CHAPTER III

METHODOLOGY
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In this chapter, selection of the subjects, selection of variables, procedure for norm preparation, collection of data and statistical techniques used for analyzing the data have been explained in detail.

**SELECTION OF SUBJECTS**

The study has been designed to construct the norms for youth physical fitness of college women. The subjects for this study were the college women of 17 years, studying in various college in Kadapa District. The subjects were selected on random basis.

**SELECTION OF VARIABLES**

The researcher reviewed the available literature pertaining to the study. Taking into consideration the importance of the variables, the physical fitness components and muscular strength, muscular endurance and muscular power and flexibility were selected for the construction of norms for the study.
The skill-related physical fitness test has six items that are, flexed arm hang, sit-ups, shuttle run, standing broad jump, 50 yard dash, 600 yard run/walk.

CRITERION MEASURE

The following criteria were chosen for testing hypothesis.

1. Flexed arm-hang recorded in seconds.
2. Sit-ups recorded in number per minute.
3. Shuttle run recorded in seconds in 4 x 30 feet.
4. Standing broad jump recorded in metres.
5. 50 yard dash recorded in seconds.
6. 600 yard run/walk recorded in seconds.

PILOT STUDY

The investigator has conducted a pilot study for fifty college women in Kadapa District. In order to know the practical difficulties in the administration of test; and to gain additional ideas, knowledge and approaches based on the experiences of pilot study, individual score sheet system was introduced to record all the test results as well as individual particulars. This system minimized the time of recording and expenditure. A sense of competition was also created in the minds of college women.
RELIABILITY OF THE DATA

In order to establish the reliability of data, the investigator has established instrument reliability, testers competency and reliability of the test and subjects.

INSTRUMENT RELIABILITY

To collect data, Swiss made stop watches were used, which were calibrated to 1/10th of a second. The timing from the stop watches taken thrice using the same watches. This timing has compared with the timings taken from other watches and they were found equal. Thus, the watches are considered reliable.

TESTER'S COMPETENCY AND RELIABILITY OF TEST

The testers competency was assessed together with the reliability of the test. To determine the reliability of test, the performance of ten subjects selected at random on the chosen variables and recorded twice under similar conditions by the investigator. This was done by test and retest method under similar conditions. The data thus collected by test and retest method is correlated by using intra class correlation as suggested by Baumgartner.
TABLE 1

RELIABILITY CO-EFFICIENT OF CORRELATION OF THE TEST AND RETEST SCORES

<table>
<thead>
<tr>
<th>S.NO.</th>
<th>Variables</th>
<th>Co-efficient of Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Standing Broad Jump</td>
<td>0.89</td>
</tr>
<tr>
<td>2.</td>
<td>Sit - ups</td>
<td>0.87</td>
</tr>
<tr>
<td>3.</td>
<td>Shuttle Run</td>
<td>0.93</td>
</tr>
<tr>
<td>4.</td>
<td>Pull - ups</td>
<td>0.91</td>
</tr>
<tr>
<td>5.</td>
<td>50 Yard Run</td>
<td>0.98</td>
</tr>
<tr>
<td>6.</td>
<td>600 Yard Run / Walk</td>
<td>0.89</td>
</tr>
</tbody>
</table>

SUBJECT RELIABILITY

The test and retest co-efficient of correlation also indicated the subject reliability, because the same subjects were used under similar condition by the same tests. No motivational techniques were used at the time of testing period.

ORIENTATION OF SUBJECTS

In order to get the full co-operation from the subjects; the investigator explained about the purpose of study, prior to administration of the test. This explanation helped very much to ensure the effective co-operation from the subjects to obtain the reliable data. Model performance by the same subjects were also done to make the subjects understand clearly the norms related to physical variable test items.
ITEM - 1: Flexed Arm Hang

Purpose

To measure arm and shoulder strength.

Facilities and Equipment

A metal or wooden bar approximately 1½ inches in diameter is placed at the subject's height. A door-way gym bar adjusted at the desired height in a doorway works very well. If these items are not available, it is necessary to improvise by using some kind of pole or pipe across bleachers or ladders. A stopwatch is needed.

Procedure

The height of bar should be adjusted to approximately the standing height of the subject. The student should grasp bar with an overhand grasp. She then raises her body off the floor with the help of assistants to a position where the chin is above the bar. The elbows should be flexed and the chest should be close to the bar. Two spotters, 1 in front and 1 in back of the subject, are recommended for assistance in getting to the “hang” position. The subject holds the hang position as long as possible.
The stopwatch is started as soon as the subject assumes the starting position and is stopped when the chin touches the bar, falls below the bar, or when the subject’s head is tilted back to keep the chin above the bar.¹

**Instructions**

Grasp bar with palms facing away from your body. You will be lifted by assistants to a position with your chin just above the bar. Hang in this position as long as possible. It is a violation for your chin to touch the bar or fall below the bar or for you to tilt your head backward to keep your chin from touching the bar.

**Scoring**

The score is elapsed time to the nearest second which is the subject maintained in proper hanging position.

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Item – II : Sit-up

Purpose

To measure abdominal strength and endurance.

Facilities and Equipment

Mats may be used if they are available; otherwise the floor is satisfactory. A stop watch is needed.

Procedure:

The student lies flat on the back with knees bent and feet on the floor with heels not more than 1 foot from the buttocks. The knee angle should be not less than 90 degrees. The fingers are interlocked and placed behind the neck with the elbows touching the floor. The feet are held securely by a partner. The students then curls up to a sitting position and touches the elbows to the knees. This exercise is repeated as many times as possible in the time requirement.  

2. Ibid
Instructions

Your fingers must remain interlocked and in contact with the back of your neck at all times. You curl up from the starting position, but you may not push off the floor with an elbow. When you return to the starting position, your elbows must be flat on the floor or mat.

Scoring

One point is scored for each correct sit-up. The score is the maximum number of sit-ups completed in 60 seconds.
Item - III: Shuttle Run

Purpose

To measure speed and agility.

Facilities and Equipment

Two lines parallel to each other are placed on the floor 30 feet apart. Since the student must overrun both of these lines, it is necessary to have several feet more of floor space at either end. Two blocks of wood, 2 x 2 x 4 inches and a stopwatch are needed.

Procedures

The student stands at one of the lines with the 2 blocks at the other line. On the signal to start, the student runs to the blocks, takes one, and returns to the starting line, and places the block behind that line. She then returns to the second block, which is carried across the starting line on the way back. Two students can run at the same time if 2 timers are available, or if 1 test administrator has a split-second timer, and of course, if there are 2 sets of blocks. Two trials are permitted. If the students start first at one line and then at the other, it is not necessary to return the blocks after each race. Sneakers should be worn or the students may run barefooted.  

3. Ibid P. 178
Instructions

On the signal to “Go”, run as fast as you can to the next line and pick up a block. You should return the block over the second line where you place it on the floor. Do not throw it. Return for the second block, and this time you may run across the starting line as fast as you can without placing the blocks on the floor.

Scoring

The score is the elapsed time recorded in seconds and tenths of seconds for the better of 2 trials.
Item - IV: Standing Broad Jump

Purpose

To measure power.

Facilities and Equipments

Tape measure and a mat. Space on the floor pit.

Procedures

The student stands behind a takeoff line with his feet several inches apart. Before jumping, the student dips at the knees and swings the arms backward. He then jumps forward by simultaneously extending the knees and swinging the arms forward. Three trials are permitted. Measurement is from the closest heel mark to the takeoff line. Indoor administration is best accomplished closest heel mark to the takeoff line. Indoor administration is best accomplished by placing a tape measure on the floor at right angles to the takeoff line and permitting the student to jump along the line. Measurement can then be made by sighting across the tape to the point of the jump.4

4. Ibid
Instructions

You must take off from both feet simultaneously, jump as far forward as possible, and land on both feet. Try not to fall backward after the landing. You can jump farther by crouching before the jump and swinging your arms.

Scoring

The score is the distance between the takeoff line and the nearest point where any part of the student's body touches the floor. It is measured in feet and inches to the nearest inch. Only the best trial is recorded.
Item - V : 50-Yard Dash

Purpose

To measure speed.

Facilities and Equipment

An area on a track, football field, or playground with a starting line, a 50-yard course, and a finish line. Two stopwatches or a split-second timer.

Procedures

After a short warm-up period, the student takes a position behind the starting line. Best results are obtained when 2 students run at the same time for competition. The starter uses the command, "Are you ready?" and "Go!" The latter is accompanied by a downward sweep of the arm as a signal to the timer. The students run across the finish line. One trial is permitted.5

5. Ibid, P. 179
Instructions

You may take any position behind the starting line you wish. On the command, "Go!" you are to run as fast as you can across the finish line. Do not slow up until you are across the finish line. Then you may slow down gradually.

Scoring

The score is the elapsed time to the nearest tenth of second between the starting signal and the instant the student crosses the finish line.
Item - VI: 600 - Yard Run / Walk

Purpose

To measure endurance.

Facilities and Equipments

A track, or an area within a football field, or a square 50 yards on each side of a playground. Stopwatch.

Procedures

Students may run individually or they may run in groups of a dozen or more. When students run in groups, they should be paired into partners. While 1 student runs, the partner listens for the timer to call out his partner’s time when he crosses the finish line and relay this time to the scorer. Students may interspace running with periods of walking and should be encouraged to pace themselves. When a group is running, the timer can call out times as each student crosses the finish line.\(^6\)

\(^6\) Ibid
Instructions

The 600 yard running area was clearly marked. You should run as for as you can and then you may have to walk for a short space of time. Try to keep running however you must pace yourself by not running too fast at the beginning but keep going at a speed you think you can maintain.

Scoring

The time elapsed between the start and stop of the event will be recorded in seconds.