Chapter III

3. METHODS

3.1 CHOICE OF INVESTIGATION MATERIALS

In this chapter the selection of subjects, criterion measure, procedure of administering the test, administration of the training programmed, collection of data (for initial and post test), reliability of data, experimental design and statistical procedure employed for analyzing the data have been described.

To conduct the present study the researcher had gone through two separate sets of tests: one physical performance test for assessment of physical fitness and another one the soccer playing ability test for assessment of soccer skill.

3.2 SELECTING PHYSICAL FITNESS TEST AS CRITERION

Much work has been done in the area of assessment of physical fitness but, it is difficult to develop a single test item that adequately ensures all aspects of physical fitness the most vital factors of physical fitness are: speed, strength, agility, muscular endurance, power, cardio-vascular endurance etc there are few known tests of physical fitness such as: California Physical performance test, Mccoly’s general motor ability test, Scote motor ability test, AAHPER Youth fitness test and so on. Considering the feasibility and applicability the researcher selected AAHPER Youth Fitness test as criteria.
3.3 SELECTING SOCCER SKILL TEST AS CRITERION

Different researcher and different times conducted to establish the impact of different training on development of physical fitness. The researcher studies conducted to establish the impact of training on soccer skill is very scanty in this juncture the researcher is intended to find out the impact of difference resistance training over physical fitness of teen aged soccer players in relation to soccer playing ability development.

3.4 SELECTION OF THE SUBJECT

100 (one hundred) junior division soccer players were selected as the subject for the study.

On the basis of the list of junior division soccer players of Burdwan District, West Bengal, given by the Honorable General Secretary of Burdwan District Sporting Association, different club secretaries were requested by through letters and the Researcher met them personally to make them sent 10 to 20 players following the random sampling method from each school to act as subjects for this study on a particular date in the stadium ground, Burdwan. The players were assembled in the ground. The importance, procedure and significance of the study were explained to them in brief and were asked to act spontaneously as subjects. Different types of incentives were announced to motivate and encourage them to continue the training programmed and to take part in the tests at their level best.

The subjects were selected at random basis. The data on physical fitness components (50 yard dash, Standing broad jump, Shuttle run, Pull-up, Sit-ups, 600 yard dash, ) and soccer skills variables (dribbling, shooting and kicking) of all the subjects were collected and composite physical fitness and soccer skills scores of
each subject were computed. On the basis of the composite scores the whole group was equally scattered into five groups. The first group named Group –A served for Harness Running, the second named Group-B for training on Sand Running, the third group named Group-C for training on Weight-Jacket Running, the fourth group named Group-D for training on Weight training and the fifth group named Group-E as the Control group.

Subjects within the age group of 14-18 years were selected. They were medically tested before starting of the training programmed.

### 3.5 SELECTING AGE AS A CRITERION

Sing (1982) compared effects of Harness Running, Weight jacket running on leg strength, stride length, and speed of sixteen years aged subjects, Roy (1980) studied comparative effects of acceleration running, resistance running and sand running on speed, leg explosive strength, and stride length, Rogers(1968) studied to determined the subjects of weight of foot ball uniform on speed and agility from above references it is clear that most of the researcher conducted difference resistances training programmed for development of the physical fitness components . Secondly the above sited references show the age of the subjects does not cover teen- age spans. Thirdly those references do not clearly distinguish the effects of resistance training over playing ability, there for the researcher decided to confine the study within the age group of 14 through 18 years.

### 3.6 CRITERION MEASURES

For the purpose of the study the Criterion Measures chosen for testing of the hypothesis in the study were selected as follows:-
3.6.1 CRITERION MEASURES IN PHYSICAL FITNESS

1. 50 yard dash: - It was measured in \( \frac{1}{100} \) th of the seconds.

2. Standing broad jump: - It was measured in meters and centimeters.

3. Shuttle run: - It was measured in \( \frac{1}{100} \) th of the seconds.

4. Pull-up: - It was measured in number.

5. Sit-ups: - It was measured in number of 60 seconds.

6. 600 yard dash: - It was measured in \( \frac{1}{100} \) th of the seconds.

3.6.2 CRITERION MEASURES IN SOCCER SKILLS

1. Kicking for Distance: - It was measured in meters and centimeters.

2. Dribbling the Ball: - It was measured in \( \frac{1}{100} \) th of the seconds.

3. Shooting for accuracy: - It was recorded by a given score.

3.7 DESIGN OF THE STUDY

For the present study the experimental design was adopted on the basis of random group design. Equal numbers of tasks were assigned randomly to five groups of twenty subjects each. The experimental treatments were also assigned randomly for the four experimental groups (A, B, C, D) and control group E. The four experimental groups were administered four different kinds of training programmers for the development of physical fitness and soccer skills. The first group was trained with the method of Harness Running
(group-A) the second group with the Sand Running (group-B), the third group with Weight – Jacket Running (group-C), the fourth group with Weight – Training (group-D). The distance chosen for each of the training was 80 meters. The training session was conducted thrice a week i.e. on Monday, Wednesday, Friday, for Harness Running and Sand Running Group and Tuesday, Thursday, Saturday for Weight – Jacket Running Group and Weight–Training group. Test programmers were taken before and after an experimental period of 10 weeks. The subjects were advised not to take part in any voluntary sports programmers or unusual physical exhaustion so that physical activities remained uniform for all the groups chosen for the study.

3.8 LIST OF EQUIPMENTS

- Soccer ball
- Measuring tape
- Lime Powder
- Score Sheet
- Javelins
- Stop watch
- Goal post
- Target Number
- Running Track
- Wooden Block
- Horizontal Bar
3.9 ADMINISTRATION OF THE TEST

The test was administered to the subjects in Burdwan Stadium (Football-ground) in Burdwan District, West Bengal. The researcher took the help of some experienced physical education teachers, football coaches and some senior players. Assistance of they were well oriented by the researcher himself a few days before the test was administered.

Prior to the actual administration of the tests all the subjects were properly instructed regarding the procedure of the tests and the necessary number of practice trials were provided to each subject to make them familiar with the actual conduct of the test.

In order to motivate the subjects to put their best performance the significance of this study was clearly explained to them and an element of competition was introduced.
During test all subjects were made to shorts, vests and running canvas. They will be instructed to warm-up on their own in order to gain best performance and avoid possible injuries.

All the tests were administered from 6-30 A.M. to about 9-30 A.M. in football ground.

The physical fitness and soccer skill test administered to the subjects and explained as under.

3.9.1 ADMINISTRATION OF PHYSICAL FITNESS TEST

3.9.1.1 50 Yard Dash

**Equipment**

1. A stop watch accurate to one hundredth sec-per-runner.
2. Running track.

**Purpose**

50 yard dash was administered to obtain data on speed.

**Procedure**

Two subjects ran at a time. Both of them took starting position behind the starting line was given by sound of a clapper using the command, "on your mark" "set" followed by clapping. The time for each subject was recorded by the time keepers who had been stationed at the finishing line.
**Score**

The period of time was taken between the starters signal and instant the subjects crossed the finishing line was recorded to the nearest one hundredth of a second as the score of the subjects.
3.9.1.2 Standing Broad Jump

**Equipment** -

1. Measuring steel tape calibrated with centimeter.
2. Ground.

**Purpose** –

Standing broad jump was administered to obtain data on explosive strength of leg.

**Procedure** -

A take-off line was drawn near one edge of the jumping pit. The subject was asked to take his position toes just behind the take-off line and feet slightly apart. Taking off with both feet simultaneously, he jumped as far as possible and landed on both feet. While jumping the jumper crouched slightly and swung the arms forward to aid the jump. Three trials were given to each subject and the best out of them was recorded.

**Scores** -

The best of the three distance covered by the jumper was recorded in meter and centimeters and then converted into meters as the scores of the subject.
Standing Broad Jump

Figure-5

3.9.1.3 4x10 Yard Shuttle Run

**Equipment** -

1. Floor space sufficiently large
2. Stop watch accurate to a one hundredth sec-per-runner.
3. Two wooden blocks 2inch x 2inch x 4 inches per test station.

**Purpose** –

To measure agility, 4x10 Yard Shuttle Run test was administered.
**Procedure**

The blocks of wood of 2 inches x 2 inches x 4 inches and stop watch were the equipments required for conducting the test. Two parallel lines were marked on the ground 10 yards apart. The wooden blocks were placed behind one of the line. The subject started from behind the other line on signal “go”. The subject ran to the end line and picked one block, ran back to the starting line and placed the block behind the line. Then he ran back and picked up the second block which he carried back across the starting line.

The timing of each runner was recorded by two time keepers. The lower timing to the nearest hundredth of a second was noted down. The trials were given with sufficient interval of rest.

**Score**

Better timing of the two trials was recorded to the nearest one hundredth of a second as the score of the subject in agility.

![4x10 Yard Shuttle Run](image)

**Figure-6**
3.9.1.4 Pull – Up

**Equipment** –

A horizontal bar was located at a height so that the feet of the tallest boy do not touch the floor.

**Purpose** –

Pull – up was administered to obtain data on arm strength.

**Procedure** -

The bar should be adjusted to a height that permits the students to hang freely with an over hand grip (palm forward) from the hanging position, the boy is pulled upward until the chin goes over the bar and then he has to lower the body until the arms are straight. This movement can repeated in the exhaustion kicking and jerking is not allowed.

**Scoring** -

The student score is the number of correctly executed chin (four half counts may be allowed).
Pull – Up

Figure-7

3.9.1.5 SIT-UPS

**Equipment** -

1. A clear surface.

2. A stop watch.

**Purpose** –

Sit – up was administered to obtain data on abdominal strength and endurance.
**Procedure**

The student lies on his back with the knees bent, feet on the floor and not more then 12 inches from the buttocks. The angle at the knees was less then 90 degree with the ground. The subject’s hands were on the back of the neck with fingers clasped and elbows touching the face. By tightening the abdominal muscles, the subjects raise his upper part of the body and touch the chest with the thighs.

**Scoring**

Score is the number of correctly executed sit up within 60 seconds.

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**Figure-8**

**SIT-UPs**
3.9.1.6 600 Yard Dash

**Equipment** –

1. A stopwatch to measure the time.
2. One 400 meter track.

**Purpose** –

To measure the cardio-vascular endurance of the subject, 600 Yard dash test was administered.

**Procedure** -

The test was administered in the 400 meter track. The subject were asked to run out side the inner line of the track. There were several marking on the inner- line every ten meters apart from one another beginning from the starting line. All the subject were divided into four groups. Each group assembles behind the starting line and started off just after a clapping with full instruction to cover the distance. At the signal ‘ready’ ‘go’ the student started running the 600 yard distance. Walking was permitted, but the object is to cover the distance in the starting line.

**Scoring** -

The time of the run is recorded in minute and second.
3.9.2 Administration of Soccer Skills Test

3.9.2.1 Dribbling

**Purpose**-

The purpose of this test was to measure the ball controlling ability of the subjects.

**Equipment**-

Five javelins, Soccer balls, stop watch measuring tape, lime powder. Score sheet, etc.

**Marking**-

Five javelins were placed in a straight line five yards apart from each other. A restraining line was drawn on the ground five yards...
away from the first obstacle. Specification of dribbling the ball test has been depicted in figure 10.

**Figure -10**

**Description**-

Subject was asked to stand behind the restraining line with soccer ball. On the signal “ready go” subject started dribbling from the restraining line and finished after crossing through all five obstacles, keeping, to the fifed direction and path of dribbling and by crossing the restraining line The time-keeper started the stop watch on the signal “ready go” and stopped as the subject crossed the restraining line with the ball. Administration of this test has been depicted in figure 10.1.

**Score**-

Three trials were given to each subject and the best of three was recorded to the nearest 1/10th of a second as a score.
3.9.2.2 Shooting for Accuracy

**Purpose-**

The purpose of this test was to measure kicking of accuracy ability of the subjects in term of total point’s taken by him from the target.

**Equipment-**

Goal-post, target numbers, measuring tape, soccer ball, score-sheet etc.
**Marking -**

A penalty spot was marked in front of the goal at a distance of 12 yards. Target zones were marked at the cross bar of the goal, which was divided into five segments. For first and fifth zone five points were awarded and for the second and fourth zone four points were awarded. If the ball rebounded from the cross bar or upright or went out of the goal post zero points was awarded. If the ball went to the middle zone of the goal post one point was awarded. High points of the two zone was awarded if the ball hits the dividers of the zones.

![Figure-11](image)

**Description**

The subjects stood behind the restraining line with ball. On signal subjects kicked the ball to the goal.
On the signal “go” he kicked the ball at the goal with an intention of getting maximum credit of five points. No points were awarded when the ball went wide from the goal. Three trials were given to each subject.

**Scoring**

Total points of all the three trials were recorded as the score.

**Shooting for Accuracy**

**Figure-11.1**

**3.9.2.3 Kicking for Distance**

**Purpose** –

The purpose of this test was to measure the kicking ability of the subjects in terms of distance.
**Equipment** –

Three Soccer balls, measuring tape, lime powder. Score sheet, etc.

**Marking**-

A line “AB” at 25 yards in length was drawn to serve as kicking line. Another restraining line “CD” parallel to the kicking line of 25 yards at a distance of 65 yards from the kicking line was drawn. Two lines AC and BD were drawn to join these two parallel lines at both ends.

**Description**-

The test was administered to one subject at a time. The subject was asked to stand behind the kicking line. The soccer ball was placed on the center of kicking line and on the signal “ready goes” the subject was allowed to kick the ball as far as possible after taking a maximum approach run from behind the kicking line by using his foot as he liked. Administration of this test has been depicted in figure 12.
**Scoring**

The distance was measured in meter and centimeter from the kicking line to the point of first bounce. Three trails were given to each subject and the best of three was recorded as score.

![Kicking for Distance](image)

**Kicking for Distance**

**Figure-12.1**

### 3.10 ADMINISTRATION OF TRAINING PROGRAMMED

The experimental groups met thrice a week for a period of 10 weeks. The first two weeks training for all the experimental groups was for physical conditioning, determining the starting weight, practices of weight training exercises and resistance running, so that physical and physiological system of the subjects were ready to undertake the specific load.
In case of weight training the maximum weight which a subject lifted in one single effort was recorded and fifty percent of the maximum was lifted by the subject in each of the weight training exercise.

The load in respect of harness running was fixed according to the pulse rate reached at the end of the 80 meters of Sand running and Weight–jacket running. Each subject performed three sets in weight training and 6 to 8 repetition in Sand running, Weight–jacket running and harness running. A rest period of ensuring complete recovery was provided between the two sets.

**HARNESS RUNNING**

The subject had to run a distance of 80 meters with weights in his drag marking a proper body lean and in the running action he run as fast as possible and perform 6 – 8 repetition with complete recovery between the sets.

Harness Running

*Figure-13*
It was one of the important methods employed during the strength buildup period. The athletes perform the movement with a belt secured about the waist. The belt was attached to ropes which were connected to a drag made of wood weighing 9 kilograms including the ropes attached to the drag. There weight plates of 5 kilograms were used so that the total weight of one drag was 29 kilograms. Harness run was performed by the subjects over a distance of 80 meters. An interval of three minutes was provided between the successive repetitions so that load of resistance was set with the pulse rate of uphill running of 80 meter.

**SAND RUNNING**

![Sand running](image)

The subject was asked to run distance of 80metres on sand by the side of river. Subject performed 6 to 8 repetition with complete recovery between the two sets. Subject covered this distance as fast as possible.
SELECTION OF EXERCISE OF WEIGHT TRAINING

The research scholar went through the available literature pertaining to training of the sprinters using weight training and also after a discussion with the expert of athletic training, Dr. A.K. Goon, Reader, Department of Physical Education, Vinaya Bhavan, Visva Bharati, the following exercise were chosen:

1. Half squat
2. Step-up
3. Leg-press

HALF SQUAT

Half Squat

Figure-15
The barbell rested across the shoulder and back of the neck with hands grasping the bar with over grip somewhat greater than shoulder width apart. The subject went down to the half squat position and came back to starting position. Again the same was repeated.

**STEP-UP**

From standing position stepping was done with weight (50% of maximum weight) in four counts on a bench of 12 – 18 inches in height – I) stepped up with one foot, II) stepped with second foot, body erect, legs straight on the bench, III) step down with the same foot, IV) step down with other foot maintain the four count. The subject was asked to take lead with same foot each time or change fit as desired.

![Step-Up](image)

**Step-Up**

**Figure-16**
LEG-PRESS

The athlete was asked to take seat on a foot in front of leg press station of the multi gym with hands placed on the hand-rest, and asked to perform the exercise as per prescribed load and intensity. Some exercise was repeated.

![Leg press](image1)  
**Figure-17**

WEIGHT - JACKET RUNNING

The subject was asked to run distance of 80metres on foot ball ground. Subject carried extra weight on his body using weight jacket. Subject performed 6 to 8 repetition with complete recovery between the two sets. Subject covered this distance as fast as possible.
The training schedule was prepared on the basis of pilot study which was previously submitted with the project report. The training schedule mentioned below was administered to the experimental groups.

### 3.11 PHYSICAL CONDITIONING PROGRAMMED FOR THE EXPERIMENTAL GROUPS

**Monday.**

- 20 Minutes warm-up.
- Calisthenics exercises.
- 80 meters sprint x 8 repetition.
Limbering down.

Tuesday.

20 minutes warm-up.

80 meters acceleration runs x 6 repetition.

Dips.

Sit-ups bent knees.

Hopping.

Skipping.

Limbering down.

Wednesday.

20 minutes warm-up

Calisthenics exercises.

Fort leg – 30 minutes.

Limbering down.

Thursday.

Same as Monday.

Friday.

Same as Tuesday.

Saturday.

Same as Wednesday.

Same programmed was repeated for two weeks
GROUP-A

TRAINING PROGRAMMED FOR HARNESS RUNNING

(Third and Fourth week)

Monday.

a) 15-20 Minutes warm-up.
b) 80 meters acceleration runs x 4 rept.
Intensity 60-70 percent.
c) Harness run 80 meters 6-8 rept x 2 sets.
d) Limbering down.

Tuesday.

Active rest.

Wednesday.

a) 15-20 Minutes warm-up.
b) 120 meters Ins. and outs. run x 3 rept.
Intensity 60-70 percent.
c) Harness run 80 meters 6-8 rept x 2 sets.
d) Limbering down.

Thursday.

Active rest.

Friday.

a) 15-20 Minutes warm-up.
b) 60 meters acceleration runs x 6 rept.
Intensity 60-70 percent.
c) Harness run 80 meters 6-8 rept. x 2 sets.

d) Limbering down.

**Saturday.**

Active rest.

*(Fifth and sixth week)*

**Monday.**

a) 15-20 Minutes warm-up.

b) 80 meters acceleration runs x 5 rept.

Intensity 70-80 percent

c) Harness runs 80 meters 8-10 rept x 2 sets.

d) Limbering down.

**Tuesday.**

Active rest.

**Wednesday.**

a) 15-20 Minutes warm-up.

b) 120 meters Ins. and outs. run x 4 rept.

Intensity 70-80 percent

c) Harness runs 80 meters 8-10 rept x 2 sets.

d) Limbering down.
Thursday.

Active rest.

Friday.

a) 15-20 Minutes warm-up.
b) 60 meters acceleration runs x 6 rept.
Intensity 70-80 percent
c) Harness runs 80 meters 8-10 rept x 2 sets.
d) Limbering down.

Saturday.

Active rest.

(Seventh and Eighth week)

Monday.

a) 15-20 Minutes warm-up.
b) 80 meters acceleration run x 6 rept.
Intensity 80-90 percent
c) Harness runs 80 meters 8-10 rept x 3 sets.
d) Limbering down.

Tuesday.

Active rest.

Wednesday.

a) 15-20 Minutes warm-up.
b) 120 meters Ins. and outs. Run x 5 rept.
Intensity 80-90 percent

c) Harness run 80 meters 8-10 rept x 3 sets.
d) Limbering down.

Thursday.
Active rest.

Friday.

a) 15-20 Minutes warm-up.
b) 60 meters acceleration run x 7 rept.
Intensity 80-90 percent
c) Harness runs 80 meters 8-10 rept x 3 sets.
d) Limbering down.

Saturday.
Active rest.

(Ninth and Tenth week)

Monday.

a) 15-20 Minutes warm-up.
b) 80 meters acceleration runs x 6 rept.
Intensity 90-100 percent
c) Harness runs 80 meters 10-12 rept x 3 sets.
d) Limbering down.

Tuesday.
Active rest.
**Wednesday.**

a) 15-20 Minutes warm-up.

b) 120 meters Ins. and outs. run x 5 rept.

Intensity 90-100 percent

c) Harness runs 80 meters 10-12 rept x 3 sets.

d) Limbering down.

**Thursday.**

Active rest.

**Friday.**

a) 15-20 Minutes warm-up.

b) 60 meters acceleration runs x 7 rept.

Intensity 90-100 percent

c) Harness runs 80 meters 10-12 rept x 3 sets.

d) Limbering down.

**Saturday.**

Active rest.
GROUP-B

TRAINING PROGRAMMED FOR SAND RUNNING

(Third and Fourth week)

Monday.

a) 15-20 Minutes warm-up.

b) 80 meters acceleration run  x  4 rept.
   Intensity 60-70 percent

c) Sand runs 80 meters 6-8 rept x 2 sets.

d) Limbering down.

Tuesday.

Active rest.

Wednesday.

a) 15-20 Minutes warm-up.

b) 120 meters Ins. and outs. Run x 4 rept.
   Intensity 60-70 percent

c) Sand runs 80 meters 6-8 rept x 2 sets.

d) Limbering down.

Thursday.

Active rest.

Friday.

a) 15-20 Minutes warm-up.

b) 60 meters acceleration runs x 6 rept.
Intensity 60-70 percent

c) Sand runs 80 meters 6-8 rept x 2 sets.

d) Limbering down.

**Saturday.**

Active rest.

**(Fifth and Sixth week)**

**Monday.**

a) 15-20 Minutes warm-up.

b) 80 meters acceleration runs x 5 rept.

Intensity 70-80 percent

c) Sand runs 80 meters 8-10 rept x 2 sets.

d) Limbering down.

**Tuesday.**

Active rest.

**Wednesday.**

a) 15-20 Minutes warm-up.

b) 120 meters Ins. and outs. Run x 4 rept.

Intensity 70-80 percent

c) Sand runs 80 meters 8-10 rept x 2 sets.

d) Limbering down.

**Thursday.**

Active rest.
Friday.

a) 15-20 Minutes warm-up.

b) 60 meters acceleration runs x 6 rept.

Intensity 70-80 percent

c) Sand runs 80 meters 8-10 rept x 2 sets.

d) Limbering down.

Saturday.

Active rest.

(Seventh and Eighth week)

Monday.

a) 15-20 Minutes warm-up.

b) 80 meters acceleration runs x 6 rept.

Intensity 80-90 percent

c) Sand runs 80 meters 8-10 rept x 3 sets.

d) Limbering down.

Tuesday.

Active rest.

Wednesday.

a) 15-20 Minutes warm-up.

b) 120 meters Ins. and outs. run x 5 rept.

Intensity 80-90 percent

c) Sand runs 80 meters 8-10 rept x 3 sets.
d) Limbering down.

**Thursday.**

Active rest.

**Friday.**

a) 15-20 Minutes warm-up.

b) 60 meters acceleration runs x 7 rept.

Intensity 80-90 percent

c) Sand runs 80 meters 8-10 rept x 3 sets.

d) Limbering down.

**Saturday.**

Active rest.

*(Ninth and Tenth week)*

**Monday.**

a) 15-20 Minutes warm-up.

b) 80 meters acceleration runs x 6 rept.

Intensity 90-100 percent

c) Sand runs 80 meters 10-12 rept x 3 sets.

d) Limbering down.

**Tuesday.**

Active rest.

**Wednesday.**

a) 15-20 Minutes warm-up.
b) 120 meters Ins. and outs. run x 5 rept.
   Intensity 90-100 percent

c) Sand runs 80 meters 10-12 rept x 3 sets.

d) Limbering down.

**Thursday.**

Active rest.

**Friday.**

a) 15-20 Minutes warm-up.

b) 60 meters acceleration runs x 7 rept.
   Intensity 90-100 percent

            c) Sand runs 80 meters 10-12 rept x 3 sets.

            d) Limbering down.

**Saturday.**

Active rest.
GROUP-C

TRAINING PROGRAMMED FOR WEIGHT-JACKET

RUNNING

(Third and Fourth week)

Monday.

Active rest.

Tuesday.

a) 15-20 Minutes warm-up.

b) 80 meters acceleration runs x 4 rept.

Intensity 60-70 percent

c) weight-jacket runs 80 meters 6-8 rept x 2 sets.

d) Limbering down.

Wednesday.

Active rest.

Thursday.

a) 15-20 Minutes warm-up.

b) 120 meters Ins. and outs. Run x 3 rept.

Intensity 60-70 percent

c) weight-jacket runs 80 meters 6-8 rept x 2 sets.

d) Limbering down.

Friday.

Active rest.
Saturday.

a) 15-20 Minutes warm-up.
b) 60 meters acceleration runs x 6 rept.
   Intensity 60-70 percent
c) weight-jacket runs 80 meters 6-8 rept x 2 sets.
d) Limbering down.

(Fifth and sixth week)

Monday.

Active rest.

Tuesday.

a) 15-20 Minutes warm-up.
b) 80 meters acceleration runs x 5 rept.
   Intensity 70-80 percent
c) weight-jacket runs 80 meters 8-10 rept x 2 sets.
d) Limbering down.

Wednesday.

Active rest.

Thursday.

a) 15-20 Minutes warm-up.
b) 120 meters Ins. and outs. Run x 4 rept.
   Intensity 70-80 percent
c) weight-jacket runs 80 meters 8-10 rept x 2 sets.
d) Limbering down.

**Friday.**

Active rest.

**Saturday.**

a) 15-20 Minutes warm-up.

b) 60 meters acceleration runs x 6 rept.

Intensity 70-80 percent

c) weight-jacket runs 80 meters 8-10 rept x 2 sets.

d) Limbering down.

**(Seventh and Eighth week)**

**Monday.**

Active rest.

**Tuesday.**

a) 15-20 Minutes warm-up.

b) 80 meters acceleration runs x 6 rept.

Intensity 80-90 percent

c) weight-jacket runs 80 meters 8-10 rept x 3 sets.

d) Limbering down.

**Wednesday.**

Active rest.

**Thursday.**

a) 15-20 Minutes warm-up.
b) 120 meters Ins. and outs. Run x 5 rept.
Intensity 80-90 percent

c) weight-jacket runs 80 meters 8-10 rept x 3 sets.

d) Limbering down.

**Friday.**

Active rest.

**Saturday.**

a) 15-20 Minutes warm-up.

b) 60 meters acceleration runs x 7 rept.
Intensity 80-90 percent

c) weight-jacket runs 80 meters 8-10 rept x 3 sets.

d) Limbering down.

**(Ninth and Tenth week)**

**Monday.**

Active rest.

**Tuesday.**

a) 15-20 Minutes warm-up.

b) 80 meters acceleration runs x 6 rept.
Intensity 90-100 percent

c) weight-jacket runs 80 meters 10-12 rept x 3 sets.

d) Limbering down.
**Wednesday.**

Active rest.

**Thursday.**

a) 15-20 Minutes warm-up.

b) 120 meters Ins. and outs. Run x 5 rept.

Intensity 90-100 percent

c) weight-jacket runs 80 meters 10-12 rept x 3 sets.

d) Limbering down.

**Friday.**

Active rest

**Saturday.**

a) 15-20 Minutes warm-up.

b) 60 meters acceleration runs x 7 rept.

Intensity 90-100 percent

c) weight-jacket runs 80 meters 10-12 rept x 3 sets.

d) Limbering down.
GROUP-D

TRAINING PROGRAMMED FOR WEIGHT-TRAINING

(Third and Fourth week)

Monday.

Active rest.

Tuesday.

a) 15-20 Minutes warm-up.

b) 80 meters acceleration runs x 4 rept.

Intensity 60-70 percent

c) Weight Training with 40% of weight of maximum load.

Half Squat - 6 - 12 rept. x 2 sets

Leg press - 6 - 12 rept. x 2 sets

Step-up - 6 - 12 rept. x 2 sets

d) Limbering down.

Wednesday.

Active rest.

Thursday.

a) 15-20 Minutes warm-up.

b) 120 meters ins. And outs. Run x 3 rept.

Intensity 60-70 percent
c) Weight Training with 40% of weight of maximum load.
   Half Squat - 6 - 12 rept. x 2 sets
   Leg press - 6 - 12 rept. x 2 sets
   Step-up - 6 - 12 rept. x 2 sets

d) Limbering down.

**Friday.**

Active rest.

**Saturday.**

a) 15-20 Minutes warm-up.

b) 60 meters acceleration runs x 6 rept.
   Intensity 60-70 percent

c) Weight Training with 40% of weight of maximum load.
   Half Squat - 6 - 12 rept. x 2 sets
   Leg press - 6 - 12 rept. x 2 sets
   Step-up - 6 - 12 rept. x 2 sets

d) Limbering down.

(Fifth and Sixth week)

**Monday.**

Active rest.

**Tuesday.**

a) 15-20 Minutes warm-up.
b) 80 meters acceleration runs x 4 rept.

Intensity 70-80 percent

c) Weight Training with 50% of weight of maximum load.

Half Squat - 8 - 12 rept. x 2 sets
Leg press - 8 - 12 rept. x 2 sets
Step-up - 8 - 12 rept. x 2 sets

d) Limbering down.

**Wednesday.**

Active rest.

**Thursday.**

a) 15-20 Minutes warm-up.

b) 120 meters ins. And outs. run x 4 rept.

Intensity 70-80 percent

c) Weight Training with 50% of weight of maximum load.

Half Squat - 6 - 12 rept. x 2 sets
Leg press - 6 - 12 rept. x 2 sets
Step-up - 6 - 12 rept. x 2 sets

d) Limbering down.

**Friday.**

Active rest.

**Saturday.**

a) 15-20 Minutes warm-up.

b) 60 meters acceleration runs x 6 rept.
Intensity 70-80 percent

c) Weight Training with 50% of weight of maximum load.

Half Squat - 8 - 12 rept. x 2 sets
Leg press - 8 - 12 rept. x 2 sets
Step-up - 8 - 12 rept. x 2 sets

d) Limbering down.

(Seventh and Eighth week)

Monday.

Active rest.

Tuesday.

a) 15-20 Minutes warm-up.
b) 80 meters acceleration runs x 6 rept.

Intensity 80-90 percent

c) Weight Training with 60% of weight of maximum load.

Half Squat - 8 - 10 rept. x 3 sets
Leg press - 8 - 10 rept. x 3 sets
Step-up - 8 - 10 rept. x 3 sets
d) Limbering down.

Wednesday.

Active rest.

Thursday.
a) 15-20 Minutes warm-up.

b) 120 meters ins. And outs. Run x 3 rept.

Intensity 80-90 percent

c) Weight Training with 40% of weight of maximum load.

Half Squat - 6 - 12 rept. x 2 sets
Leg press - 6 - 12 rept. x 2 sets
Step-up - 6 - 12 rept. x 2 sets

d) Limbering down.

Friday.

Active rest.

Saturday.

a) 15-20 Minutes warm-up.

b) 60 meters acceleration runs x 6 rept.

Intensity 80-90 percent

c) Weight Training with 40% of weight of maximum load.

Half Squat - 6 - 12 rept. x 2 sets
Leg press - 6 - 12 rept. x 2 sets
Step-up - 6 - 12 rept. x 2 sets

d) Limbering down.

(Ninth and Tenth week)

Monday.

Active rest.
Tuesday.

a) 15-20 Minutes warm-up.

b) 80 meters acceleration runs x 6 rept.

Intensity 90-100 percent

c) Weight Training with 60% of weight of maximum load.

Half Squat - 10 - 12 rept. x 3 sets

Leg press - 10 - 12 rept. x 3 sets

Step-up - 10 - 12 rept. x 3 sets

d) Limbering down.

Wednesday.

Active rest.

Thursday.

a) 15-20 Minutes warm-up.

b) 120 meters ins. And outs. Run x 5 rept.

Intensity 90-100 percent

c) Weight Training with 60% of weight of maximum load.

Half Squat - 10 - 12 rept. x 3 sets

Leg press - 10 - 12 rept. x 3 sets

Step-up - 10 - 12 rept. x 3 sets

d) Limbering down.

Friday.

Active rest
Saturday.

a) 15-20 Minutes warm-up.

b) 60 meters acceleration runs x 7 rept.

Intensity 90-100 percent

c) Weight Training with 60% of weight of maximum load.

Half Squat - 10 - 12 rept. x 3 sets
Leg press - 10 - 12 rept. x 3 sets
Step-up - 10 - 12 rept. x 3 sets

d) Limbering down.

3.12 RELIABILITY OF DATA

The reliability of Data was ensured by establishing testers, competency, subject reliability and instrument reliability.

3.13 TESTER COMPETENCY

To ensure that the investigator was well versed with the techniques of conducting the tests and taking the measurement, the investigator had a number of practice session in testing procedure under the guidance of an expert. All the measurement and test were conducted by the investigator with the assistant of lectures in physical education and soccer coaches who were also well acquainted with the tests and measurement.

Testers reliability in conducting AAHPER Youth Fitness test and soccer skills (dribbling, kicking, shooting) was established by test retest process thereby consistencies of result were obtained by him and the scores obtained by an expert on randomly selected sample of 20 subjects. The co-efficient of co-relation for tester reliability in AAHPER Youth Fitness test are presented in table no. 1.
TABLE-1
COEFFICIENT OF CORRELATION FOR TESTER
RELIABILITY IN AAHPER YOUTH FITNESS TESTS

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>AAHPER Youth Fitness Test</th>
<th>Co-Efficient of correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>50 Yard Dash</td>
<td>0.99</td>
</tr>
<tr>
<td>2.</td>
<td>Standing Broad Jump</td>
<td>0.98</td>
</tr>
<tr>
<td>3.</td>
<td>Shuttle Run</td>
<td>0.97</td>
</tr>
<tr>
<td>4.</td>
<td>Pull Up</td>
<td>0.98</td>
</tr>
<tr>
<td>5.</td>
<td>Sit Up</td>
<td>0.98</td>
</tr>
<tr>
<td>6.</td>
<td>600 Yard Run/Walk</td>
<td>0.96</td>
</tr>
</tbody>
</table>

3.14 RELIABILITY OF THE SUBJECT

To establish the reliability of the performance given by 20 subjects were randomly selected in groups and their performance in all the items was measured twice with a gap of one day under identical conditions. The composite scores thus obtained on two occasions for each group were correlated by applying person’s products movement method, the result of which is presented in table 2.
### TABLE-2

**COEFFICIENT OF CORRELATION FOR TESTER RELIABILITY IN SOCCER SKILL TESTS**

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Soccer Skills</th>
<th>Co-Efficient of correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Dribbling</td>
<td>0.98</td>
</tr>
<tr>
<td>2.</td>
<td>Shooting</td>
<td>0.97</td>
</tr>
<tr>
<td>3.</td>
<td>Kicking</td>
<td>0.98</td>
</tr>
</tbody>
</table>

#### 3.15 INSTRUMENTAL RELIABILITY

The stop watches used for measuring performance of subjects in 50 yard dash, 600 Yard run/walk, dribbling and shuttle run were all calibrated, Swiss made and supplied by Krishna watch Co., Bombay.

The still tape used for standing broad jump and kicking were non elastic and flexible which was calibrated and approved for use by the department of physical education, Visva Bharati, Santiniketan, West Bengal.

Therefore, all the instruments used for measuring performance of the subjects on different variables were considered reliable and precise enough for the collection of data needed for the study.

#### 3.16 STATISTICAL PROCEDURE

In order to compare the effects of training on Harness Running, Sand Running, Weight Jacket Running and Weight training on 50
yard dash, Standing broad jump, Shuttle run, Pull-up, Sit-ups, 600 yard dash, and soccer skills variables dribbling, shooting and kicking of district level male soccer players analysis of Co-Variance (F ratio) was applied. The level of significance was set at 0.05 level of confidence.

3.17 LEVEL OF SIGNIFICANCE

For testing the mean difference among the subjects belonging to the experimental and control group in composite physical fitness and soccer skill ability, the level of significance was set at 0.05 level of confidence.