CHAPTER III

METHODOLOGY

In this chapter deals Design, Analysis and Implementation on Adapted Sports Training Program to Hearing Impaired with newly designed procedures and methods applied in selection of subjects, selection of variables, selection of tests, competency of the tester, reliability of the instruments, orientation to the subjects, pilot study, reliability of the data, training Program, collection of the data, administration of the test, experimental design and statistical procedures were presented to carry out the purpose of this study.

SELECTION OF SUBJECTS

To achieve the purpose of the study of the thesis “Design, Analysis and Implementation on Adapted Sports Training Program to Hearing Impaired subject”, One hundred Hearing impaired subjects were selected randomly and their age group was 16 to 25 years from Kalasalingam University, Krishnankoil, Virudhunager District, and Tamilnadu. In the One hundred Hearing Impaired subjects selected randomly fifty subjects each control group and experimental group selected for this study.

SELECTION OF VARIABLES

The investigator reviewed the above scientific literature pertaining to the different components of Adapted Training Program from various journals, research papers presented by the research scholars, magazines and various books and was convinced that the under mentioned components were Adapted Training Program
ware improves AAHPERD youth fitness. Hence, the following dependent and independent variables were selected.

**Independent variables**

The researcher to fulfill the need based societal demands; the adapted physical Education Program for Hearing Impaired was designed with specific model for twelve weeks of training was chosen as the independent variables.

**Dependent variables**

To fulfill the need based training Program the following dependent variables were selected by the investigator such as AAHPERD youth fitness components was chosen as the dependent variables such as

1. Speed
2. Abdominal Strength
3. Shoulder Strength
4. Endurance
5. Agility
6. Power

**SELECTION OF TESTS**

The present study was undertaken by Kalasalingam University Hearing Impaired subjects and their age group was 16 to 25 years for the advance adapted physical education training Program designed with AAHPERD youth fitness test such as 50 yards dash, Sit-ups, Pull-ups, 600 yards run , Shuttle run and Standing broad jump were chosen and tested.
COMPETENCY OF THE TESTER

All the measurements of this study were taken by the investigator with the assistance of coaches. Due to well versed knowledge of the investigator in general fitness and Adapted Training Program for the Hearing Impaired in particular with the advance training techniques while to conducting tests and assisted by the investigator were they had a number of practice sessions in the correct testing procedure. The tester’s reliability was established by test and re-test method.

INSTRUMENTS RELIABILITY

Stop watch, Measuring tape, Horizontal bar, Cone and Color Flag and Wooden blocks (2"x2"x4") were used for this study. All these instruments were available in the Kalasalingam University, Krishnakoil, Virudhunager District, Tamilnadu, The instruments were purchased from reliable and standardized companies and were considered accurate enough for the purpose of the study.

ORIENTATION TO THE SUBJECTS

The Researcher instructed the Subjects those who studied in Kalasalingam University Speech and Hearing Impaired unit, to volunteer participation and acceptance about the adapted physical education training Program designed by the researcher through the special experts, those who were oriented to explain Hearing Impaired subjects were helped the subjects in instructing to do the exercise along with the researcher. The subjects chosen for this study were volunteer involved in this training Program which was designed by the investigator with 100% satisfaction.
PILOT STUDY

A pilot study was conducted to assess the initial performance of the Hearing Impaired subjects in order to fix the repetition, intensity and duration of the training. For this, ten subjects were selected at randomly. Physical exercise training was given under the supervision of experts and the researcher. Based on the response of the subjects in the pilot study and during the training for Group were constructed, however, the individual differences were considered. While constructing the training Programs the basic principles of training progression, overload and specificity of the subjects were adopted to fulfill the requirement.

RELIABILITY OF THE DATA

Reliability of the test concerning performance variables refers to the consistency with which these tests measure. The reliability of the tests was established through repeated test and retest method. For this purpose, ten subjects were selected at random and all the dependent variables selected in the present study were tested twice for the subjects by the same personnel under similar conditions. The intra class co-efficient of correlation was used to find out the reliability of the data and the results are presented in Table I. Since, the obtained ‘Correlation’ values were much higher than the required value; the data were accepted as reliable in terms of instruments, tester and the subjects.
TABLE I

INTRA CLASS CO-EFFICIENT OF CORRELATION ON SELECTED AAHPERD YOUTH FITNESS VARIABLES AMONG HEARING IMPAIRED

<table>
<thead>
<tr>
<th>SL.NO</th>
<th>VARIABLE</th>
<th>CORRELATION VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Speed (50 yards dash)</td>
<td>0.98</td>
</tr>
<tr>
<td>2.</td>
<td>Abdominal Strength (Sit-ups)</td>
<td>0.96</td>
</tr>
<tr>
<td>3.</td>
<td>Shoulder Strength (Pull-ups)</td>
<td>0.94</td>
</tr>
<tr>
<td>4.</td>
<td>Endurance (600 yards run)</td>
<td>0.97</td>
</tr>
<tr>
<td>5.</td>
<td>Agility (Shuttle run)</td>
<td>0.97</td>
</tr>
<tr>
<td>6.</td>
<td>Power (Standing broad jump)</td>
<td>0.98</td>
</tr>
</tbody>
</table>

*Significant at 0.05 level of confidence.

TRAINING PROGRAM

The adapted physical education sports training program was scheduled for one session in a day. During the training period the experimental groups underwent their respective training Program three days per week with alternate days for twelve weeks in addition to their regular Program of the course. The duration of training was 45-60 minutes approximately, which included warming up and limbering down. Group II acted as control group, who did not participate in any specific training on par with experimental groups. However, they performed the regular Program of the course of study. All the Hearing Impaired subjects involved in this study were carefully monitored throughout the training Program, not to get any injury.

For training session was conducted only in the morning. Prior to every training session, both the groups heard a ten minutes warm-up exercise involving
jogging, calisthenics and stretching. All the Hearing Impaired subjects involved in the training programs were questioned about their stature throughout the training period. None of them reported any injury. However, muscle soreness and fatigue were reported in the early weeks, which subsided later. Attendance was recorded and calculated for both the training groups separately by dividing total number of training session by the number of sessions present. Treatments were given to the students for 45 to 60min every day from Monday to Saturday for Twelve weeks continuously in the evening. The training packages of physical exercises were presented visual methods.

**PHYSICAL EXERCISES**

The Physical exercises training, treatment on exercises the procedure for all the exercise was explained to the subjects through manual demonstrations with sign language. Video demonstration was also presented to the Hearing Impaired subjects to make them understand latter. Then the researcher to observe and rectified their mistakes with the overall supervision in Each and every Physical exercise doing at the time of Hearing Impaired subjects by the researcher to check up all the subjects and correct them with the following test battery.

The volunteers who were oriented to explain Hearing Impaired subjects were helped the subjects in instructing to do the exercise along with the teacher. The investigator explained the following process of exercise of every movement and posture to the Hearing Impaired subjects clearly. The investigator also clarified their doubts and encouraged the subjects to do perfectly. Finally after the repeated corrections the Hearing Impaired subjects have done perfectly.
Push-Ups

The Physical exercises training, treatment on exercises the procedure for pushups was detailed with sign language along with video demonstrations and also manual demonstrations to feel them to understand and they instructed to do the test primarily. The Hearing Impaired subjects were instructed to lie down, facing the floor with hands flat on the floor about shoulder–width apart. Keeping the weight on the hands and legs stretched and wide apart toes on the floor, keeping the back straight lower the body in a controlled manner by bending at the elbows until the chest touches the floor, The Hearing Impaired subjects were raises the body back to the starting position, the back should remain straight at all times during the exercise.

Fig.3 - Push-Ups
Abdominal Curl

The Researcher who demonstrated the Abdominal Curl exercise and the Hearing Impaired subjects were instructed by sign language to lie flat on the floor, facing upward position. Hips bent at 90, with hands clasped and keeps behind their head raise their shoulders off the floor, curling their chest forward. Keeping their lower back in contact with the floor lower their shoulder back to the starting position, Each and every movement researcher to teach with lips movements and help the subject.

Fig.4 - Abdominal Curl
**Back Raise**

The Hearing Impaired subjects were instructed to look the researcher who were demonstrated the position of back raise exercise along with the subjects, followed the exercise as demonstrated by the researcher. Lie down, facing the floor, Inter lock fingers and place hands behind their head, legs stretched and feet together, lift the trunk up to the waist level as for as possible off the ground as possible as down again with the help of researcher and the volunteers.

![Fig. 5 - Back raise](image-url)
Burpees

The Hearing Impaired subjects were asked to see the researcher while he was doing the Burpees exercise and then the Hearing Impaired subjects were to start in a standing position then drop down into a crouch to make a squat thrust with both legs, press up, then standup again and so on.

Fig. 6 - Burpees
Squat Jump

The Hearing Impaired subjects were asked to see the researcher while he was doing the squat Jump exercise and the subject were instructed to assume a squat position Thighs Parallel with the ground with feet shoulder width apart. Inter lock fingers and place hands behind their head. Explosively jump up to a maximum possible height. Land in the squat position immediately reports the jump as many times as possible.

Fig. 7 - Squat Jump
Spirals

The Hearing Impaired subjects were taught in the sign language and demonstrated the spirals exercise in step by step in front of the subjects and the Hearing Impaired subjects are instructed to stand with feet fairly wide apart and hands clasped together behind neck, swivel torso round sharply backwards and slightly upwards to the left, and then attain back to the square position, Than it was done in opposite direction also.

Fig. 8 - Spirals
**Wide Hurdling**

The researcher sit in the floor first and do the Wide Hurdling exercise by step by step and simultaneously the subjects are also do the exercise to sit on floor with legs wide apart; to twist torso to the left touching big toe with right hand. They repeated in opposite direction with right foot and left hand “hurdling style”.

*Fig. 9 - Wide Hurdling*
Dorsals

The Hearing Impaired subjects were instructed to look into the researcher who demonstrated the dorsals exercise and taught in the sign language, how to do the exercise and the subject lie on chest, hands clasped together behind neck, feet together, lift chest as far as off the ground as possible as down again.

Fig. 10 - Dorsals
Squat Thrusts

The Hearing Impaired subjects were instructed to look into the researcher who demonstrated the position of Squat Thrusts exercise and the subject did the exercise as demonstrates by the researcher and at the time if any other subject did the exercise wrongly, the assistant volunteers’ correction the exercise. The Hearing Impaired subjects were asked to crouch down with hands on the floor, shoulder width apart. Keeping the weight on the hands, they were told to thrust legs back, then jump and rush, one leg back at a time, bringing the other leg vigorously forward.

Fig. 11 - Squat Thrusts
**Side Lunges**

The Hearing Impaired subjects were asked to see the researcher while he was doing the Side Lunges exercise at the time the researcher teach the exercise in sign language and then the Hearing Impaired subject will to the start to keep the feet wide apart, arms forward and palms acing the ground. They were asked to lean slightly down to the right and half lunge sideways right without moving feet until left knee nearby touches ground. They repeated the exercise to the left also.

![Fig. 12 - Side Lunges](image-url)
COLLECTION OF DATA

To achieve the purpose of the study was to Design, Analysis and Implementation on Adapted Sports Training Program to Hearing Impaired, to achieve the purpose of the study, One hundred Hearing impaired subjects were selected randomly and their age group was 16 to 25 years from Kalasalingam University, Krishnankoil, Virudhunager District, and Tamilnadu. One hundred Hearing Impaired subjects were selected at randomly, fifty subjects each in control group and experimental group randomized selected of this study. All the subjects were tested on selected criterion variables, AAHPERD modified test battery designed by the researcher such as Speed was assessed by 50 Yards run test, Abdominal Strength was assessed by Sit-Ups, Shoulder Strength was assessed by Pull-Ups, Endurance was assessed by 600 Yards Run test, Agility was assessed by Shuttle Run and Power was assessed by Standing Broad Jump test. After the test, the Experimental group under went to Adapted Training Program and control group don’t go any specific training. After the Twelve week training period the subjects were tested on selected criterion variables and the pre and post test data collection from Kalasalingam University, Krishnankoil, Virudhunager District, Tamilnadu.
ADMINISTRATION OF THE TEST

AAHPERD YOUTH PHYSICAL FITNESS TEST

Test Item: 1

SPEED: 50 Yards Run

Purpose

To measure Speed of Hearing Impaired subjects with designed adapted training method.

Equipments

400 mts track, marked at 50 yards was used, Color flag.

Procedure

Investigator was chosen One hundred male subjects such as those who were all Hearing Impaired were subdivided into fifty subjects each in control and experimental groups. Then the treatment procedure was detailed with sign language along with video demonstrations and also manual demonstrations to feel them to understand and they instructed to do the test primarily. Then they may be tested before and after training effect of Hearing Impaired for experimental group and control group respectively. In this manner Hearing Impaired subjects dealt and respected with modified method of start with slight modification in start, the real recall starter may be treated as a starter in silence Olympics like gun smokes and flag movement remaining procedure was followed like normal Olympics. The above said processor was conducted for the Hearing Impaired subject’s chosen for this study was conducted within the 50 yards dash marking marked in the 400 mts standard track.
**Fig.13.  50 Yards Run**

**Scoring**

The distance covered was measured with the help of standard stop watch by $1/10^{th}$ of seconds.
Test Item: 2

ABDOMINAL STRENGTH: Sit-Ups

Purpose

To measure the abdominal strength of Hearing Impaired subjects

Equipments

Stop watch.

Procedure

The groups were divided into ten groups each; the subjects were instructed to lying down in the ground in a flat position. They hold the head behind with both hands. The investigator started with color flag signaling the subjects raise up the trunk and bend forward and touch the knee without raising the food and back to lying position. After one minute recovery investigator again raised up the color flag signaling might be stopped when the subject were automatically work in the sit ups.
Fig. 14. Sit Ups

Scoring

Sit-ups test was conducted and measure with counts per minute.
Test Item: 3

SHOULDER STRENGTH: Pull Ups

Purpose

To measure shoulder strength of Hearing Impaired subjects.

Equipments

Horizontal bar.

Procedure

The treatment procedure was detailed with sign language and also with manual demonstrations to feel them to understand and they instructed to do the test primarily. The Hearing Impaired subjects were jumped and hold the Horizontal bar with both the hands. Those pulled and reached over the bar by chin and come down. The subjects were to be doing the same exercise the researcher was counted for how many time within a minutes. Subjects were tested with before and after training effect of experimental group and control group respectively.
Fig. 15. Pull Ups

Scoring

Shoulder strength was measured with the scoring of counts per minute.
Test Item: 4

ENDURANCE: 600 Yards Run

Purpose

To measure Endurance of Hearing Impaired subjects.

Equipments

400 mts track, marked at 600 yards Run was used, stop watch and color flag.

Procedure

The groups were divided into ten each into ten groups. The investigator was started with color flag signaling as usual in 600 yards with standing start. In this manner Hearing Impaired subjects dealt and respected method of slight modification in start. The real recall starter may be treated as a starter in silence Olympics like gun smokes and flag movement remaining procedure was followed like normal Olympics. The above said procedure was conducted for the Hearing Impaired subjects chosen for this study those performed with the 600 yards dash markings, marked in the 400 mts standard track. After signaling the investigator the subject ran on the track and complete the race in the finishing line. Then they may be tested before and after training effect of Hearing Impaired experimental group and control group respectively.
**Scoring**

The distance covered was measured with the help of standard stop watch by $1/10^{th}$ of seconds.
Test Item: 5

AGILITY: Shuttle Run

Purpose

To measure the Agility, Shuttle Run Test was conducted to the Hearing Impaired subjects.

Facilities and Equipments

The groups were divided into twenty five each into four groups. The above said procedure was conducted for the Hearing Impaired subjects chosen for this study within the shuttle Run markings, marked in the 400 mts standard track.

Marking

Two parallel lines 10 yards apart were drawn on the ground. A stop watch with calibration of 1/10 seconds, a color flag and two wooden blocks (2"x2"x4") were used for administering the test. The investigator starts with color flag signaling and stopped.

Procedure

The treatment procedure was detailed with sign language along with video demonstrations and also manual demonstrations to feel them to understand and they instructed to do the test primarily. Then they may be tested before and after training effect of Hearing Impaired experimental group and control group respectively. The two wooden blocks were kept behind one of the lines. The Hearing Impaired subjects were instructed to start from starting. To start the shuttle run, a color flag signaling and the subject ran to the blocks, picked one block up, ran back to the starting line and placed the block on the ground beyond the line. Then the subject
ran back and picked the other block and ran across the starting line as fast as possible. The stop watch was started along with color flag signaling and stopped when the Hearing Impaired subject crossed the starting line.
Fig.17. Shuttle Run

Scoring

To assess the agility distance covered with shortest duration was recorded as a score with the 1/10th of a second.
Test Item: 6

**POWER: Standing Broad Jump**

**Purpose**

To measure Explosive Power of Hearing Impaired subjects.

**Equipments**

Use a tape measure to determine the distance of the Jump.

**Procedure**

Then the treatment procedure was detailed with sign language along with video demonstrations and also manual demonstrations to feel them to understand and they instructed to do the test primarily. Then they may be tested before and after training effect of Hearing Impaired experimental group and control group respectively. The Hearing Impaired subjects stand on the take off board with both the leg together a color flag signal the Hearing Impaired subject jump and land in the jumping pit.
Fig. 18. Standing Broad Jump

**Scoring**

Measuring the distance from the rest training line to the heel or other part of the body that touched the floor lowest to the rest raining line with unit of measurement in Centimeters.
EXPERIMENTAL DESIGN AND STATISTICAL PROCEDURE

In this study to Detailed about Design, Analysis and Implementation on Adapted Sports Training Program to Hearing Impaired, to achieve the purpose of the study, One hundred Hearing impaired male subjects were selected randomly and their age group was 16 to 25 years from Kalasalingam University, Krishnankoil, Virudhunager District, and Tamilnadu. One hundred Hearing Impaired subjects were selected at randomly, fifty subjects each in control group and experimental group randomized selected of this study. All the subjects were tested on selected criterion variables, the collection of data from the both experimental and control group were statistically analyzed by using Analysis of Co-Variance (ANCOVA). In this cases 0.05 level of significance was used to test the hypothesis.