But during the data collection two subjects did not take part in the evaluation process thereby leaving the investigator with the sample of one hundred and ten subjects for study.

Available literature from books, journals, and magazine was studied to have a better comprehension of the sports skill test construction. The authenticated websites were also surfed on Internet to have latest information about the subject under study. It was found after reviewing the related literature in dissertation abstracts international, journals, research quarterly, completed
research and unpublished research work that a little work has been done to construct skill tests in the game of handball. Another interesting fact that emerged was that most of these studies had been done by the researchers in advanced and developed countries. Therefore, the results of these studies, to a large extent, were limited by the conditions, both physiological and environmental, that prevail in these countries. To have a better understanding of the concept of test construction, the research scholar had to bank upon the literature related to test construction of different games.

The investigator, with the help of experts, identified factors in areas of ball control and dribbling ability, Short passing, long passing and shooting accuracy. These four skill components are considered the basic skills of Handball playing ability. Extensive discussions with handball coaches, experts and with players worked as a basis for devising fourteen skill test items which, to a greater extent, assessed the proficiency in handball skills keeping in view the progression in the game. Fourteen test items served as tools to measure passing, defensive movement, dribbling and shooting skills of handball players. These test items were so designed, with the help of experts, that they cover most of the basic skills of handball. The services of handball expert were also taken to rate the players. The selected fourteen test items were as follows:

1. Diagonal Defensive Movement Test
2. Rectangular Defensive Movement Test
3. 20 Meter Wall Pass Test
4. 10 Meter Wall Pass Test
5. 22 Meter Floor Pass Test
6. Meter Wall Pass Test  
7. Left Hand Dribble Test  
8. Right Hand Dribble Test  
9. 15 Meter High Dribble Test  
10. Zigzag Dribble Test  
11. Front Shooting Test  
12. Penalty Throw Test  
13. Turn-off and Shoot Test  
14. Jump and Shoot Test  

The intention of this study was to construct a handball skill test battery for handball players who participated in North-East Inter University Handball Championship and in All India Inter University Handball Championship by representing their respective Universities. Additional purposes for developing the test included using the test to screen potential players at the National level, to provide teachers in the schools and colleges with tests that are inexpensive and easy to administer, and to provide self-administered tests that would train the athletes to improve their performance in team handball. As this investigator had to develop a new skill test battery for handball players, no hypothesis was framed.

The testing procedures were very simple to administer and corresponded to an assessment of most of the important skill abilities of an inter university caliber handball team player.
For collecting the data for pilot study, the investigator sought the permission from the authorities of Panjab University Chandigarh for utilizing the sports-ground of Panjab University Campus. The timings for the Administration of tests were fixed in advance taking into consideration the convenience of subjects of study. The morning session i.e. from 6 am to 8 am and evening session from 4.30 pm to 6.30 pm were preferred to conduct the tests. The data cards were prepared and were given to every subject during the administration of the tests to facilitate data collection and to avoid any confusion.

The collection of data in pilot study phase for fourteen skill test items was done in the month of September 2004. The data collected was treated statistically for establishing the reliability, validity and objectivity of the test items, the reliability of the subjects and the tester’s reliability.

All the fourteen test items and their measurements were set on the basis of pilot study which was conducted on the twenty probable players of Panjab University Campus handball team prior to the North-East Zone Inter University handball championship held at sports ground of Panjab University, Chandigarh in session 2004-05. The subjects were from the age group of 17 to 25 years.

Before administering test items, the measuring tapes, stopwatches, handballs etc. used in this study were calibrated at the Department of Physical Education, Panjab University, Chandigarh. Tester’s competency was established, as the research scholar himself is an Indian Combined University level handball player. To acquire proficiency in testing he had a number of
practice sessions in the testing procedure under the supervision of his supervisor and became familiar with the tests and testing procedures. The tester's reliability was also established objectively by correlating the measurements taken by him on randomly selected ten handball players of Campus team of Panjab University Chandigarh with the measurements taken by the supervisor on the same subjects on selected four test items. The high correlation of coefficient derived thereby establishing the tester's competency.

While administering the test items for pilot study, proper care was given to the viability of administering the tests. The written directions for test dimensions; markings, time allotments and the scoring system were prepared in advance after finding the fourteen test items satisfactory. The test items pertaining to the dribbling and defensive movement were measured in seconds as their unit while the tests designed for determine the passing and shooting skills of the subject were measured in number of successful attempts.

The subjects were given a demonstration before the start of every test item. All the test items were subjected to test-retest method to establish objectivity by Cronbha’s alpha reliability analysis. Reliability was ascertained by Guttmann’s split half method. The validity of test items was established using Spearman’s rank correlation method. The twenty subjects of pilot study were rated by an expert. These evaluations were done by the expert through observing the performance of the subjects in the real game situations. The subjects were given ranks from one to twenty on the basis of their general handball playing ability. The expert was technically authority in handball and was also serving
as selector of state and university teams for considerable time period.

The data collected during the pilot study was analyzed by applying factor analytical techniques of statistics. The primary purpose of factor analysis was to define the underlying structure among the variables in the analysis. Among fourteen variables, a matrix of intercorrelation was obtained by applying Pearson's Product Movement method. The scree test was applied to select the principal component for further rotation. For rotated factors, Kaiser's Varimax Criterian was used. The rotation matrix was used for interpretations to extract test items for handball skill test battery.

Factor analysis results extracted four test items namely 15 meter high dribble, 20 second wall pass, front shooting and 22 meter floor pass and made a reason for their inclusion in test battery for university level players. Among the selected four tests, each test represented a different skill ability of the handball player and may reproduce most of the information desirable from all the fourteen test items of the present tests. Thus, these four tests would measure what these 14 tests have in common. Fleishman (1964) was of the opinion that, “inefficient test batteries are those with too many test on one factor and none from one or more of the other factors identified. Further more the addition of more than one test per factor adds relatively new information about a subject’s abilities, relative to the addition of tests from a separate factor.”

The extracted four test items namely 15 meter high dribble, 20 second wall pass, front shooting and 22 meter floor pass were set upon one hundred and ten subjects from seven universities of
Punjab, Himachal Pradesh, Haryana and Delhi namely Panjab University Chandigarh, Punjabi University Patiala, Guru Nanak Dev University Amritsar, Punjab Agriculture University Ludhiana, Himachal Pradesh University Shimla, Chaudhari Devi Lal University Sirsa Haryana and Delhi University Delhi for establishing reliability of the skill test battery and to prepare norms.

The reliability of the test battery items was established by applying Guttman’s split-half method and by test-retest method by applying Cronbha’s alpha reliability analysis. All the four skill test items yielded high correlation coefficients thereby justifying their inclusion in the test battery.

In order to prepare norms for University level handball players, descriptive statistics such as mean, standard deviations were computed.

In this particular battery of handball skill tests, many different concepts relevant to handball were assessed, however they did not comprise all the factors that contribute to high level performance i.e. strategy, coordination between players on and off the field, physical status etc. These components are still obscured in other team sports like basketball, soccer, hockey etc. Nevertheless, by operating this skill test battery of handball, the handball coaches, physical education teachers and potential researchers will definitely become more equipped for identifying basic skills of handball in interested handball players of colleges and universities.
The study will be helpful to choose players for different levels of competitions. By using these test items coaches may improve the results of their teams by taking their test and retest and informing them of results. This will help the coach on one hand to judge a player’s ability in different skills whereas on the other hand the players may also work hard to buff up his basic skills of the game, which tends to be decisive when the two teams are balanced equally on other aspects of game.

5.1 CONCLUSIONS

With the constraints and limitations of the present study the following conclusions can be drawn:

1. The factor analysis of the fourteen skill tests identified four handball skill factors namely Ball control and dribbling, Short passing, Shooting accuracy, and long passing.

2. The four skill test items, which represented high loadings on four rotated factors, are the true tests to measure basic handball skills of dribbling, passing, and shooting.

3. The skill test battery constructed meets the criteria of scientific authenticity i.e. the test items namely 15 Meter High Dribble, 20 Meter Wall Pass, Front Shooting and 22 Meter Floor Pass selected for handball skill test battery are reliable, objective and valid.

4. All the four test items namely 15 Meter High Dribble, 20 Meter Wall Pass, Front Shooting, and 22 Meter Floor Pass indicated a highly significant relationship with handball skill ability.
5. An objective and standard procedure has been prepared for the selection of University level handball players.

5.2 RECOMMENDATIONS

1) Similar studies may be conducted for other sports disciplines.

2) Similar study may also be conducted on different age and performance level of handball players.

3) The test items of test battery developed may be used for selecting College and University handball teams.

4) The norms computed may be used for objectively grading the handball players.

5) Developed skill test battery may be used for evaluation of playing ability of students opting physical education as elective subject where handball is a part of syllabus.