Chapter III

PROCEDURE

In this chapter, the procedure adopted for the present study has been described. The procedure was further explained through: section of subjects, selection of variables, instrument reliability, tester's reliability, tester's competency, criterion measures, administration and description of the test items, collection of the data and statistical analysis etc.

Selection of Subjects

Subjects for the study were 6000 male students studying in classes 8 to first year degree (under graduates) in various government schools and colleges from 10 districts of Andhra Pradesh (3 districts from Rayalaseema region, 3 from Coastal Andhra region and 4 from Telangana region). 20 subjects were selected from each age group, from each of the 5 institutions, from each district. Both the subjects and the institutions were selected on random basis. Thus 1000 subjects were selected from each age group from the total population as given in Table 1.
TABLE 1

AGE-WISE BREAK-UP OF SUBJECTS

<table>
<thead>
<tr>
<th>Age</th>
<th>Total Population</th>
<th>No. of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thirteen Years</td>
<td>2620</td>
<td>1000</td>
</tr>
<tr>
<td>Fourteen Years</td>
<td>2580</td>
<td>1000</td>
</tr>
<tr>
<td>Fifteen Years</td>
<td>2350</td>
<td>1000</td>
</tr>
<tr>
<td>Sixteen Years</td>
<td>2200</td>
<td>1000</td>
</tr>
<tr>
<td>Seventeen Years</td>
<td>2050</td>
<td>1000</td>
</tr>
<tr>
<td>Eighteen Years</td>
<td>2180</td>
<td>1000</td>
</tr>
</tbody>
</table>

Grand Total: 6000

For selecting the subjects, collection of the data and to seek the services of teachers and lecturers in physical education as well as to make use of facilities, the headmasters and principals of the educational institutions concerned were requested through a common request letter.
Selection of Variables

A large number of physical fitness test batteries are available which have been critically reviewed in Chapter II. The AAHPER Youth Fitness Test\(^1\) was selected for the purpose of the study as its items measure the physical fitness components satisfactorily. The test permits easy administration and simple and easy to be performed by the subjects as they do not demand skilled movements. The test includes the following items:

1. Pull-ups
2. Bent Knee Sit-ups
3. Standing Broad Jump
4. Shuttle Run
5. 50 metre Dash
6. 600 metre Run/Walk.

The actual distance of 50 yards and 600 yards were converted into metres because of the fact that metric system (MKS) is being used in India.

Reliability of Data

Instrument Reliability

All the stop watches utilised to measure time in 50 metre dash and 600 metre run/walk and agility test were Swiss made and were got calibrated before the testing programme commenced. A steel tape of superior quality with an ISI trade mark was used to measure the performance of standing broad jump, to mark the shuttle run course and the track for 50 metre dash and 600 metre run/walk.

Tester's Reliability

Besides the research scholar and three experts (Athletic Coaches), the six physical education teachers/lecturers were involved in conducting the tests. The physical education teachers/lecturers were given sufficient practice in handling the stop watches and measuring tape. Thereafter, their performance was compared against that of the experts to ensure the tester reliability and the correlation coefficients of which are presented in Table 2.
TABLE 2

RELIABILITY COEFFICIENTS FOR TESTER
RELIABILITY

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Test Items</th>
<th>Co-efficient of Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Pull-ups</td>
<td>0.99*</td>
</tr>
<tr>
<td>2.</td>
<td>Bent Knee Sit-ups</td>
<td>0.99*</td>
</tr>
<tr>
<td>3.</td>
<td>Standing Broad Jump</td>
<td>0.94*</td>
</tr>
<tr>
<td>4.</td>
<td>Shuttle Run</td>
<td>0.96*</td>
</tr>
<tr>
<td>5.</td>
<td>50-Metre Dash</td>
<td>0.92*</td>
</tr>
<tr>
<td>6.</td>
<td>600-Metre Run/Walk</td>
<td>0.95*</td>
</tr>
</tbody>
</table>

Testers Competency

Since the study was conducted on six thousand subjects studying in various schools and colleges located almost all over the state of Andhra Pradesh, it was not possible for the investigator to collect the data alone. Therefore, the help of three experts (athletic coaches) and six physical education teachers/lecturers was taken. The investigator explained the tests and the testing procedure to the helpers with a demonstration. The helpers were given sufficient practice to
conduct the tests correctly. After ascertaining their competency in conducting the test, one expert and two helpers assisted the research scholar in collecting the data in each of the three regions.

**Criterion Measures**

The AAHPER Youth Fitness Test was conducted for the present study. The criterion measures followed for the collection of the data of each test item, on presented in Table 3.
# TABLE 3

**CRITERION MEASURES**

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Test Item</th>
<th>Actual Measuring Unit of The Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Pull-ups</td>
<td>Maximum number</td>
</tr>
<tr>
<td>2.</td>
<td>Bend Knee Sit-ups</td>
<td>Maximum number during one minute time</td>
</tr>
<tr>
<td>3.</td>
<td>Standing Broad Jump</td>
<td>Best effort among three trials in meters and centimeters</td>
</tr>
<tr>
<td>4.</td>
<td>Shuttle Run</td>
<td>Nearest 1/10 of a second</td>
</tr>
<tr>
<td>5.</td>
<td>50 Metre dash</td>
<td>Nearest 1/10 of a second</td>
</tr>
<tr>
<td>6.</td>
<td>600 Metre run/walk</td>
<td>Minutes and seconds and converted into nearest 1/10 of the seconds</td>
</tr>
</tbody>
</table>

**Administration and Description of the Test Items**

For administering the test items of AAHPER Youth Fitness Test, a 200 metre track was marked in the football field of the institution if it did not have a 400 metre track. Stations to conduct other items were set in the school or college grounds. On the 1st day of the test, all the subjects were assembled and explained the purpose and the procedure
of the test items. They were exhorted to put in their best performance. The tests were administered strictly in accordance with the prescribed procedure given in AAHPER Youth Fitness Test Manual. All the test items were administered during the evening hours, and as suggested by AAHPER Youth Fitness Test Manual that the pull-ups, bent knee, sit-ups, standing broad jump and shuttle run were conducted in one period and the 50 mts. dash and 600 mts. run/walk in following period.

The subjects were given sufficient time for warm-up before testing. The test items were administered as described below:

**Pull-ups**

**Purpose:**

The purpose of this test was to measure arm and shoulder strength of the performer.

**Equipment:**

A horizontal bar approximately three to four centimetres in diametre.
Description:

Each subject performed as many pull-ups as he could possibly do, from a horizontal bar of an appropriate height so that even the tallest boy did not touch the floor while performing the test.

While taking this test, the subject hung from the bar by his hands with an overhand grip and chinned himself as many times as he could. In executing the movement, he was asked to pull himself up until his chin was even with his hands and then lower himself until his arms were straight. The subject was not permitted to kick the legs or raise the knees. Only one trial was allowed unless it was obvious that the subject did not have a fair chance.

Scoring:

The number of completed pull-ups was recorded as the score of this test.

Bent Knee Sit-ups

Purpose:

The purpose of this test was to measure abdominal strength and endurance.
Equipment:

A clean floor or mat and a stop watch.

Description:

Each subject did as many sit ups as he could do in one minute in the manner described below:

The subject assumed supine position on the floor/mat. He bent the knees and brought the heels closer to the hips so that the distance between the hips and heels was about 30 centimetres. Hands were across the chest on opposite shoulder. A partner took kneeling position and held the ankle of the subject firmly. On the signal “Go” the subject came up, touched the thighs with his elbows and returned to starting position. This was counted as one sit-up. The subject continued the same for one minute and tried to complete as many repetitions as possible. The subject stopped on the word of command “stop”. In complete and repetitions with restricted movements were not counted.

Scoring:

The score was the number of completed repetitions in one minute.
The subjects were given demonstration with due explanation and it was made clear that repetitions with restricted movements would not be counted.

Standing Broad Jump

Purpose:

The purpose of this test was to measure the explosive power of legs.

Equipment:

Measuring tape and an outdoor jumping pit.

Description:

A take off line was drawn near one edge of the jumping pit. The subject was asked to take his position with toes just behind the take-off line and feet slightly apart. Taking off on both the feet simultaneously, he jumped to cover the maximum horizontal distance, landing on both feet. While jumping, he was asked to crouch slightly and swing the arms to aid the jump. Three trials were given and the best of three jumps was recorded as the standing broad jump performance.
**Scoring:**

The score was the horizontal distance measured between the take-off line and the nearest break of the landing surface. The distance was measured in metres and centimetres and the best of the three jumps was considered as the score.

**Shuttle Run**

**Purpose:**

The purpose of this test was to measure agility of the subject while running.

**Equipment:**

Two wooden blocks of 5x5x10 cms and a stop watch.

**Description:**

Two parallel lines A and B were marked on the ground 10 metres apart. For this test item the starting and finishing line was the same. Two wooden blocks were placed behind line ‘A’. Each subject positioned himself behind line ‘B’ and on the signal “ready, go” ran to the opposite end line, picked up a block, ran back to the starting line,
placed the block behind it, ran back and picked up the second block and carried it across the starting line.

**Scoring:**

Time was clocked from the starting to the carrying of the second wooden block across the starting line, to the nearest of 1/10th of a second. Two trials were allowed and the better time was recorded as the score on this test item.

**50 Metre Dash**

**Purpose:**

The purpose of this test was to measure the running speed of the performer.

**Equipment:**

Clapper, stop watches and measuring tape.
Description:

Two parallel lines were marked on the ground at 50 metre distance from each other. One of these served as the starting line and the other, the finish line.

Two subjects were started at a time with a clapper and two time keepers for each subject recorded the time taken to cover the distance of 50 metres. One trial was permitted.

Scoring:

The score was the time taken by the subject from the starter's signal to the instant he crossed the finish line, recorded to the nearest 1/10th of a second.

600 Metre Run/Walk

Purpose:

The purpose of this test was to measure the endurance of the performer.
Equipment:

Measuring tape and stop watches.

Description:

This test item was conducted on a 200 metre track marked for this purpose in the school or college football fields. Four subjects were started off with a clapper with the instruction to cover the distance of 600 metres preferably by running throughout, and, when it was not possible by walking.

Scoring:

The time taken by the subject to cover the distance was the score recorded in minutes and seconds and finally converted into seconds for calculations.

**Statistical Analysis**

The score for each test item were collected for all subjects separately and pooled age-wise for preparing norms. The age-wise norms for this study were computed in terms of Percentile scale, Hull scale and T-scale separately for each test item. To compare the
performance of subjects of different ages in various test items of AAHPER Youth Fitness Test, Analysis of Variance was used with the level of significance at 0.05.