CHAPTER III
METHODOLOGY

PROCEDURE

In this chapter the selection of subjects, selection of variables, reliability of data, tester’s competency, subject’s reliability, administration of test and statistical analysis of data are described.

SELECTION OF SUBJECTS

For the purpose of the study 150 Basketball players were selected as subjects (50 All India interuniversity players, 50 inter college players and 50 under-19 school players). The subjects were thoroughly acquainted with the testing procedure as well as the purpose and significance of the study. A thorough orientation of requirements during the testing procedures and performance test were made for successful completion of study. The selected sample consists of 150 basketball male players under-19 school players, 50 inter college players and 50 all India interuniversity players. They were requested by the scholar to cooperate and to participate with utmost sincerity. Everything regarding the tests were made clear and finally requested to participate whole heartedly in the present study.

SELECTION OF VARIABLES:

On the basis of available literature in Physiology, Body Composition and Psychomotor Variables tests, the following variables were selected for this study.

I. PHYSIOLOGICAL VARIABLES:
   i. Vital capacity: This variable was assessed by Spirometer with computer (spiroexcel) and measured the following:
      a. Forced Vital Capacity (FVC)
      b. Peak Expiratory Flow (PEF)
c. Peak Inspiratory Flow (PIF)

ii. VO\textsubscript{2max}: Maximum Oxygen Consumption was assessed with the help of Rockport calculation.

II. BODYCOMPOSITION VARIABLES:

i. Body Fat%: It was analyzed with the help of Body Composition Monitor with scale HBF-361.

ii. Visceral fat: It was calculated with the help of Body Composition Monitor with scale HBF-361.

iii. Body Mass Index (BMI): It was calculated with the help of Body Composition Monitor with scale HBF-361.

iv. Basal Metabolic Rate (BMR): It was calculated with the help of Body Composition Monitor with scale HBF-361.

III. PSYCHOMOTOR VARIABLES:

i. Speed Ability: Speed was measured by applying a standard test of 50 yards dash (Johnson, Borrey and Nelson, Jack K.1988).

ii. Agility: Shuttle Run was used to measure Agility of the Basketball Players (Johnson, Borrey and Nelson, Jack K.1988).

iii. Differentiation Ability: It was determined by using backward medicine ball throw test and will be recorded in points.

iv. Orientation Ability: It was assessed by using medicine ball run test and will be recorded in \(1/100\)th of second.

v. Balance Ability: This variable was assessed by using ‘Stork Stand Test’ and will record in \(1/100\)th seconds.

vi. Rhythm Ability: It was measured through ‘Straight and Rhythm Run Test’ and will record in \(1/100\)th second.

vii. Reaction Ability: This variable was evaluated by using ‘Visual Reaction Timer’ and will record in \(1/100\)th seconds.
RELIABILITY OF DATA

To obtain variable measurements, standard and calibrated equipments like Spirometer with Computer, Rockport Calculator, Body Composition Monitor with Scale HBF-361, Audio-Visual Reaction timer, Steel tape, Stop Watches, and Medicine Balls were used. All the equipments and software were supplied by standard agencies and companies and their accuracy was ensured by the experts and suppliers. All the measurements pertaining to the variables were taken by the researcher under the expert’s guidance. So the data collected by using these instruments and software were considered reliable for the purpose of this study. The reliability of data was ensured by establishing the instrument’s reliability, tester’s competency and reliability of tests and subject’s reliability.

Instrument’s Reliability:

Spirometer with Computer, Rockport Calculator, Body Composition Monitor with Scale HBF-361, Audio-Visual Reaction timer, Steel tape, Stop watches used for measuring the performance of subjects for Physiological, Body Composition and Psychomotor variables were obtained from well known standard firms which supply to various research laboratories in India and abroad. All the medicine balls used for the test were checked and weighed to ensure that they were of the required standard. All these equipments were available at the Research Laboratory and Sports store at Department of Physical Education, Punjabi University Patiala and their calibration were accepted as accurate enough for the purpose of this study.

TESTER’S COMPETENCY AND RELIABILITY OF TESTS

To ensure that the scholar was well versed with techniques of conducting the tests, the scholar had a number of trial practice sessions in testing procedure under the guidance of experts at Department of Physical Education, Punjabi University Patiala.
Tester’s competency was established by test retest method whereas consistency of result was obtained by Product Moment Correlation. The data collected from a 150 subjects by test-retest process were computed for each variable and are presented in table 3.1.

**TABLE -3.1**

**RELIABILITY COEFFICIENTS OF TEST-RETEST SCORES**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Test Item</th>
<th>Coefficient of Correlation, r</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Vital Capacity</td>
<td></td>
</tr>
<tr>
<td>i.</td>
<td>Forced Vital Capacity (FVC)</td>
<td>.81*</td>
</tr>
<tr>
<td>ii.</td>
<td>Peak Expiratory Flow (PEF)</td>
<td>.89*</td>
</tr>
<tr>
<td>iii.</td>
<td>Peak Inspiratory Flow (PIF)</td>
<td>.83*</td>
</tr>
<tr>
<td>2.</td>
<td>VO$_2$max.</td>
<td>.89*</td>
</tr>
<tr>
<td>3.</td>
<td>BODY FAT%</td>
<td>.82*</td>
</tr>
<tr>
<td>4.</td>
<td>VISCERAL FAT</td>
<td>.86*</td>
</tr>
<tr>
<td>5.</td>
<td>BODY MASS INDEX (BMI)</td>
<td>.86*</td>
</tr>
<tr>
<td>6.</td>
<td>BASAL METABOLIC RATE (BMR)</td>
<td>.87*</td>
</tr>
<tr>
<td>7.</td>
<td>SPEED ABILITY</td>
<td>.92*</td>
</tr>
<tr>
<td>8.</td>
<td>AGILITY</td>
<td>.84*</td>
</tr>
<tr>
<td>9.</td>
<td>DIFFERENTIATION ABILITY</td>
<td>.95*</td>
</tr>
<tr>
<td>10.</td>
<td>ORIENTATION ABILITY</td>
<td>.92*</td>
</tr>
<tr>
<td>11.</td>
<td>BALANCE ABILITY</td>
<td>.83*</td>
</tr>
<tr>
<td>12.</td>
<td>RHYTHM ABILITY</td>
<td>.82*</td>
</tr>
<tr>
<td>13.</td>
<td>REACTION ABILITY</td>
<td>.84*</td>
</tr>
</tbody>
</table>

*Significant at .01 level.\[r=.01\]

**N=150**

**SUBJECTS RELIABILITY:**

The above test-retest coefficient of correlation method also established subjects were used under similar conditions by the same tester.
ADMINISTRATION OF TESTS AND COLLECTION OF DATA:

I. PHYSIOLOGICAL VARIABLES:

With the help of available Laboratory facilities in the department and available literature the following variables were selected for pursuing the aims of the present study.

i. VITAL CAPACITY

**SPIROMETER**

Criterion Measures: Vital capacity was measured with the help of spirometer. Forced vital capacity (FVC) were measured in liters, Peak expiratory flow (PEF) and Peak inspiratory flow (PIF) were measured in liters per second.

Purpose: To measure Vital Capacity that is:

- a. Forced Vital Capacity (FVC)
- b. Peak Expiratory Flow (PEF)
- c. Peak Inspiratory Flow (PIF)

Equipment: Spirometer, Computer Set/ Laptop, Pencil and Paper.
**Test Administration:** The experiment was done in Physical Education Department's Computer Laboratory and at the places where data was collected. The spirometer used is portable and easy to take from one place to another. The tests were held individually one by one with only the subject and researcher present at the place of experiment. As a first step in the test procedure the subject was told the general nature and purposes of each test before starting actual test. Before applying the test, demo was given to the subject.

**Procedure:** Each subject performed a maximal inhalation followed by a forceful exhalation into the mouthpiece tube of Spirometer until all air was expelled. The subject then performed a maximal inhalation to complete the maneuver. During the maneuver there was Real Time Flow/Volume & Volume/Time graphs. System automatically calculated the actual values and displayed the same on screen. If the test was performed systematically then it was saved and quit, but if not then it was pressed repeat to repeat the test. The system automatically retained the best test. Follow the above maneuver Real Time Flow/Volume & Volume/Time graphs were plotted and printed and then the above mentioned variables were recorded. Each subject came for two times after every trial their vital capacity was noted.

The subjects were thanked for their co-operation.

**ii. VO\textsubscript{2}max (MAXIMUM OXYGEN CONSUMPTION) :**

**Criterion Measures:** VO\textsubscript{2}max (Maximum Oxygen Consumption) was measured with the help of Rockport Calculator software.

**Purpose:** The purpose of test was to assess Maximum Oxygen Consumption. **EQUIPMENTS:** Computer/ Laptop, Pen, Pencil and Paper.
Test administration:
- a calm day was chosen at the track.
- Record the weight.
- Run/Walk one mile (1609 meters) as fast as possible.
- Record the time to complete the one mile walk.
- Immediately on finishing the walk record the heart rate (beats per minute).
- Determine your VO\textsubscript{2}max using the Rockport calculator below.

Procedure: For an estimate of VO\textsubscript{2}max enter Gender, Age, Weight, and Heart Rate at the end of the test, the Time to complete the run/walk and then select the 'Calculate' button.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Age</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>years</td>
<td>kgs</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Heart Rate</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>bpm</td>
<td>mins secs</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VO\textsubscript{2} Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>mls/kg/min</td>
</tr>
</tbody>
</table>

The formula used to calculate VO\textsubscript{2}max is:

\[
VO_2\text{max} = 132.853 - (0.0769 \times \text{Weight}) - (0.3877 \times \text{Age}) + (6.315 \times \text{Gender}) - (3.2649 \times \text{Time}) - (0.1565 \times \text{Heart Rate})
\]

As calculated:
- Weight is in pounds (lbs)
- Gender Male = 1 and Female = 0
- Time is expressed in minutes and 100ths of minutes
- Heart rate is in beats/minute
- Age is in years
II. BODY COMPOSITION VARIABLES:

i. BODY FAT%:

**Criterion Measures:** Body Composition Monitor with Scale HBF-361 is used to measure body fat%.

**Purpose:** To measure body fat percentage.

**Equipment:** Paper, Pencil, Body Composition Monitor with Scale HBF-361.

**Test Administration:** The experiment was done in Physical Education Department’s Human Performance Laboratory and also at the places where data was collected. The tests were held individually one by one with only the subject and researcher present at the place of experiment. As a first step in the test procedure the subject was told the general nature and purposes of each test before starting actual test. Before applying the test, demo was given to the subject.

**Procedure:** Each subject was made to stand bared feet on body composition monitor and scale HBF-361. The subject’s Height, Age and Gender were manually saved in the monitor scale. System automatically calculated the actual values of body fat% and displayed the same on monitor. If the test was performed systematically then it was saved and quit, but if not then it was repeated again.

ii. VISCERAL FAT:

**Criterion Measures:** Body Composition Monitor with Scale HBF-361 is used to measure Visceral Fat.

**Purpose:** To measure Visceral Fat.

**Equipment:** Paper, Pencil, Body Composition Monitor with Scale HBF-361.
**Test administration:** The experiment was done in Physical Education Department’s Human Performance Laboratory and also at the places where data was collected. The tests were held individually one by one with only the subject and researcher present at the place of experiment. As a first step in the test procedure the subject was told the general nature and purposes of each test before starting actual test. Before applying the test, demo was given to the subject.

**Procedure:** Each subject was made to stand bared feet on Body Composition Monitor and Scale HBF-361. The subject’s Height, Age and Gender were manually saved. System automatically calculated the actual values of Visceral Fat and displayed the same on monitor. If the test was performed systematically then it was saved and quit, but if not then it was repeated again.

**iii. BODY MASS INDEX (BMI):**

**Criterion Measures:** Body Composition Monitor with Scale HBF-361 is used to measure Body Mass Index (BMI).

**Purpose:** To measure Body Mass Index (BMI).

**Equipment:** Paper, Pencil, Body Composition Monitor with Scale HBF-361.

**Test administration:** The experiment was done in Physical Education Department’s Human Performance Laboratory and also at the places where data was collected. The tests were held individually one by one with only the subject and researcher present at the place of experiment. As a first step in the test procedure the subject was told the general nature and purposes of each test before starting actual test. Before applying the test, demo was given to the subject.

**Procedure:** Each subject was made to stand bared feet on Body Composition Monitor and Scale HBF-361. The subject’s Height, Age
and Gender were manually saved. System automatically calculated the actual values of Body Mass Index (BMI) and displayed the same on monitor. If the test was performed systematically then it was saved and quit, but if not then it was repeated again. It was also calculated manually by the formula BMI = The Weight in Kilograms divided by the Square of the Height in Meters (km/m²), for e.g. An adult weight 70 kg and height 1.75 m will have BMI = 70(kg)/1.75²(m²) = 22.9.”

**iv. BASAL METABOLIC RATE (BMR):**

**Criterion Measures:** Body Composition Monitor with Scale HBF-361 is used to measure Basal Metabolic Rate (BMR).

**Purpose:** To measure Basal Metabolic Rate (BMR).

**Equipment:** Paper, Pencil, Body Composition Monitor with Scale HBF-361.

**Test administration:** The experiment was done in Physical Education Department’s Human Performance Laboratory and also at the places where data was collected. The tests were held individually one by one with only the subject and researcher present at the place of experiment. As a first step in the test procedure the subject was told the general nature and purposes of each test before starting actual test. Before applying the test, demo was given to the subject.

**Procedure:** Each subject was made to stand bared feet on Body Composition Monitor and Scale HBF-361. The subject’s Height, Age and Gender were manually saved. System automatically calculated the actual values of Basal Metabolic Rate and displayed the same on monitor. If the test was performed systematically then it was saved and quit, but if not then it was repeated again.
III. PSYCHOMOTOR VARIABLES:

The necessary data was collected by administering various psychomotor ability tests as suggested by Peter Hirtz. The entire seven tests were administered to the subjects at the basketball courts of Department of Physical Education, Punjabi University Patiala, Punjab University, Chandigarh, G.N.D.U. Amritsar, Kurukshetra University, Kurukshetra, Govt. Mohindra College, Patiala, Govt. College Sec.11 Chandigarh, Govt. M.P School, Patiala, Polo Ground, Patiala, Budha Dal Public School, Patiala, Y.P.S Patiala, Guru Nanak Stadium, Ludhiana, and N.P.S Chandigarh.

The necessary markings were done before the start of the test and the scholar strictly followed the specification as mentioned in the test. The entire test were demonstrated and explained to the subjects by the scholar. They were given a chance to practice and become familiar with the tests and to know exactly what was to be done. There was no time limit in performing the tests but, the subjects were requested to put in their maximum effort.

i. SPEED:

**Criterion Measures:** A standard test of 50 yards dash (Johnson, Borrey and Nelson, Jack K.1988) is applied to measure speed.

**Purpose:** To determine Speed of the subjects.

**Equipments:** Pen, Pencil, Paper, Stop Watches, Track, Marking Powder and Measuring Tape.

**Test administration:** The experiment was done in the track of Punjabi University Patiala and also at the places where data were collected. The tests were held individually one by one with the subject, helpers and researcher present at the place of experiment. As a first step in the test procedure the subject was told the general
nature and purposes of each test before starting actual test. Before applying the test, demo was given to the subject.

**Procedure:** The tester gives instruction in advance to the subjects. After the warm up subjects preferably in pairs, are asked to take the starting position behind the starting line and to wait for the signal ‘GO’. Separate helpers with stop watches were asked to watch each subject at finish line. At the command GO the timers start their respective stop watches and the sprinters start their sprints. As soon as the subjects cross the finish line, the respective timer switches off his stopwatch and record the time accurate up to 0.01 seconds.

**Score:** The time taken to complete the course was noted in seconds and was recorded in $1/100^{th}$ second. Two trials were given to each subject and the better one was recorded as score.

**ii. AGILITY:**

**Criterion Measures:** Shuttle Run 10x10 yards (Johnson, Borrey and Nelson, Jack K.1988) is applied to measure agility.

**Purpose:** To determine agility of the subjects.

**Equipments:** Pencil, paper, two blocks of wood (2”x2”x4”), stop watches, track, marking powder, measuring tape.

**Test administration:** The experiment was done in the basketball courts of Department of Physical Education, Punjabi University Patiala and also at the places where data was collected. The tests were held individually one by one with the subject, helpers and researcher present at the place of experiment. As a first step in the test procedure the subject was told the general nature and purposes of each test before starting actual test. Before applying the test, demo was given to the subject.
**Procedure:** Two parallel lines were marked on the track or floor 10 yards apart. The two wooden blocks placed behind one of the lines. The subject is asked to start from behind the other line. On the command GO the tester starts the stopwatch and the subject runs towards the blocks, pick up one block, runs back to the starting line, places the block behind the starting line, runs back and picks the second block to be carried back across the starting line. As soon as the second block is placed on the ground, the timer stops the watch and records the time.

**Score:** The time taken to complete the course was noted in seconds and was recorded in 1/100th second. Two trials were given to each subject and the better one was recorded as score.

**iii. DIFFERENTIATION ABILITY:**

**Criterion Measures:** Backward Medicine Ball Throw Test was used to measure Differentiation Ability.

**Purpose:** The test was administered to assess the differentiation ability of the subjects.

**Equipments:** A Gymnastic Mat size 3X6, One Medicine Ball Weighing 2 kg, Five Medicine Balls weighing 1 kg each, Pencil, Papers and Pad.

**Test administration:** The experiment was done in the basketball courts of Department of Physical Education, Punjabi University Patiala and also at the places where data was collected. The tests were held individually one by one with the subject, helper and researcher present at the place of experiment. As a first step in the test procedure the subject was told the general nature and purposes of each test before starting actual test. Before applying the test, demo was given to the subject.
**Procedure:** A gymnastic mat was kept 2m away from the starting line as shown in figure 3.1. A circle of 40 cm. radius was drawn in the middle of the mat and a medicine ball of 2 kgs kept at the centre of the circle. The subjects were asked to stand behind the starting line facing the opposite direction. They were asked to throw ten medicine balls (1kg) over the head to hit the 2 kgs ball kept on the mat, one after another by using both the hands. One practice trial was given to all the subjects.

**Instructions:**
1. One overhead throw was permitted.
2. The students were not allowed to look back

**Scoring:**
- a. Medicine ball touching the mat = 1 pt.
- b. Medicine ball touching the circle line = 2pts.
- c. Medicine ball inside the circle = 3 pts.
- d. Medicine ball touching the ball (2kg medicine ball kept at the center of the circle) = 4 pts. Points were decided considering
the 1st pitch of the ball. The score of the individuals was the total points scored in all the ten throws.

iv. ORIENTATION ABILITY

Criterion Measures: Numbered Medicine Ball Run Test is applied to measure Orientation Ability.

Purpose: To determine orientation ability of the subjects.

Equipments: Five medicine balls each weighing 3 kgs., One medicine ball weighing 4 kgs., Stop watch, Clapper, Pencil, Papers and Pads.

Test administration: The experiment was done in the basketball courts of Department of Physical Education, Punjabi University Patiala and also at the places where data was collected. The tests were held individually one by one with only the subject, helper and researcher present at the place of experiment. As a first step in the test procedure the subject was told the general nature and purposes of each test before starting actual test. Before applying the test, demo was given to the subject.

Procedure: All the medicine balls weighing 3 kgs were arranged as shown in figure3.2 on an even ground in a semi circle with a distance of 1.5 m. between the balls. The subject’s medicine ball weighing 4 kgs was kept 3 m away from these medicine balls. Behind all the medicine balls of 3 kg weight, metallic number plates of 1 sq. foot size were kept, from 1 to 5. Before the start of the test the subjects were asked to stand behind the sixth medicine ball facing toward the opposite direction. On signal the subjects turned and ran towards the number called by the tester and touched the medicine ball and run back to touch the sixth medicine ball, immediately another number was called. Similarly, a total of three times the number was called by the tester and the subjects performed
accordingly. Before the actual test was administered, one practice trial was given to all the subjects.

**Scoring:** The time taken to complete the course was noted in seconds. Two trials were given to each subject and the better one was recorded as score.

B – Medicine Ball Weighing 4 Kg.
b – Medicine Ball Weighing 3 Kg.

**Figure – 3.2 ORIENTATION ABILITY TEST**

![Diagram of ORIENTATION ABILITY TEST]

**v. BALANCE ABILITY :**

**Criterion Measures:** Stork Stand Test was used to measure Balance ability of the subjects.

**Purpose:** The test is used to measure balance of the performer while supported on the ball of the foot of the dominant leg.

**Equipment:** Stopwatch, Pen, Pencil and Papers.
Test administration: The experiment was held in the basketball courts of the Department of Physical Education, Punjabi University Patiala and also at the places where data were collected. The tests were held individually one by one with the subject, helper and researcher present at the place of experiment. As a first step in the test procedure the subject was told the general nature and purposes of each test before starting actual test. Before applying the test, demo was given to the subject.

Procedure: The performer was asked to stand on the foot of the dominant leg, place the other foot on the inside of the supporting knee. The subject was instructed to place the hands on the respective sides of the waist. The subject was informed that he should stand on the ball of the foot by raising his heel from the floor on the signal start. On the signal start, the subject raises the heel from the floor to maintain the balance as long possible without moving the ball of the foot from its initial position, and the tester starts the stopwatch. The performer is also recognized to maintain balance with his best efforts and not let the heel to touch the floor for the longest duration. As soon as the subject loses the balance by touching the heel to the floor or loses the movement of the foot from initial position, the tester stops the stopwatch.

Instructions:
1. Place the hands on the respective sides of the waist.
2. Stop the watch immediately when subject loses the balance or heel touches the floor.

Scoring: The score memorized the time in 1/100th seconds for the maintenance of the balance on the ball of foot.
vi. RHYTHM ABILITY

**Criterion Measures:** ‘Straight and Rhythm Run Test’ was used to measure Rhythm ability of the subjects.

**Purpose:** The test was administered to determine the Rhythm ability of the subjects.

**Equipments:** Eleven gymnastic hoops each 1metre in diameter, One stop watch, One measuring tape.

**Description:** The subject had to run a distance of 30metres with maximum sprinting speed marked between two lines. The sprinting time of the subject was taken by stop watch. In the second attempt the subject had to run at a particular rhythm with maximum speed through eleven hoops which were arranged systematically as show in Fig 5. Three hoops were kept in a sequence adjacent to each other at a distance of 5m. away from the starting line. Similarly three hoops were kept at a distance of 5m. from finishing line. Five more hoops were kept in a sequence in the middle of the running distance. The subject had to run through these hoops stepping between each of them adjusting to the new self-rhythm. The research scholar explained the test along with one demonstration and each subject was given two trial run.
Instructions:

1. The subject had to run through the hoops stepping between each of them adjusting to the new self-rhythm.
2. Stop the watch immediately as the performer clears the finish line.
3. Two trails are given to each performer.

Scoring: The difference between the timings of 1st and 2nd attempt was taken as the score. The score is memorized time in 1/100th seconds.

vii. REACTION ABILITY:

Criterion Measures: Visual Reaction Timer was used to determine the Reaction Ability of the subjects.

Purpose: This test was administered to measure the reaction ability of the subjects.

Equipments: Visual Reaction Timer, Table and Chairs, Pencil, Papers and Pad.

Test administration: The experiment was conducted in the Human Performance Laboratory in the Department of Physical Education, Punjabi University, Patiala and also at the places where data was collected. The tests were held individually one by one with only the
subject and researcher present at the place of experiment. As a first step in the test procedure the subject was told the general nature and purposes of each test before starting actual test. Before applying the test, demo was given to the subject.

**Procedure:** Visual Reaction timer was kept on a table and started by plugging the plug. The subject was asked to sit on chair reachable to the table where reaction timer was placed opposite to the scholar’s chair. On signal, the lights blinked, the subject reacts immediately to the lights pressing the buzzer in front of particular light for measuring reaction time. Each subject was given a practice trail before actual commencement of the test.

**Instructions:**

1. Buzzer should be pressed only when light was shown on monitor of reaction timer.
2. Press the buzzer in front of the light which blinks.
3. Two trails were given to each subject and the best was considered.

**Scoring:** The score was the time taken in \(\frac{1}{100}\)th seconds.

**STATISTICAL ANALYSIS OF DATA**

With regard to purpose of the study Mean, Standard Deviation and ‘t’ test were calculated. Technique of One-Way Analysis of Variance (ANOVA) was also used to study the significance of difference in selected Physiological, Body Composition and Psychomotor Variables between three different competition levels. Scheffe Post-hoc test was applied to find out Mean Differences among different levels. In order to check the significance, level of significance was set at 0.05.