Chapter 3
Methodology

Development and standardization of skill test on korfbal was the prime objective of the present study, where it was mandatory to established standard norms for assessing various skills in korfbal that may also contribute to search talented korfbal players at the college level. As this is a Descriptive Normative Survey study, the researcher follow the standard procedure. She, in fact, considered step wise methods in designing the assessment methods of various skills and further established standard norms. The methodology in details has been presented in this chapter.

3.1 Methodology
The perfect research method decides the accuracy in the results and quality of research findings. Research is a scientific process hence research experts considered research design as a controlled mechanism. This is a descriptive survey study. The study was to develop the skill tests of korfbal game for collegiate players of University of Pune.

3.2 Subjects
Population
The study was confined for the collegiate player from Pune University. Also this study was conducted for Standardization of Skill Tests which includes two stages i.e. construction of skill test and standardization. The skill test construction of the standardization of the tests which is the first step of the study. It was done by constructing and testing these skill tests on the collegiate player from Nasik zone. Hence all the korfbal Players from Nasik district were considered as a sample for this part of the study. (N=50; Male=25 & Female=25). The Norms of the tests was done by conducting constructed skill tests on the korfbal players participated at collegiate level korfbal tournament organized by different zones under the jurisdiction of Pune University and players participating at inter collegiate korfbal Tournament. Therefore

all the players of different colleges from Pune University of this age group participating in these tournaments were the population of the study. (N=414)

Sample
A large number of subjects were required to get reliable results. As this study was restricted to the colleges affiliated to the Pune University, and a large number of varsity Korfball players were necessary, the investigator proposes to select all the colleges those who had korfball teams participating in inter collegiate Korfball competition. Therefore although it was purposive sampling method\textsuperscript{23} the investigator was cover the whole population of varsity level Korfball players under the jurisdiction of Pune University. Since every year there was a possibility of getting approximately 100 male and 100 female Korfball players to collect a large data. The researcher had to wait for two consecutive years 2010-11 and 2011-12.

Table 3.1

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Sports Zone</th>
<th>Year 2010-11</th>
<th>Year 2011-12</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
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<tr>
<td>1</td>
<td>Pune City</td>
<td>24</td>
<td>24</td>
<td>30</td>
</tr>
<tr>
<td>2</td>
<td>Pune district</td>
<td>40</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>3</td>
<td>Ahemd Nager</td>
<td>16</td>
<td>16</td>
<td>20</td>
</tr>
<tr>
<td>4</td>
<td>Nashik</td>
<td>30</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>110</strong></td>
<td><strong>100</strong></td>
<td><strong>110</strong></td>
</tr>
</tbody>
</table>

3.3 Research Procedure
Researcher reviewed literature and books, decided the purpose and format of the skill tests to be constructed. Test item were finalised, based on discussed with experts in the korfball game and observed lot tournaments of same game. After constructing skill test at primary level based on the response of all experts, these skill tests were administered on korfball player and changes were made in order to achieve administrative feasibility. Thus during the pilot study, procedure was finalised and

\begin{footnotesize}
\begin{itemize}
\item \textsuperscript{2} Best, J. W. & Kahn, J. V. (2006). Research in Education. (10\textsuperscript{th} ed.). New Delhi: Prentice Hall P.19
\end{itemize}
\end{footnotesize}
facilities and equipment were finalised accordingly. The construction korfball skill test was administered on the korfball players from Nashik District and reliability, objectivity and validity was established. Norms were developed by administering these skill tests on the korfball players participated at inter collegiate korfball tournament organized by different zones of under jurisdiction Pune University. Finally test manual was written.

### 3.4 Procedure of the study

Generally the normative study is designed to obtain norms for performance, abilities, attitudes etc. The researcher used the same design for this study to develop tests and norms. Therefore this is descriptive normative study (Thomas⁴, 2005) and survey technique was used for collecting data.

#### Step 1. Review criteria or characteristic of good test

Before standardization of any test, it is very important to review the criteria for constructing test to go through the different literature, and to select the appropriate test items⁵ In many test and measurement books⁶,⁷ the criteria need to be followed for construction of new skill test is given: researcher referred several books, ‘Measurement by Physical Education’⁸ ‘Measurement and Evaluation in Human Performance’⁹ and several others, to know all the procedure of standardization of skill test.

In the book Test, Measurement and Evaluation¹⁰, it is stated that a test is said to be good test if it is Precise, Reliable, Objective, Valid, Administratively feasible and bound to lead to excellence.

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Step 2. Analysis sport to be tested

Researcher discussed with experts of korfball game which skill are very important for the game and on that basis researcher decide the skills for the game.

Step 3. Reviewing of literature

Researcher finalized the skill tests which are suitable for the collegiate player of University of Pune by reviewing many more research thesis. The player needs to train mainly in shooting, passing, footwork, agility, pivoting and throwing. Researcher also reviewed certain skill tests from assessing sports skill (Strand\textsuperscript{11} 1993) and analysed the precise method for developing skill tests. The research reviewed the work done on the basis norms preparation, skill construction, reviewing literature; researcher could zero in skill test construction.

Step 4. Selected test item

Test item should be representative of the actual game skill. Researcher considered several things before selecting skill tests. In order to make skill tests more related to the game situations, researcher analysed the execution of the skills.

After studying the literature of previous reviews the researcher selected the important skills with expert’s opinion and observations of different level tournaments with different age groups. Finally researcher decided following skills for research work.

The skills were as follows:

1. Field goal test
2. Korfball throw for accuracy
3. Speed pass test
4. Footwork
5. Agility test

Step 5. Establish Procedure

The researcher prepared the design of the test with the help of experts. The numbers of trails were taken for the testing. The researcher with the help of experts and after studying the different tests of other games finally decided that three trails to be given per test. In this stage offensive, defensive and general skill of korfball were identified

with the help of experts. The technique, design and strategies for construction as well
as evaluation of each skill were formulated and improved. Each of the identified skills
could be called test item by considering the judgement of various experts in the area
of the physical education and sports and on basis of investigation professional of the
experts.

**Step 6. Peer Review**

After Construction and establishment of korfball tests were checked from expert and
examine the test battery.

**Step 7. Pilot Study**

Researcher analysed important basic skills used in the Korfball with help the experts
from Korfball field. Five skill tests shooting, throwing, passing, footwork & agility
and pivoting were designed and pilot study was conducted. The newly designed skill
tests were administered on collegiate players from the Inter Collegiate tournament of
nashik zone and test were revised. A newly formulated test items were modified.
After the modification the test “Korfball throw for accuracy” rejected due to time
wasting, manpower and money. In pilot study, in the test of “pivot test”, the distance
of test increased because primary distance was 75cm each side and 25 cm distance
increased to each side. One more test was modified in pilot study. Speed pass test
distance was 5m on wall and it is decreased 2m and set 3m distance and floor distance
was 4m it is also decreased 1m and set 3m distance for test. Remaining constructed
tests were included in the korfball skill test.

**Step 8. Determine Validity, Reliability and Objectivity**

Reliability, validity and objectivity was established by following procedure given in
various books of tests, measurement and evaluation. A test is called reliable
because there are reasons for believing the test to be stable and trustworthy. There are
several methods of determining reliability of the test out of these; researcher used test-
retest (repetition) method. The tests were given repeatedly on the same group and
correlation computed between.

In this stage fifty (N=50) college level male and female (25 male and 25 female)
korfball players from nashik zone s different colleges from Pune University between

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18 to 29 years were tested primarily by administrating the newly constructed test on first try out basis for reliability. The limitation in administrating each test item was recorded for further improvement of the test. After one month, the test item administered for second try out. The test retest was assessed for each test item and also for a test battery a whole. The significant reliability coefficient ensured the priminialy form of the test for develop validity.

The validity of test depends on the fidelity with which it measures what it supposed to measures. Researcher referred many ways for validating the skill tests as determining validity by means of judgements (face validity), determining the validity experimentally, factorial validity etc. and from these methods, determining the validity experimentally was used to find out validity of all constructed skill tests. Total 50 korfball players were selected and administered constructed skill tests on them. Also their rating of skill performance was done with the help of their coaches and teachers. Correlation between these skill tests scores and ranking was calculated to decide the validity of all constructed skill tests.

To decide the objectivity of all constructed skill tests, researcher took the help of experts from korfball field. Researcher administered all constructed korfball skill tests on 50 players and made correlation between these two data sets to find out the objectivity of the tests.

**Step 9. Developed norms and standards**

Construction and Standardization of Skill test researcher conducted all 4 test on Korfball players who playing Korfball under jurisdiction of Pune University. After reviewing the criteria and various literature, related to the skill tests and construction of skill tests, test item were finalised. With the help of coaches and experts from korfball field, the procedure and administration of the skill tests were finalised. All the required facilities and equipment were finalised and constructed the test manual for research study

**3.5 Tool of the study**

Before conducting the actual tests the subjects were explained the various test items in which they had to participate. In order to get the best effort from the subjects, help from professionally qualified physical educational personnel and the physical education professors of the respective colleges was sought. Prior to data collection,
the investigator trained them physically, so that these assistants could help to collect the data accurately.

In order to make study more reliable the investigator informed to the students that performing these tests are not harmful in their academic achievement, rather it would help them to know their level of skill performance. Due to busy schedule of the college, it was difficult to get permission to conduct these tests in selected colleges. However, the principals of the college were kind enough in allowing the students to participate in this study as subjects. The researcher conducted the tests in those colleges during college hours where she got the permission from the principal of the colleges.

There were 04 events, in which the students participate actively, as follow:

1. Field goal test
2. Korfball throws for accuracy
3. Speed pass test
4. Footwork and agility test

The basis of selection of these test items has been presented in next chapter.

The main instrument used to conduct all these items was stopwatch. Since they (stopwatches) have been purchased from standard company for the purpose of research, it has been considered that they had sufficient level of reliability and validity. Prior to using these stopwatches, the investigator tested them and found functioning well. All the stopwatches were also exposed to assess the performance ability of one subject in one event and the available score of all watches were correlated (‘r’ range from 0.96 to 0.98) significantly (p<0.01). The items included in the test were simple and could be performed by the students easily, without affecting their validity and reliability. The test items were conducted strictly for every subject. Before the actual administration of the tests, the subjects were given an opportunity to participate in each of the test items so that they were well acquainted with testing procedures.
3.6 Description of Test Items of Korfball Skill Test

3.6.1 Field Goal Test

Purpose:
To measure the ability to make maximum successive field goals in the given time.

Equipment:
Korfball Pole, standard Korfball, stopwatch, whistle, chalk powder, scorecard or recording sheet and pencil.

Play field area

![Field goal test](image)

Fig 3.1 Field goal test

Description or test and procedure

- The subject should stand inside the shooting circle.
- When the whistle blows the players shoot in the basket.
- The shot can be attempted from in or out side of the shooting circle.
- The tester should intimate the start and stop signal by whistle.
- The test should last for one-minute duration.
- Each subject will be allowed to do three trails with short intervals of 30 second in between the trails.
**Scoring:**
The number of successful converts will be considered for the scoring or count. Best of three trials of the subjects will be score.

**3.6.2 Speed pass test**

**Purpose**
To measure the speed with which player can continue to pass and catch a ball in Korfball game.

**Equipment:**
A levelled floor or ground, a concrete wall with a smooth surface, a stopwatch, a standard Korfball, measuring tape, chalk powder, scorecards or recording sheet and pencil.

**Play field area**

![Fig 3.2 Speed Pass test](image)
Description or the test and procedure

- The player stands behind the starting line, four meter from the wall.
- When the signal “start” is given the player starts throwing the ball against the wall as rapidly as possible within one minute and is told to stop on completion of one minute.
- Some warm up practice is allowed.
- Each subject will be allowed to do three trails with short intervals of 30 second in between the trails

Rules

- All passes must be made from behind the restraining line
- The ball cannot be battered. It must be caught and pass.
- If the ball is dropped, the players must recover of and continue from behind the restraining line.
- The ball may hit the wall over five meter height.

Scoring:
The subject after the command of whistle starts passes and receives the ball from the wall. The number of correct receiving will be counted as the final score. Best of three trails of the subjects will be score.

3.6.3 Footwork and agility test

Purpose
To measure foot work and agility in Korfball players

Equipment
A level floor or ground, chalk powder, a stopwatch, measuring tape, scorecards or recording sheets, Korfball pole and pencil.
Description of test and procedure

- The player begins by starting from both feet and touches the ‘A’ point.
- On the signal whistle “Go” the player move forward & turn over the cone from right side & touches to “B” point.
- then the player do the same process for touching C, D and E points like A and B points.
- Finally turns to cone from right side and touches “A” points.

Rules

- All steps must be shuttle
- To touch clearly to each cone
- The described sequence must be followed

Scoring

The subject starts on the command or whistle. The subject move around the circle pole as directed. The minimum time will be taken for the completion of all the five side (A-E) cones to count the final score. Best of three trails of the subjects will be score.
3.6.4 Pivot test

**Purpose**
To measure the pivot ability of Korfball players.

**Equipment**
Cone, chalk powder, measuring tape, stopwatch, recording sheet & pencil.

**Play field area**

![Fig 3.4 Pivot test](image)

**Description of test and procedure**
- The player stands in 25cm radius circle. After the signal “whistle” the player will start stepping clockwise.
- Subject’s one leg will be static in the circle and another leg will move clockwise touches the four cones.
- Repeat the similar move anticlockwise by using another leg.
- Each subject will be allowed to do three trails with short intervals of 30 second in between the trails.

**Scoring**
The minimum time taken by the subject to complete the test with both leg will be considered for final score. Best of three trails of the subjects will be score.
3.7 Statistical tools used
Following statistical tools have been used for data analysis:

- Test re-tests reliability and total item coefficients were determined by employing Pearson’s product moment correlation method.
- Content validity was determined by analyzing the opinion of the various experts in area of sports and physical education.
- Normality of the scores of each event was tested on basis of the characteristics (skewness, kurtosis, and their critical ration and standards error, percentage of distribution of scores)\(^{14}\) of normal probability curve.
- Percentile norms of each event and total test were calculated by using standard formula.
- The item wise normative data was graded on the basis of principle of Rank order Method\(^{15,16}\).

3.8. Data analysis:
Descriptive statistics was used for obtaining mean and standard deviation. The percentile method\(^{17}\) was used to prepare the norms. The detailed analysis, interpretation & grading scale is given in Chapter IV.


