Chapter III

PROCEDURE

In this chapter the procedure adopted for selection of subjects, selection of variables, collection of data, criterion measures, reliability of data, administration of test and statistical technique to be used have been described.

Selection of the Subjects

One hundred soccer players were selected for the present study. The soccer players were selected from the different clubs of Kolkata (West Bengal) the selected players represented their club in the Calcutta Football League. Prior consent was taken from the respective coaches and all the players were informed precisely regarding the purpose and the procedure of data collection. The age group of the subjects ranged from 18-30 years. The subjects belonged to different socioeconomic statuses and all of them participated in competitions regularly for a number of years.
Selection of Variables

Participating in any sport requires a great deal of combination and interaction of a number of abilities, developed to an ideal degree, in view of the Physiological and Physical effect on the athletes, after training. The research scholar went through the scientific literature pertaining to Physiological and Physical profiles, from different library sources available at the Lakshmibai National Institute of Physical Education, Gwalior and also consulted experts in these areas to select Physiological and Physical variables, with regard to the purpose of the study. Along with the said literature and expert opinion, the administrative feasibility in terms of availability of instruments, time factor from the point of view of the subjects and expertise for measuring and recording of data was also given due consideration while selecting the Physiological and Physical variables.

Physiological Variables

**Blood Pressure**
- Rest
- Game
- Recovery

**Heart Rate**
- Rest
Game
Recovery
Respiratory Rate
Rest
Game
Recovery
Anaerobic Power
Vital Capacity
Positive Breath Holding Capacity
Negative Breath Holding Capacity

Physical Variables

Speed
Agility
Leg Strength
Power
Flexibility
Cardio-respiratory Endurance
Reaction Time
Body Composition

Collection of Data

The data for the Physiological and Physical variables were obtained with the help of various instruments, operated by investigators at the different clubhouses of Kolkata, (WB). The coaches were requested to cooperate fully, which they did. Before the actual testing the subjects were given a complete demonstration of
each test and the purpose of the test was explained in detail. After the
demonstration and explanation, the subjects were allowed practice
trials in the performance test in order to get familiarized with the test.

Four days were utilized for conducting the tests to ensure
uniform testing conditions. The subjects were tested only during
morning sessions, for all variables. On the first day, Blood Pressure,
Respiratory Rate, and Heart Rate were collected before, during and
after the training. On the second day, the Vital Capacity, Positive and
Negative Breath Holding Capacities, Leg Strength, Flexibility, Fat
Percentage and Reaction Time were recorded. Anaerobic Power,
Speed, Agility and Power were tested on the third day. Lastly, on the
fourth day, Cooper's 12 minutes run and walk test was conducted.
Confidentiality of findings was guaranteed.

Criterion Measures of Physiological and Physical Variables

Physiological Variable

1. Automatic Digital Blood Pressure Monitor was used to measure
Heart Rate and Blood Pressure. Score were recorded in number
of beats per minute for Heart Rate and mmHg for Blood
Pressure.
2. Respiratory Rate was measured manually over a period of one minute. One inspiration and expiration was counted as a respiratory rate score of one.

3. Sargent Jump test was used for measuring Anaerobic Power and the score was recorded in Kgm/s.

4. Dry spirometer was used to measure Vital Capacity and the score was recorded in liters.

5. Positive Breath Holding Capacity was measured by the manual method and the score was recorded in seconds.

6. Negative Breath Holding Capacity was measured by the manual method and the score was recorded in seconds.

7. Fat Percentage and Lean body weight was measured with a Body Fat Monitor and scored in percentage and kg.

**Physical Variable**

1. Speed was measured by conducting 50-meter dash. The score was recorded to the nearest tenth of a second.

2. Agility was measured by conducting a 4x10 m shuttle run. The score was recorded to the nearest tenth of a second.
3. The score of an individual on a Leg Dynamometer was recorded to the nearest kilogram as strength.

4. Power was measured as the horizontal distance covered in meters and centimeters between the take-off line and the nearer break made in landing by using standing broad jump.

5. Flexibility was measured by conducting the Sit and Reach test. The score was recorded in inches.

6. Reaction Time was measured by carrying out the Nelson’s Eye Foot Reaction Test and the obtained scores were converted to seconds.

7. Cardio-respiratory Endurance was measured by using the Cooper’s 12-minute run/walk and the score was recorded to the nearest 50 meters. Further, by applying the Cooper’s 12-minute run/walk formula, the scores in distance were converted to ml.kg⁻¹.min⁻¹.

**Reliability of Data**

Establishing the instruments reliability, tester’s competency, reliability of tests and subjects reliability ensured the reliability of data.
Instruments' Reliability

The instrument used to measure Blood Pressure (Systolic and Diastolic) and Heart Rate was a standard Automatic Digital Blood Pressure Monitor (Wrist Measuring Automatic Model CH 606) supplied by Citizen group Japan CBM Corporation, Consumers electronic division, Tokyo, Japan. The manufacturer certified the reliability and accuracy.

The stopwatches used for recording scores in Breath Holding Capacity, Respiratory Rate, 50 meter dash for speed, 4 x 10 meters shuttle run for agility, and Cooper's 12 minute run/walk for VO₂ max were all Swiss made, supplied by Krishna watch Co., Bombay and their calibration was certified by the manufacturers and suppliers. The watches were 1/100th split timers.

Fat Percentage was measured with a Body Fat Monitor, Model HB-302, supplied by Omaran Corporation, Toranomon, Minato-Ku, Tokyo, Japan.

For measuring Vital Capacity, Portable Dry Spirometer was used, which was standard equipment manufactured and supplied by Clement Clark International Ltd: London, England.
A steel tape was used to measure the Standing Broad Jump performance and it was non-elastic and flexible, with approved ISI mark.

A Portable Leg Dynamometer and a Sit and Reach Table, available in the institute laboratory, were used to measure the Leg Strength and Flexibility of the players. A Nelson Reaction Timer was used to measure the Reaction Time of both the legs.

All the above-mentioned equipment was available at the research laboratory of Lakshmibai National Institute of Physical Education, Gwalior, (MP), and was considered quite reliable for the purpose of the study.

**Reliability of Data**

The reliability of data for Physiological and Physical variables was established by the Test Re-test method. Tests in all the variables were repeated after four days’ gap on five randomly selected soccer players under more or less similar conditions and the same tester recorded the measurements. The reliability of Test Retest scores is given in Table 1 and Table 2.
### Table-1

**Test Retest Correlation for Physiological Variables**

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Variables</th>
<th>Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Blood Pressure</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rest</td>
<td>0.91*</td>
</tr>
<tr>
<td></td>
<td>Game</td>
<td>0.90*</td>
</tr>
<tr>
<td></td>
<td>Recovery</td>
<td>0.92*</td>
</tr>
<tr>
<td>2</td>
<td>Heart Rate</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rest</td>
<td>0.87*</td>
</tr>
<tr>
<td></td>
<td>Game</td>
<td>0.97*</td>
</tr>
<tr>
<td></td>
<td>Recovery</td>
<td>0.86*</td>
</tr>
<tr>
<td>3</td>
<td>Respiratory Rate</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rest</td>
<td>0.86*</td>
</tr>
<tr>
<td></td>
<td>Game</td>
<td>0.80*</td>
</tr>
<tr>
<td></td>
<td>Recovery</td>
<td>0.85*</td>
</tr>
<tr>
<td>4</td>
<td>Anaerobic Power</td>
<td>0.80*</td>
</tr>
<tr>
<td>5</td>
<td>Vital Capacity</td>
<td>0.85*</td>
</tr>
<tr>
<td>6</td>
<td>Positive Breath Holding Capacity</td>
<td>0.78*</td>
</tr>
<tr>
<td>7</td>
<td>Negative Breath Holding Capacity</td>
<td>0.80*</td>
</tr>
</tbody>
</table>

* Significant at 0.05 levels

### Table-2

**Test Retest Correlation for Physical Variables**

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Variable</th>
<th>Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Speed</td>
<td>0.86*</td>
</tr>
<tr>
<td>2</td>
<td>Agility</td>
<td>0.91*</td>
</tr>
<tr>
<td>3</td>
<td>Leg Strength</td>
<td>0.88*</td>
</tr>
<tr>
<td>4</td>
<td>Power</td>
<td>0.89*</td>
</tr>
<tr>
<td>5</td>
<td>Flexibility</td>
<td>0.90*</td>
</tr>
<tr>
<td>6</td>
<td>Cardio respiratory endurance</td>
<td>0.86*</td>
</tr>
<tr>
<td>7</td>
<td>Reaction Time</td>
<td>0.85*</td>
</tr>
<tr>
<td>8</td>
<td>Fat Percentage</td>
<td>0.91*</td>
</tr>
</tbody>
</table>

* Significant at 0.05 levels
From the above tables it was evident that Reliability of Coefficient for the variables was between 0.78 and 0.97, which was assumed to be high correlation for the purpose of this study.

**Tester’s Reliability**

For establishing the tester’s competency in order to record the selected structured variables, the investigator had sufficient practice under the guidance of an expert. Several practice sessions were conducted till an acceptable consistency in recording the measurement was achieved. The reliability of coefficient for tester’s competency has been shown in Table – 3.

**Table-3**

*Testers Competency in Recording the Physiological and Physical Variables*

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Variables</th>
<th>Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Blood Pressure</td>
<td>Systolic 0.90*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Diastolic 0.91*</td>
</tr>
<tr>
<td>2</td>
<td>Heart Rate</td>
<td>0.92*</td>
</tr>
<tr>
<td>3</td>
<td>Respiratory Rate</td>
<td>0.89*</td>
</tr>
<tr>
<td>4</td>
<td>Anaerobic Power</td>
<td>0.82*</td>
</tr>
</tbody>
</table>
Table-3 (Cont.)

Testers Competency in Recording the Physiological and Physical Variables

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Variables</th>
<th>Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Vital Capacity</td>
<td>0.90*</td>
</tr>
<tr>
<td>6</td>
<td>Positive Breath Holding Capacity</td>
<td>0.86*</td>
</tr>
<tr>
<td>7</td>
<td>Negative Breath Holding Capacity</td>
<td>0.87*</td>
</tr>
<tr>
<td>8</td>
<td>Speed</td>
<td>0.90*</td>
</tr>
<tr>
<td>9</td>
<td>Agility</td>
<td>0.89*</td>
</tr>
<tr>
<td>10</td>
<td>Leg Strength</td>
<td>0.90*</td>
</tr>
<tr>
<td>11</td>
<td>Power</td>
<td>0.92*</td>
</tr>
<tr>
<td>12</td>
<td>Flexibility</td>
<td>0.89*</td>
</tr>
<tr>
<td>13</td>
<td>Reaction time</td>
<td>0.82*</td>
</tr>
<tr>
<td>14</td>
<td>Cardio respiratory endurance</td>
<td>0.80*</td>
</tr>
<tr>
<td>15</td>
<td>Fat Percentage</td>
<td>0.95*</td>
</tr>
</tbody>
</table>

* Significant at 0.05 levels

The reliability of coefficient for tester competency ranged from 0.80 to 0.95, which was again considered to be high enough for the purpose of this study.

Reliability of Subjects

The above test retest coefficient of correlation also established the reliability of subjects because the same tester used the same subjects under similar conditions and no motivational technique was used during the testing.
Procedure for Administration of Test

The research scholar put in the maximum effort and meticulous care to attain precision and accuracy in the measurements. Sophisticated instruments and standard procedures were used to assess the performance on different variables.

Blood Pressure and Heart Rate

Objective: To measure Heart Rate and Blood Pressure

Equipment required: Wrist Blood Pressure and Heart Rate monitor

Procedure: The Heart Rate and Blood Pressure of each subject was recorded in the morning session. Before recording the Resting Heart Rate, the subjects were instructed to remain lying for five minutes. The pressure cuff was wrapped snugly around the wrist. The elbow was placed at such a position that the pressure cuff was at the same height as the heart. Hands were relaxed with the palm facing up. The start/stop button was pressed. All elements displayed ‘888’ in 3 seconds. The moment the Measuring Blood Pressure symbol flashed on the display, the air pressure automatically pumped up to 195
mmHg. Then it automatically started decreasing in order to detect heart rate and blood pressure. The detected systolic and diastolic pressure lasted on the display screen for one minute. No movement and talking were permitted in the midst of taking Blood Pressure measurements. Heart Rate and Blood Pressure were also measured during game and after the termination of the game with a recovery time of three minutes.

**Scoring:** The Heart Rate was recorded in beats per minute whereas the Blood Pressure was recorded in mmHg.
Fig. 1 Blood Pressure and Heart Rate Measurement

Anaerobic Power

Objective: To measure Anaerobic Power

Equipment required: Weighing machine, measuring tape and chalk

Procedure: The Anaerobic Power (Kg-m/sec) was calculated with the help of vertical jump by Sargent Jump Test. The Anaerobic Power was
Resting Respiratory Rate

Objective: To measure Respiratory Rate.

Equipment required: Stopwatch.

Procedure: The Resting Respiratory Rate of each subject was recorded in the morning session. Before recording the Resting Respiratory Rate, the subject was instructed to remain for five minutes in supine lying position. The tester then recorded the rate of respiration in unit counts per minute by carefully watching the movements of the subject's abdomen. Similarly, the respiration rate was counted during the game and at the termination of the game (three minute recovery).

Score: The total number of respiratory movements per minute was the final score.

Anaerobic Power

Objective: To measure Anaerobic Power

Equipment required: Weighing machine, measuring tape and chalk

Procedure: The Anaerobic Power (Kg-m/sec) was calculated with the help of vertical jump by Sargent Jump Test. The Anaerobic Power was calculated by using the Lewis Nomogram. The score of the vertical jump was obtained in meters by measuring the difference between a
subject Standing Reach and the height to which he could jump and touch. The body weight was recorded in kilograms.

**Score:** To obtain a score of Anaerobic Power, a straightedge was laid across the Lewis Nomogram, connecting the scores of the distance of jump and reach test and the body weight. The Point where the straightedge intersected the middle scale was the Anaerobic Power (Fox, 1989).

Fig. 2 Lewis Nomogram for measuring Anaerobic Power
Vital Capacity

Objective: To measure Lung Capacity

Equipment required: Dry Spirometer

Procedure: Vital Capacity was measured in milliliters by using a Dry Spirometer. The Spirometer was brought the zero position. The subject inhale to his maximum capacity and after closing both the nostrils, the air inside the lungs was blown out as intensely as possible into the mouthpiece of the Dry Spirometer.

Score: The amount of expired air was read directly from the calibrated scale and that was the score for Vital Capacity.

Positive Breath Holding Capacity

Objective: To measure Breath Holding Capacity.

Equipment required: Stopwatch.

Procedure: To measure the Positive Breath Holding Capacity, the subjects were instructed to close the nostrils tightly with the nose clip. They were asked to inhale through the mouth to the maximum capacity. As soon as the subjects took a deep breath to the fullest capacity of their lungs and close the lips, the stopwatch was started. As
soon as the subjects opened their lips to exhale, the stopwatch was stopped.

**Score:** The time given by the watch was recorded as the score for the Positive Breath Holding Capacity.

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**Negative Breath Holding Capacity**

**Objective:** To measure Breath Holding Capacity.

**Equipment required:** Stopwatch.

**Procedure:** To measure the Negative Breath Holding Capacity, the subjects were instructed to place the nose clip tightly. They were asked to exhale through the mouth to the maximum capacity. As soon as the subjects exhaled and closed the lips, the stopwatch was started. As soon as the subjects opened their lips to inhale, the stopwatch was stopped.

**Score:** The time given by the stopwatch was recorded as the score for the Negative Breath Holding Capacity.
Speed 50 meter Run

Objective: To measure the Speed of the performer

Equipment: Two stopwatches and clappers.

Procedure: The subjects were required to take position behind the starting line and the same was blown off. They then ran 50 meters as fast as possible. The time taken was the recorded time of the performer.

Fig. 3 Breath Holding Capacity
Speed 50 meter Run

Objective: To measure the Speed of the performer

Equipment: Two stopwatches and clappers.

Procedure: The subjects were required to take position behind the starting line. At the command 'go!' the timers switched on their respective stopwatches and the subjects started their sprints. As soon as the subjects crossed the finish line, the respective timers switches off their stopwatches and recorded the time accurately upto 0.01 second. Only one correct trial was permitted.

Score: The time elapsed from the start to the instant the subject crossed the finish line, was the score expressed in $\frac{1}{10}$ of a second.
4x10 meter Shuttle Run

Objective: To measure Agility

Equipment required: Blocks of wood (2.5" x 2" x 4"), stopwatches and

Two

starting

blocks

were

placed

at

opposite

ends

of

the

field.

On

the

word

"go" the

time

was

started

on

their

watches

and

recorded

at

the

end

of

the

run.

Scoring: Two trials were allowed to each subject with some rest in

between. The time noted in the better of the two trials was recorded to

the nearest 1/10th of a second as the score of the test item.

Fig. 4- 50 meter Dash
4x10 meter Shuttle Run

**Objective:** To measure Agility

**Equipment required:** Blocks of wood (2"x2"x4"), stopwatches and marking powder.

**Procedure:** Two parallel lines were marked on the floor, 10 meters apart. Four wooden blocks were placed behind one of the lines. Two subjects at a time were asked to start from the other line of the starting line. On the signal “go” the timers switched on their watches and the subjects ran towards the blocks, picked up one block, ran back to the starting line, placed the block behind the starting line, ran and picked up a second block and carried it back across the starting line. As soon as the second block was placed on the ground the timers stopped their watches and recorded the time.

**Scoring:** Two trials were allowed to each subjects with some rest in between. The time noted in the better of the two trials was recorded to the nearest 1/10th of a second as the score of the test item.
Leg Strength

Objective: To measure Leg Strength

Procedure: The subject was asked to stand with their feet 10 cm apart. The bar was held in the center at the lever height. They were instructed to make 30 efforts to lift the bar, pushing it as high as possible. The subjects were cued to make the lifting effort in a smooth, controlled manner. The test was timed, using a stopwatch, for 20 seconds. The lifting effort was repeated 10 times, and the total weight lifted was recorded. The force recorded was a peak force, and the average force was calculated.

Fig.5- 4x10 meter Shuttle Run
Leg Strength

Objective: To measure Leg Strength

Equipment required: Leg Lift Dynamometer.

Procedure: The subject was asked to stand with the feet 6 inches apart. The bar was held in the center at the level of the pubis with palms facing downward. The knees were flexed between 115 to 125 degrees. The subject was asked to lift the bar of the dynamometer upward so as to make his knees nearly straight at the end of the lift. The chain was adjusted so that the maximum lift was obtained. Each subject was allowed three trials.

Scoring: The highest of the three lifts attempted was recorded in kilograms.
Objective: To measure the Power of legs in Jumping Horizontally.

Equipment: Each subject was measured for the distance jumped forward by simultaneously extending the knees and swinging the legs forward, with the feet comfortably on the ground. The total distance was recorded as the score.

Fig. 6- Leg Strength

Flexibility

Objective: To measure the Flexibility of the back and leg (Hamstring) muscles. It was a kind of absolute and linear test of Flexibility.

Equipment required: A testing box

Procedure: The subject was asked to remove his shoes and place his feet against the testing box while sitting on the floor with straight
Power

Objective: To measure the Power of legs in Jumping Horizontally.

Equipment required: Long Jump pit and measuring tape.

Procedure: Each subject was asked to stand behind a take-off line with his feet comfortably apart. Before jumping, the subject was allowed to dip at the knees and swing the arms. The subjects then jumped forward by simultaneously extending the knees and swinging the arms forward to cover the maximum possible horizontal distance by landing on both the feet. Three trials were taken and the best jump was recorded.

Score: The horizontal distance between the take-off line and the nearest point where any part of the subject’s body touched the ground, measured in meters and centimeters to the nearest centimeter was recorded as the score.

Flexibility

Objective: To measure the Flexibility of the back and leg (Hamstring) muscles. It was a kind of absolute and linear test of Flexibility.

Equipment required: A testing box

Procedure: The subject was asked to remove his shoes and place his feet against the testing box while sitting on the floor with straight
knees. The subject was asked to place one hand on top of the other so that the middle fingers of both hands were together at the same length. The tester kept his hand on the knees of the subject to keep them straight, not allowing any bending of the knees. The subject was instructed to lean forward and place his hands over the measuring scale lying on top of the box. Then, the subject was asked to slide his hands along the measuring scale as far as possible, without bouncing, and was instructed to hold the farthest position for at least one second.

**Score:** Each subject was given three trials and the highest score, nearest to an inch, was recorded to obtain the Flexibility score.
**Nelson Foot Reaction Time Test**

**Objective:** To measure Reaction Time of the foot in response to visual stimulus.

**Equipment required:** Nelson Reaction Timer, Bench and wall space.

- The subject sits on the floor with the ball of the foot resting on the edge of the bench. The reaction timer should be placed on the subject's foot or the base of the bench.
- The subject receives the timer and at a signal, drops the hammer on the bench as fast as possible, while the timer is still on the ball of the foot. The reaction time for each trial is measured from the time the hammer falls on the bench to the time the subject touches the floor with the hammer. This process is repeated for 10 trials.

**Score:** The average of the middle ten trials, ignoring the five fastest and five slowest trials, was taken as the score of this test.

**Formula:**

\[
\text{Time (Sec)} = \frac{2 \times \text{Distance the Stick Falls}}{\text{Acceleration due to Gravity}}
\]
Nelson Foot Reaction Time Test

Objective: To measure Reaction Time of the foot in response to visual stimulus.

Equipment required: Nelson Reaction Timer, Bench and wall space.

Procedure: The subject was asked to sit on a table or bench, which was about one inch away from the wall, with his shoe off. The subject positioned his foot so that the ball of the foot was held about one inch from the wall, with the heel resting on the table top about two inches from the table’s edge. The tester held the Reaction Timer stick near the wall so that it hung between the wall and the subject’s foot with the base line of the timer opposite to the end of the big toe. The subject was asked to look at the concentration zone and to react as soon as the timer was dropped, by pressing the timer stick against the wall with the ball of the foot. Twenty trials were given. The reaction of each trial was recorded from the line just above the edge of the big toe when the foot pressed the stick to the wall.

Score: The average of the middle ten trials, ignoring the five fastest and five slowest trials, was taken as the score of this test.

\[
\text{Time (Sec)} = \sqrt{\frac{2 \times \text{Distance the Stick Falls}}{\text{Acceleration due to Gravity}}}
\]
Cardio respiratory Endurance

**Objective:** To measure Cardio respiratory Endurance

**Equipment required:** Track or marked area, stop watch and small flags.

**Procedure:** For this, the 400-meter track was marked into eight divisions of 50m each. The runner started from behind the starting line. Upon the starting signal, they ran/or walked as many laps as possible around the track, within the given 12 minutes. The spotters maintained a count of each lap, and when the signal to stop was given, they immediately ran to the spot at which their runners were at the instant when the whistle was blown.

**Score:** The score, in meters, was determined by multiplying the number of completed laps with the distance of each plus the distance of number of segments of an incomplete lap. Moreover, the following formula was applied to find out the cardio respiratory endurance

\[
V_{O_2 \text{ Max}} = \frac{\text{(Distance in meters} - 504.9)}{44.73}
\]
Body Fat Percentage

**Objective:** To measure Fat Percentage.

**Equipment required:** Weighing machine, measuring tape and Body Fat Monitor.

**Procedure:** To take the Fat Percentage, height, weight, age and gender was set. The subject stood with feet slightly apart. The middle finger was wrapped around the electrode grooves. The thumb and index finger securely gripped on the upper portion of the electrode, whereas the ring and little fingers were wrapped around the lower portion of the electrode. Palms against the electrode applied firm pressure. The monitor was held with arms straight in front. The elbow was straight and no movement was allowed. Then, the start button was switched on and after a duration of one minute, the fat percentage and lean body mass flashed on the monitor’s screen.

**Score:** The values seen at the flash display were recorded as the Fat Percentage and Lean body mass.
Fig. 8- Body Fat measurement
Statistical Techniques Employed for the Analysis of Data

To characterize Soccer players by their selected Physiological and Physical Profile, the Descriptive statistics were used. To examine significant differences in different clubs, Analysis of Variance was applied at .05 level of confidence. Descriptive statistics and Analysis of Variance were calculated by using SPSS version 11.5.