CHAPTER-III

METHODOLOGY

In this chapter the methodology used in the selection of subjects, selection of variables, pilot study, collection of data, the orientation procedures, tools used and statistical procedure have been presented. The purpose of the study was to find out the relationship of morphological and motor ability variables with the game performance of sub junior national male kabaddi players of Southern India.

3.1 SELECTION OF SUBJECTS

To achieve the purpose of the study, the researcher selected sixty sub junior national Kabaddi players of southern India who have participated in the 23rd Sub-Junior National Championship organized by Jyoti Youth Club and Ranga Reddy District Kabaddi Association under the auspices of Hyderabad State Kabaddi Association and Amateur Kabaddi Federation of India held at Jyoti Youth Club Grounds, Saroornagar, Hyderabad on 4th to 6th November, 2011, representing their respective states and their age ranged from 15-16 years.

3.2 SELECTION OF VARIABLES

The researcher reviewed number of books, journals, research articles, coaching manuals and found that game performance of Kabaddi player may have relationship with selected morphological variables and motor ability variables and the researcher made a series of discussion with subject experts in the field of sports and research and also with the help of the guide and experts, the following variables were selected.

I. Morphological Variables:

1. Standing Height
2. Body Weight
3. Elbow Diameter
4. Calf Girth
5. Arm length
6. Leg Length
7. Percentage of Fat (% Fat)

II. Motor Ability Variables

1. Muscular Endurance of Arms.
2. Abdominal Muscular Endurance
3. Explosive Power of Arms
4. Explosive Power of Legs
5. Running Speed
6. Stretch Ability of Legs
7. Extent Flexibility of Trunk
8. Agility
9. Dynamic Balance

III. Kabaddi Game Performance:

Game performance (Total performance of the selected subjects are rated by experts subjectively on a 10 point scale (Coaches Rated Performance Evaluation)

3.3 CRITERION MEASURES

By glancing the literature and in consultation with professional experts, the following measures were applied to collected data on selected criterion and predictor variables.
Table-3.1

Criterion Measures

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Variables</th>
<th>Equipment</th>
<th>Criterion Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Morphological Variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Height</td>
<td>Stadiometer</td>
<td>Centimeter</td>
</tr>
<tr>
<td>2.</td>
<td>Weight</td>
<td>Standard Weighing Machine</td>
<td>Kilograms</td>
</tr>
<tr>
<td>3.</td>
<td>Elbow Diameter</td>
<td>Small Sliding Caliper</td>
<td>Millimeter</td>
</tr>
<tr>
<td>4.</td>
<td>Calf Girth</td>
<td>Flexible Tape</td>
<td>Centimeter</td>
</tr>
<tr>
<td>5.</td>
<td>Arm length</td>
<td>Flexible Tape</td>
<td>Centimeter</td>
</tr>
<tr>
<td>6.</td>
<td>Leg length</td>
<td>Flexible Tape</td>
<td>Centimeter</td>
</tr>
<tr>
<td>7.</td>
<td>% Fat</td>
<td>Skinfold Caliper</td>
<td>Millimeter</td>
</tr>
<tr>
<td></td>
<td><strong>Motor Ability Variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Muscular Endurance of Arms</td>
<td>Push up</td>
<td>Max. No. of repetition.</td>
</tr>
<tr>
<td>2.</td>
<td>Abdominal Muscular Endurance</td>
<td>Bent Knee Sit ups</td>
<td>Max. No. of repetition.</td>
</tr>
<tr>
<td>3.</td>
<td>Explosive Power of Arms</td>
<td>Two Hand Medicine Ball Put</td>
<td>In Meters</td>
</tr>
<tr>
<td>4.</td>
<td>Explosive Power of Legs</td>
<td>Five double Leg bounds</td>
<td>In Meters</td>
</tr>
<tr>
<td>5.</td>
<td>Running Speed</td>
<td>30 Mts. Run (Standing Start)</td>
<td>In Seconds</td>
</tr>
<tr>
<td>6.</td>
<td>Stretch ability of Legs</td>
<td>Side Splits</td>
<td>Centimeter</td>
</tr>
<tr>
<td>7.</td>
<td>Extent Flexibility of Trunk</td>
<td>Extent Flexibility Test</td>
<td>Centimeter</td>
</tr>
<tr>
<td>8.</td>
<td>Agility</td>
<td>Semo Agility</td>
<td>In Seconds</td>
</tr>
<tr>
<td>9.</td>
<td>Dynamic Balance</td>
<td>Modified bass test of dynamic balance</td>
<td>Points (numerical)</td>
</tr>
<tr>
<td></td>
<td><strong>III Performance</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Game Performance</td>
<td>Coach Rated Performance</td>
<td>In points</td>
</tr>
<tr>
<td></td>
<td><strong>Evaluation</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3.4 PILOT STUDY

The researcher conducted a pilot study with ten players who were not subjects of the research study to determine the methods of testing, evaluate the competency of the researcher testing, recording the timings and scores and field equipments used in the present investigation.

3.5 RELIABILITY OF DATA

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

3.5.1 Instrument Reliability

The instruments were used from standard companies and their calibrations were accepted as reliable at par with international standards. The measurements were collected twice and correlated for reliability. The intra class correlation coefficient obtained by test-retest method is presented in Table-3.2

3.5.2 Tester's Reliability

The tester's competency was established together with reliability of test. To determine the reliability of the test, the performance of ten subjects were recorded twice under similar conditions by the investigator with the help of suitable and appropriate guidance. This was done by the test and retest method on consecutive days. The repeated measurement of subjects was conducted on the selected predictor variables to determine reliability in a univariate situation.

3.5.3 Reliability of the Subjects

The co-efficient of Correlation in Table-3.2 also indicated the subject reliability because the same subjects were used under similar conditions by the same test. No motivation techniques were used at the time of the testing periods.
### Table-3.2

Reliability Coefficient of the Subjects in Morphological, Motor Ability and Performance by Test and Retest Method

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Test Items</th>
<th>Coefficient of Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td>Morphological Variables</td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Height</td>
<td>0.82</td>
</tr>
<tr>
<td>2.</td>
<td>Weight</td>
<td>0.81</td>
</tr>
<tr>
<td>3.</td>
<td>Elbow Diameter</td>
<td>0.92</td>
</tr>
<tr>
<td>4.</td>
<td>Calf Girth</td>
<td>0.86</td>
</tr>
<tr>
<td>5.</td>
<td>Arm length</td>
<td>0.86</td>
</tr>
<tr>
<td>6.</td>
<td>Leg length</td>
<td>0.85</td>
</tr>
<tr>
<td>7.</td>
<td>% Fat</td>
<td>0.90</td>
</tr>
<tr>
<td>II.</td>
<td>Motor Ability Variables</td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Muscular Endurance of Arms</td>
<td>0.85</td>
</tr>
<tr>
<td>2.</td>
<td>Abdominal Muscular Endurance</td>
<td>0.80</td>
</tr>
<tr>
<td>3.</td>
<td>Explosive Power of Arms</td>
<td>0.82</td>
</tr>
<tr>
<td>4.</td>
<td>Explosive Power of Legs</td>
<td>0.89</td>
</tr>
<tr>
<td>5.</td>
<td>Running Speed</td>
<td>0.91</td>
</tr>
<tr>
<td>6.</td>
<td>Stretch ability of Legs</td>
<td>0.90</td>
</tr>
<tr>
<td>7.</td>
<td>Extent-Flexibility of Trunk</td>
<td>0.92</td>
</tr>
<tr>
<td>8.</td>
<td>Agility</td>
<td>0.90</td>
</tr>
<tr>
<td>9.</td>
<td>Dynamic Balance</td>
<td>0.92</td>
</tr>
<tr>
<td>III.</td>
<td>Game Performance</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Performance Rating Scale</td>
<td>0.82</td>
</tr>
</tbody>
</table>

* Significant at 0.01 level
3.7 ORIENTATION OF THE SUBJECTS

In order to get the full co-operation from the subjects, the researcher explained to the subjects the purpose of the study, tests to be administrated and procedure to be followed in the administration of the test. Practice trials were conducted to help the subjects to understand the method of testing.

3.8 TEST ADMINISTRATION

The following tests were administered to measure the morphological, motor ability variables and game performance of Kabaddi players. The method of data collected from the sub junior national kabaddi players on selected morphological and motor ability variables along with game performance variables were explained below.

3.8.1 MORPHOLOGICAL VARIABLES

1. Height

Objective: To measure the height of the body

Equipment: Stadiometer

Procedure: The standing height will be measured with the subject standing erect without shoes and socks on the floor board of stadiometer. The subject is asked to stand with heels whether, buttocks and back touching the vertical scale of stadiometer and the head oriented in F.H. plane. The subject is asked to take a deep breath and stand still, while the measurement is taken. A stiff wooden foot scale is held vertically on the landmark vertex, slightly pressing the subjects head and touching the stadiometer at a right angle. The subject is asked to step out from the stadiometer by lowering the head and the reading indicated by the lower end of the wooden scale on stadiometer graduations is recorded to the nearest centimeter.
Illustration 1: Measuring Height

Illustration 2: Measuring Weight
2. Body Weight

Objective: To measure the weight of the body

Equipment: Weighing machine

Procedure: The body weight of each subject will be taken on a portable weighing machine. The subject is asked to wear only under clothing and be barefooted. The accuracy of the weighing machine will be checked at intervals with standard weights. Before taking the measurements, care will be taken to see that the pointer of the weighing machine stood at zero when there is no weight on it. The measurement of body weight will be recorded to nearest half a kilogram.\(^1\)

3. Elbow Diameter

It is the width of the elbow joint, measured by using a small sliding caliper. Subject stands comfortably, with arm horizontal and forming a right angle with the forearm. The caliper applied bisecting the angle of elbow and measurements were recorded in centimeters.

Illustration 3: Measuring Elbow Diameter

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\(^1\) Karger, “Physical Structure of Olympic Athletes” Mogap Series, Medicine Sport, Vol-16, P.150-155.
4. Calf Girth

It is the circumference of calf muscle. Measurement is taken while the subject is in standing position, a flexible tape is applied at the bulging or midpoint of the lower leg and measurements are recorded in centimeters with the help of flexible tape and measurements were recorded in centimeters.
5. Arm Length

It is the length of the arm from acromion point of shoulder joint to dactylion point of middle finger. Measurement is taken while the subject is in standing position, by a flexible tape and measurements were recorded in centimeters.

Illustration 5: Measuring Arm Length
6. Leg Length

It is the length of the leg from anterior iliospinale point of hip joint to bottom of heel. Measurement is taken while the subject is in standing position, by a flexible tape and measurements were recorded in centimeters.²

Illustration 6: Measuring Leg Length

7. Percentage of Fat

This method is probably the most widely used of all and it is based on the fact that about one-half of the total adipose tissue is kept in specialized cells within the subcutaneous areas beneath the skin. A fold involving two layers of skin and subcutaneous structures can be held between the thumb and index finger while the skinfold caliper is being applied.

All determinations will be made on the right side of the body. The calipers should be applied about 1 cm from the fingers holding the skinfold and at a depth that is about equal to the thickness of the fold. All measurements will be taken with the skinfold in a vertical position, except where the natural folding of the skin is in opposition in which case the measurements made with the skinfold along the lines of the natural folding. The quantity of stored fat will determine the thickness of the fold. All readings should be recorded in millimeters. A specific equation will be employed to assess the percentage of body fat.

Body Density Equations: Durnin and Womersley Method

These formula developed by Durnin and Womersley (1974) can be used to estimate body fat percentage using skinfold test results. The Durnin and Womersley formula is a general equation with limited population specificity since it was developed from a heterogeneous group of varying ages.

The calculation of body fat % involves measuring four skinfold sites; 1) Triceps, 2) Biceps, 3) Subscapular and 4) Suprailiac, and substitute the log of their sum into one of the following equations, Where D = predicted density of the body (g/ml), and L = log of the total of the 4 skinfolds (mm). The density value can then converted to Percent bodyfat (%BF) using the Siri Equation.3

<table>
<thead>
<tr>
<th>age (years)</th>
<th>equations for males</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 17</td>
<td>D = 1.1533 - (0.0643 X L)</td>
</tr>
</tbody>
</table>

Siri Equation

Many body composition equations derive their measure of percent body fat from first determining body density. Once body density is determined, percent bodyfat (％BF) can be calculated using the Siri equation is; ％Body Fat = (495 / Body Density) - 450.

1. Triceps Skinfold

The triceps skinfold site is one of the common locations used for the assessment of body fat using skinfold calipers.

Procedure: The subject in standing position, keeping the arm relaxed with the palm of the hand facing forwards (supinated). Tester takes a vertical pinch, parallel to the long axis of the arm, is made at the landmark at the level of the mid-point between the acromiale (lateral edge of the acromion process, e.g. bony tip of shoulder) and the radiale (proximal and lateral border of the radius bone, approximately the elbow joint), on the mid-line of the posterior (back) surface of the arm (over the triceps muscle).

Illustration 7: Measuring Triceps Skinfold
2. Biceps Skinfold

The bicep skinfold site is one of the common locations used for the assessment of body fat using skinfold calipers.

Procedure: The subject in standing position, keeping the arm relaxed with the palm of the hand facing forwards. Tester takes a vertical pinch, parallel to the long axis of the arm, is made at the landmark at the level of the mid-point between the acromiale (lateral edge of the acromion process, e.g. bony tip of shoulder) and the radiale (proximal and lateral border of the radius bone, approximately the elbow joint), on the mid-line of the anterior (front) surface of the arm (over the biceps muscle).

3. Subscapular Skinfold

The subscapular skinfold site is one of the common locations used for the assessment of body fat using skinfold calipers.

Procedure: The subject stand straight, the tester pinch following the natural fold of the skin, approximately on a line running laterally (away from the body) and downwards (at about 45 degrees) at the lower angle of the scapula (bottom point of shoulder blade).

4. Suprailliac (Iliac Crest, Iliocristale,) Skinfold

The iliac crest skinfold site is one of the common locations used for the assessment of body fat in athletes.

Procedure: The subject in standing position, the fold is directed anteriorly and downward in line with the natural fold of the skin, immediately above the iliac crest (top of hip bone), on the most lateral aspect (side). The right arm of the subject was held across the body to keep it away from the measurement area.
Illustration 8: Measuring Biceps Skinfold

Illustration 9: Measuring Subscapular Skinfold

Illustration 10: Measuring Suprailliac Skinfold
3.8.2  MOTOR ABILITY TESTS

1. PUSH-UP TEST

Aim: To measure the muscular endurance of arm and shoulder girdle.

Equipments: A mat on the floor.

Test administration: From a straight arm front leaning rest position, the performer lowers the body until the chest touches the mat and then pushes upward to the straight arm support. The exercise is continued for as many repetitions as possible without rest. The body must maintain a straight line throughout the exercise.

Scoring: Maximum number of correctly executed push-ups by each subject will be counted.4

2. BENT KNEE SIT-UPS

Aim: To measure abdomen endurance.

Equipments: A stop watch and mats.

Test administration

The subject lay flat on the back with knees bent and feet on the floor with the heels one foot from the buttocks. The knee angle was 90 degrees. The fingers are interlocked and placed behind the neck with the elbows touching the floor. The feet were held securely by a partner. When the subject was ready the tester gave the ‘start’ signal, and the subject then curled up to a sitting position and touched the elbows to the knees. When he returned to the starting position, his elbows lay flat on the floor or mat. The subject performed sit-ups as fast as possible for 60 sec. The ‘stop’ signal was given after 60 seconds(Illustration 5).

Scoring

The score was the number of sit-ups completed in 60 seconds.5

Illustration 11: Push up Test

Illustration 12: Bent Knee Sit-ups Test
3. TWO HAND MEDICINE BALL PUT

Aim: To measure the power of the arms.

Equipments: A 6-lb medicine ball, marking material, a small rope, a chair and measuring tape.

Test administration: From a sitting position in a straight back chair, the performer holds the ball in both hands with the ball drawn against the chest and just under chin. He then pushes the ball, and held tout to the rear by a partner in order to eliminate rocking action during the push. The performer's effort should be primarily with the arms.

Scoring

The distance of the best three trials measured to the nearest centimeter is recorded as the score. The distance is the measure from the forward edge of the chair to the point of contact of the ball with the floor.  

4. FIVE DOUBLE-LEG BOUNDS

AIM: To assess explosive power of legs and coordination.

Equipments: Steel measuring tape and color marker/powder.

Procedure: A leveled area free from obstacles was chosen for the test. The subject stands with both feet together behind the starting line. Then he takes five consecutive double leg jumps forward, stopping on the fifth one. There should be no pause between jumps and no extra foot contacts. The subject is told to stop on his fifth jump.

Scoring The distance from the starting line, to the heel of the rear foot of the fifth jump will be measured in meters and centimeters. Best of the three efforts will be counted.

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Illustration 13: Two Hand Medicine Ball Put Test

Illustration 14: Five Double leg Bounds Test
5. THIRTY-METERS RUN (STANDING START)

Aim: To measure the running speed.

Equipments: Electronic Stop watch, measuring tape.

Test administration

A sufficiently large free flat area was chosen for the conduct of the test. Two straight lines were drawn parallel to each other at a distance of thirty meters from each other. The subject stood behind the starting line in a comfortable position. On the command “go” the subject ran thirty meters distance at top speed. A timer positioned in line with the finish line recorded the time taken to cover the thirty-meter distance (Illustration 1).

Scoring

Time taken to cover 30 meter was recorded in 1/100 of a second.  

6. EXTENT FLEXIBILITY TEST

**AIM:** To measure extent flexibility of trunk, back arm and shoulder muscles in a lateral movement.

**Equipments & Facility:** Scale marking on the wall as mentioned in the procedure.

**Procedure:** The right-handed subject stands with left-side towards the wall so that the fist can just touch it when the left arm is held side horizontal. The feet are together and perpendicular to, with toes touching, a line drawn at right angles to the wall. To assume the starting position the right arm is raised side horizontal with palm down and fingers extended together, and an assistant (or) partner places a foot alongside the tester’s right foot to prevent. From this position the subject twists clockwise reaching back around as far as possible to touch the wall scale momentarily with the right hand. One practice trial is given, followed by one test trail which is scored as the farthest point held at least two seconds and measured to the nearest inch. The wall scale is 30 inches long, marked in half-inch intervals, and of sufficient width to accommodate varying heights of testers. The scale is aligned horizontally so that the 12inch mark is directly above the floor line.

**Scoring / Grading:** Higher the score higher the flexibility. ⁹

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Illustration 16: Extent Flexibility Test
7. SEMO AGILITY TEST

Objective: To measure the general agility of the body in maneuvering forward, backward and sideward.

Equipment and Materials: This test was designed to utilize the free throw lane of a basketball court, but any smooth area 12 by 19 feet with adequate running space around it will suffice. Four plastic cones (9- by 9-inch base with 12-inch height) "or suitable substitute objects and a stopwatch are needed. The cones are placed squarely in each corner of .the free throw lane as seen in above figure.

Directions: The students line up outside the free throw lane (at A). With his back to the free throw line, the performer waits for the signals "ready, go." The student should side step from A to 6 and pass outside the corner cone. He should then backpedal from 8 to D and pass to the inside of the corner cone. He then should sprint forward from D to A and pass outside the corner cone. He should then backpedal from A to C and pass to the inside of the corner cone. He should then sprint forward from C to B and pass outside of the corner cone. He should then side step from B to the finish line at A

Scoring: The better of two trials recorded to the nearest 1/10 sec.\textsuperscript{10}

Illustration 17: SEMO Agility Test

8. MODIFIED BASS TEST OF DYNAMIC BALANCE

AIM: To measure the ability to jump accurately and maintain balance during and after movement.

Directions: The subject stands with the right foot on the starting mark, leaps to the first tape mark, (the tape should measure 1-by-3/4th of an inch) with the left foot and tries to hold a steady position on the ball of his left foot for as many seconds as possible up to 5 seconds. He then leaps to the second tape with the right foot and so on, alternating the feet from tape to tape. He should remain on each tape mark for as many seconds as possible up to a maximum of 5 seconds, and his foot must completely cover the tape so that it cannot be seen.

Scoring: The score for each mark successfully landed on is 5 points and in addition one point is awarded for each second the balance is held up to 5 seconds per mark.11

Illustration 18: Modified Bass Test of Dynamic Balance


3.8.3 KABADDI PERFORMANCE RATING SCALE

The data pertaining to the performance ability of national male sub junior Kabaddi players were gathered by adopting rating method. A panel of three expert coaches rates the subject’s performance skill, technique and application of skill in the game situation.

Criterion measure:

Criterion measure selected for the present study was performance ability among Kabaddi players. The performance of players was evaluated individually by subjective rating during the competition in the following areas; 1) Toe touch ability, 2) Kicking ability, 3) Hand touch ability, 4) Tactics (scoring rate), 5) Supporting ability, 6) Catching ability, 7) Positional play in defense, 8) Control, 9) Past and present achievement and 10) General behavior were assessed on 10 point rating scale. The rating was based on subjective evaluation to predict the performance ability among kabaddi players (See Appendix).

Instructions for the expert:

1. The given criteria performance analysis chart was explained clearly and handed over to the experts to assess the performance of the kabaddi players.

2. To rate the performance of Kabaddi players, three Kabaddi coaches rate the performance in competition on a ten (10) point rating scale.

3. The rating scale had ten categories with each category scored from a minimum of one (1) point to a maximum of ten (10) points.

4. The experts were informed to follow a uniform pattern of game observation. Guidelines and performance chart were provided.

5. Expert should encircle the number in each category.

6. Expert should assess each category separately and independently.

7. Point secured by each player in each category is to be totaled and divided by ten (10) to get the performance rating of the player.

8. The average of three experts was the measure of criterion for each subject.
Thus the performance ability was estimated.

**Performance Rating Scale for Assessment of Performance**

of Junior National Male Kabaddi Players

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Variables</th>
<th>Performance</th>
<th>Max Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Toe touch ability</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>Kicking ability</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>Hand touch ability</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td>10</td>
</tr>
<tr>
<td>4</td>
<td>Tactics of defense</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td>10</td>
</tr>
<tr>
<td>5</td>
<td>Ability to Support</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td>10</td>
</tr>
<tr>
<td>6</td>
<td>Catching Ability</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td>10</td>
</tr>
<tr>
<td>7</td>
<td>Positional Play in defense</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td>10</td>
</tr>
<tr>
<td>8</td>
<td>Control</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td>10</td>
</tr>
<tr>
<td>9</td>
<td>Past and present achievement</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td>10</td>
</tr>
<tr>
<td>10</td>
<td>General behavior</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td><strong>Total Points</strong></td>
<td></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

3.8.4 Collection of Data:

The selected Morphological Variables and Motor Ability variables are measured as per the procedure and instructions available in the literature and the data in respect of the performance of the subject are collected in numerical form from the coach’s ratings. All the data are in numerical form.

3.9 **STATISTICAL ANALYSIS**

To find the significant differences in the selected variables among Kabaddi Players of different States researcher applied One-Way ANOVA (Analysis of Variance) and LSD (Least Significant Difference) post-hoc test follow-up test.
determine the relationship between dependent variable and independent variable, Pearson’s Product Moment Method of Correlation was applied.

Further the researcher used Regression Analysis to develop the prediction equations for assessing the game performance of Kabaddi players. For the computation of multiple regression analysis was selected on the basis of coefficient of correlations with game performance of Kabaddi players. The Multiple Correlation and Multiple Regression Equations were computed to find out the prediction of selected morphological and motor ability variables for the prediction of game performance of Kabaddi players. In all the cases 0.05 and 0.01 level of significance was fixed to test the hypotheses.

The Data were analyzed using SPSS version 11.5.