CHAPTER - III

METHODS AND MATERIALS

In this chapter, the Selection of Subjects, selection of variables, selection of tests, reliability of instruments, competency of tester, reliability of data, orientation of subjects, yogic training, collection of the data, administering the tests, experimental design and the statistical procedure used have been explained.

3.1 SELECTION OF SUBJECTS

Sixty college students who were studying St.Louis College for deaf and dumb, Adyar, Chennai, were randomly chosen as subjects. They were divided into two groups, Group A (Thirty Deaf and Dumb subjects) and Group B (Thirty Deaf and Dumb subjects). The groups were designated as Group "A" (Control group) and Group "B" (Experimental group).

The age, height and weight of the selected subjects ranged from seventeen to twenty years, 160 to 172 centimeters and 55 to 70 Kilograms respectively and the means were 18 years 2 months, 168 centimeters and 64 kilograms respectively. The experimental group underwent Yogic training program for twelve weeks and the subjects in control group were not engaged in any activity during this Yogic training period.
### 3.2 SELECTION OF VARIABLES

<table>
<thead>
<tr>
<th>S.No</th>
<th>Motor ability components</th>
<th>Test</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Speed</td>
<td>50 meters Dash</td>
</tr>
<tr>
<td>2</td>
<td>Agility</td>
<td>4 x 10 meters Shuttle Run</td>
</tr>
<tr>
<td>3</td>
<td>Leg Explosive Power</td>
<td>Standing Broad Jump</td>
</tr>
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</table>

<table>
<thead>
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<th>S.No</th>
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<th>Measured by</th>
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<tr>
<td>1</td>
<td>Resting pulse rate</td>
<td>Heart Rate Monitor of Bio-Monitor</td>
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<tr>
<td>2</td>
<td>Skin Temperature</td>
<td>Temperature Bio-Monitor</td>
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<tr>
<td>3</td>
<td>Breath Holding Time</td>
<td>Stop Watch</td>
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<table>
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<th>Test</th>
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<tr>
<td>1</td>
<td>Trait Anxiety</td>
<td>Spielberger, Gorsuch and Lushene Trait Anxiety Questionnaire</td>
</tr>
<tr>
<td>2</td>
<td>Self Concept</td>
<td>Mukta Rani Rastogi Questionnaire</td>
</tr>
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</table>

### 3.3 RELIABILITY OF INSTRUMENTS

Instruments such as Bio-monitor, Temperature Bio-monitor and stop watches were used for the study. All the instruments were in good condition and workable, purchased in a reputed company. The calibrations were tested and found to be accurate enough to serve the purpose of the study.
3.4 COMPETENCY OF THE TESTER

The operation of the Bio-monitor and Temperature Bio-monitor was taught by an experienced expert and the investigator learn the procedure and methods to handle and operate the instruments to administer the tests. Measurements were taken by the investigator herself by using these two pieces of equipment. All other measurements were taken using the services of the qualified assistants working in various schools in Chennai.

3.5 RELIABILITY OF DATA

Reliability was established by test and retest process. Sixty subjects of each from Thirty subjects experimental group and Thirty subjects control group from St. Louis Higher Secondary School for deaf, Adyar, Chennai were tested on selected dependent variables. The intra class (Univeriate correlation) reliability coefficients obtained for test and retest data are presented in table below.
TABLE - 2

INTRA CLASS RELIABILITY CO-EFFICIENT OF SELECTED DEPENDENT VARIABLES

<table>
<thead>
<tr>
<th>S.No</th>
<th>Test</th>
<th>'R'</th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>50 meters Dash</td>
<td>0.803</td>
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<tr>
<td>2.</td>
<td>4 x 10m Shuttle Run</td>
<td>0.763</td>
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<td>3.</td>
<td>Leg Explosive Power</td>
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<td>4.</td>
<td>Resting Pulse Rate</td>
<td>0.850</td>
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<td>5.</td>
<td>Skin Temperature</td>
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<tr>
<td>6.</td>
<td>Breath Holding Time</td>
<td>0.906</td>
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</table>

The questionnaire technique was used to collect psychological data. Both questionnaires were standardized are reliable.

3.6 ORIENTATION OF THE SUBJECTS

The investigator explained to the subjects participating in the study, the purpose of the Yogic training and their part in the study. For the collection of data, the investigator explained the procedure of the 50 meters dash test for speed, 4x10 meters shuttle run for agility and leg explosive power for standing broad jump and also instructed the subjects about the procedure to be adopted by them for measuring the physiological variables such as testing pulse rate, skin temperature and breath holding.
time. To measure psychological variables, Spielberger's Trait Anxiety Questionnaire and Mukta Rani Rastogi self-concept scale were administered to the subjects, where the contents of the questionnaire were explained to the subjects. Even though the control groups did not undergo any training, they were given a thorough knowledge about the test items followed in this study.

3.7 YOGIC TRAINING PROGRAMME

During the training period, the experimental group underwent yogic practice for five continuous days a week for twelve weeks. Training included 30 minutes of Asanas in different postures and Pranayama for 5 minutes total time 35 minutes on each day for the first four weeks. The remaining eight weeks for Yogic Training included 40 minutes of Asanas in different postures and Pranayama for 10 minutes totally 50 minutes on every day as recommended by Central Advisory Board of Physical Education and Recreation. The subjects underwent their yogic training in the morning sessions from 6.15 am to 6.50 am for the first four weeks, the remaining eight weeks from 6.15 am to 7.05 am under the supervision of the investigator.

The yogic practices were carried out at the premises of St. Louis College for Deaf, Adyar, Chennai. All the subjects involved in the yogic training were questioned about their stature throughout the experimental period. None of them reported any discomfort and hence there were no dropouts.

Attendance was recorded and calculated for the Experimental group by dividing total number of training sessions by the number of sessions present. It was approximately present 95% in training period.
3.8 COLLECTION OF DATA

Pre-test data were collected three days before the training programme, post test data were collected three days after the yogic training programme. In all the cases, the data were collected on ten days in the morning and evening sessions.

3.9 PILOT STUDY

A pilot study was conducted to finalize the training programme. The purpose of the Pilot Study was to ensure that at the initial stages of training, time and type of the yogic training programmes were within the limits of the subjects capacity.

3.10 TEST ADMINISTRATION

3.10.1 Motor Ability Components

Test: 1

Name of the Test

50 metres Dash

Purpose of the Test

To measure the maximum speed of the subjects in a straight parts.

Instruments and Facilities for the Test

Two parallel lines, 50 metres apart were drawn on the standard track. A stop watch with calibration of 1/100 seconds, and a clapper and a score sheets were used to conduct this test.
Instructions and Precautions

Before the collection of data the subjects were instructed about the purpose of the study. The investigator explained the procedure of the each items of the motor ability variable such as 50 metres run test for speed. Subjects had a standard warm up prior to the test.

Test Procedure

The subject was asked to stand behind the scratch line and was also instructed to start with standing start. The subject was asked to start on Flag down and so cover for fifty metres with maximum effort.

Scoring

With the help of the stop watch, the best time out of two traits were recorded as the individuals score.

Test : II

Name of the Test

4 x 10 meters shuttle run

Purpose of the Test

To measure the agility of the subjects.
**Instruments and Facilities for the Test**

Two parallel lines 10 meters apart were drawn on the ground. A stop watch with calibration of 1/100 seconds a whistle and two wooden blocks (2” x 2” x 4”) a score sheet and a pen were used for administering the test.

**Instructions and Precautions**

Before collection of the data, the subjects were instructed about the purpose of the study. The investigator explained the procedure of the each item of the motor ability variables such as shuttle run test for agility. Subjects had standard warm-up, prior to the test.

**Test Procedure**

The two wooden blocks were kept behind one of the lines. The subjects were instructed to start from behind the other line. To start the shuttle run, a flag was down and the subjects ran to the blocks, picked up one block and ran back to the starting line and placed the block on the ground behind the line, than the subjects ran back, picked up the other block and across the starting line as test as possible.

**Scoring**

The stop watch was started on the flag down and stopped when the subject crossed the starting line. Two trails were administered with a test period of five minutes in between. The best of the two times were recorded as the score in seconds.
Test : III

Name of the Test

Standing Broad Jump

Purpose of the Test

To measure the Leg Explosive Power of the subjects.

Instruments and Facilities for the Test

Out door long jump pit, take off board and measuring tape.

Instructions and Precautions

Before collection of the data the subjects were instructed about the purpose of the study. The investigator explained the procedure of the each item of the motor ability variable such as standing broad jump for explosive power. Subjects had a standard warm-up prior to the test.

Test Procedure

The subject was asked to stand on the take of board with his feet parallel to each other. From this position the subject took a preliminary movement by flexing his knees and swinging his arm back, jumped outward as far as possible. Three trials were permitted in succession, best performance was taken into account.

Scoring

The distance of all the jumps were measured to the nearest centimeter.
3.10.2 Physiological Variables

Test: 1

Name of the Test

Resting Pulse Rate

Purpose of the Test

To measure the resting pulse rate of each subject per minute.

Instruments and Facilities for the Test

Bio-monitor was used to measure the resting pulse rate.

Instruction and Precautions of the Test

Before testing the pulse rate the purpose of the study has been instructed.

Test Procedure

The resting pulse rate of the subject was monitored by the bio-monitor. It monitored the resting pulse rate using the method of finger plyphsmography with the help of an opto-electronic transducer on finger. The subject was asked to sit and rest himself comfortably on a chair. The investigator fixed on opto sensor unit to the thumb of the right hand of the subject. Using Velcro strap. It was fixed in such a way that the light on the opto sensor unit was at the distal end of the finger tips and the LDR was nearer to the finger tip. The Velcro strap on the LDR was nearer to the fingertip. The Velcro strap
on the LDR side was fastened firmly while the strap on the lamp side was loosely fastened. The PCG / Pulse On-Off switch of the bio-monitor was kept in the pulse position. Then the heart rate monitor was kept in the pulse push button switch. After 30 seconds, the pulse LED indicator flashed and the beeps started and stabilized. After that, flashes and beeps occurred rhythmically with respect to the subject's pulse. The pulse rate per minute was indicated by the three digital meters. After about a minute the digital meter showed the subject's pulse rate under rest. The accuracy of equipment was ± 3 percentage of reading (Author's Guide, 1984).

**Scoring**

The performance of the subjects were recorded in beats per minutes.

**Test : II**

**Name of the Test**

Skin Temperature

**Purpose of the Test**

To measure the subjects body skin temperature.

**Instruments and Facilities for the Test**

Temperature Bio-monitor was used to measure the body skin temperature.
Instruction and Precautions of the Test

Before testing the skin temperature, the purpose of the study has been instructed. The investigator explained the procedure to be followed to test the body skin temperature.

Test Procedure

The body skin temperature of the subject was monitored through the temperature monitor or the bio-monitor. It monitored the skin temperature using the method of thermo sensing with the help of semiconductor multipurpose thermal.

The investigator inserted the thermal sensor into the arm pit and waited for 40 sec. for the thermal conduction and stabilization of body temperature. The investigator depressed the push button temperature switch and read the temperature on the digital meter. The accuracy of the equipment was within ± 0.1°F (Degree Fahrenheit).

Scoring

The temperature reading show the digital meter can be noted. The accuracy of the equipment was within ± 0.1°F (Degree Fahrenheit).

Test : III

Name of the Test

Breath Holding Time.
Purpose of the Test

To measure the ability of the subjects to hold the breath for longer time.

Instruments and Facilities for the Test

A stop watch with calibration of 1/10 seconds, score sheet and a pencil were used to administer the test.

Test Procedure

The subject stood at ease and inhaled deeply after which he held his breath for a length of time possible to him. The index finger of the respondent served as an indicator for the investigator to know the start and end of the recording time. The thumb and center finger were used to hold the nose to avoid letting the air through the nostrils. The subjects were requested not to let the air out by opening the mouth while recording the Breath holding time.

The time of holding the breath till the subject let the air out was clocked by using the stop watch to the nearest one tenth of a second was recorded as Breath holding time (Astrand and Rodahl, 1977).

Scoring

With the help of the stop watch, the best time out of two trails were recorded as the individuals score.
3.10.3 Psychological Variables

Test : I

Trait Anxiety

Trait anxiety questionnaire formulated by Spierberger et al., was responded by all the subjects in the control and experimental groups before and after the application of yogic training for a period of twelve weeks. The questionnaire used in the study is presented in Appendix - III.

Test: II

Self Concept

Self Concept Scale formulated by Dr. Mrs. Mukta Rani Rastogi was responded by all the subjects in the control and experimental groups prior to and after the application of yogic training for a period of twelve weeks. The questionnaire used in the study is shown in Appendix - II.

3.11 ADMINISTRATION OF YOGIC PRACTICES PROGRAMME

All the subjects in the experimental group were notified to commence their treatment immediately after completing the initial test. Selected Asanas and Pranayamas were given to the deaf and dumb students which are as follows.
3.12 ASANAS

It is the part yoga. It is the static stretching posture. The following asanas are,

3.12.1 Bhujangasana

Bhujangasana means of serpent. In this subjects like felt on the floor, face downwards, lift the body up from the trunk and throw the head back like a serpent about to strike.

Techniques

1. Lie on the floor, face downwards. Extend the legs keeping the feet together.
   
   Keep the knees tight and the toes pointing.

2. Rest of palms by the side of the pelvic region.

3. Inhale, press the palms firmly on the floor and pull the trunk up. Take two breaths.

4. Contact the arms and buttocks, tighten and thighs.

5. Maintain the pose for about twenty seconds, breath normally.

6. Exhale, bend the elbow and rest the trunk on the floor and relax.

3.12.2 Salabasana

Salabasana means a locust. The pose resembles that of a locust resting on the ground hence the name.
Techniques

1. Lie full length on the floor on the Stomach, face downwards, stretch the arms back.

2. Exhale, lift the head, chest and legs off the floor simultaneously as high a possible. The hands should not be placed and the ribs should not rest on the floor. Only the abdominal front portion of the body rests on the floor and bears the weight of the body.

3. Contact the buttocks and stretch the thigh muscles. Keep both legs fully extended and straight, touching at the thighs, knees and ankles.

4. Do not dear the weight of the body on the hands but stretch them back to exercise the upper portion of the back muscles.

5. Stay in the position as long as you can with normal breathing.

6. In the beginning it is difficult to lift the chest and legs off the floor, but this becomes easier as the abdominal muscles grow stronger.

3.12.3 Ardhasalabhasana

Lie prone on the blanket and keep the hands by the side of the body. Palms up. Rest the chin on the ground by raising the head a little. Now inhale slowly. Stiffen the whole body and raise the leg high. The knee should be kept straight. The sacrum too should be raised a little along with legs. Now the chest and the hands will feel the burden of the legs. This is practised by alternately lifting the legs.
3.12.4 Dhanurasana

Dhanu means bow. The hands are here used like a bow string to pull the head trunk and legs up and the posture resembles a bent bow.

Techniques

1. Lie full length on the floor on the stomach, face downwards.

2. Exhale and bend the left knee with the left hand and the right knee with the right hand. Take two breaths.

3. Now exhale completely and pull the legs up by raising the knees above the floor and simultaneously lift the chest off the floor. The arms and hands act like a bow string to lean the body like a bent low.

4. Lift the head and pull it as far back as possible. Do not rest either the ribs or the pelvic bones on the floor. Only the abdomen bears the weight of the body on the floor.

3.12.5 Naukasana

Naukasana is a traditional posture. The body resembles the shape of a boat. Hence it is named Naukasana.

Techniques

1. Take supine position with legs together, hands together by the side of the body, palm resting on the ground.
2. Slowly raise your legs together, simultaneously, raise the head and trunk also and stop at 45° angle.

3. While returning to the original position first place your trunk and head on the ground.

4. Now slowly bring down your legs and hands and lie on the ground as in the first position.

3.12.6 Vakrasana

This asana is a simple form of Ardha Matsyandrasana.

1. Sit erect, stretching your legs infant together, hands by the side, palm resting on the ground, fingers together pointing forward.

2. Slowly fold one of your legs at the knee and place the sole on the ground near the knee of the right leg. The knee of the left should make 90° angle straight towards sky.

3. Taking the left hand towards back, place the palm on the ground at a distance of 9 inches straight from the spine, fingers together pointing backward. Then place the right hand towards the other side of the left knee. If the legs are stretched towards east, then the fingers of the hand should point towards north.

4. Now twist your head and back towards side and try to look at the back side.
5. While returning to the original position first bring your head to the original position and then bring and left hand from the back and place it by the side of the body.

6. Now take the right hand to its original position and then bring the left hand from the back and place it by the side of the body.

7. Now slowly stretch out your folded leg and sit erect as in the first position.

8. In the same way practice it with the other leg. This makes one round of Vakrasana.

3.12.7 Sarvangasana

Sarvangasana means the asana which influences the whole body.

Techniques

1. Take supine position, hands straight by the thighs, palm resting on the ground.

2. Slowly raise your legs together without bending at the knees by pressing your hands and stop at 30° angle.

3. Sometime raise your legs little more and stop at 60° angle.

4. Now slowly bring at 90° angle.

5. Press the hands and bring your legs little towards the head, so that your buttock is raised up.
6. After the support it from the palms of both the hands, place the elbows on the ground making broad base.

7. Raise the legs towards sky, raise the buttocks also, continue the support of the hands. Raise the legs towards sky till the legs, abdomen and chest from a straight line. Place the palms on your back for support, chin should be placed against the chest, maintain the position.

8. After that slowly return, while returning to the original position, first lower your buttock but continue the support of your hands. When you become confirmed that you can come down even without the support of your hands then slowly place your hands on the ground. Divide the weight of your body on hands and slowly place the buttocks on the ground and bring your legs at 90° angle.

9. Slowly place your legs together on the ground without bending it at the knees and return to the original position.

3.12.8 Halasana

Hala means plough, the shape of which the subjects resembles, hence the name. It is a part of Sarvangasana and a continuation there of.

Techniques

1. Do Sarvangasana with a firm chin lock.

2. Release the chin lock, lower the trunk, slightly moving the arms and legs over the head resting the toes on the floor.

3. Tighten the knees, by pulling up the ham string muscles at the back of the thighs and raise the trunk.
4. Place the hands in the middle of the back and press it to keep the trunk perpendicular to the floor.

5. Stretch the arms on the floor in the direction opposite to that of the legs.

6. The legs and the hands are stretched in opposite directions and the stretches the spins completely.

7. In the beginning it is also difficult to keep the toes firmly on the floor behind the head. If you long then the timing and stretch of Sarvangasana before going into harasana, the toes will remain longer on the floor.

8. Remain in the attainable pose from to five minutes with normal breathing.

9. Release the hands, raise the legs upto Sarvangarana and gradually slide down to the floor, lie flat on the back and relax.

3.12.9 Padmasana

Padma means a Lotus. This is the lotus posture, one of the most important and useful asana. It is the posture for meditation and the Buddha is often depicted in it.

1. Sit on the floor with the legs straight.

2. Bend the right leg at the knee, hold the right foot with the hand and place it at the root of the left thigh so that the right heel is near the navel.
3. Now bend the left leg, and holding the left floor with the hands place it over the right at the root, the heel bring near the navel. The soles of the feet should be turned up. This is the basic Padmasana pose.

4. From the base to the neck the spine should remain erect. The arms may be stretched out, the right hand being placed on the right knee and the left hand on the left knee. The forefingers and the thumbs are bent and touch each other. Another way a placing the hands is in the middle where the feet cross with one palm upon the other.

5. Change the leg position by placing the left floor over the right thigh and the right foot over the left thigh. This will develop the legs evenly.

3.12.10 Parvathasana

Parvathasana means a mountain. In this variation of Padmasana the arms are stretched over the head with the figures interlocked.

Techniques

1. Sit in Padmasana

2. Interlock the fingers and stretch the hands vertically up over the head. Keep the head bent forwards with the chin on the breast bone.

3. Stretch the arms up from the letissinus dors, (Near the floating ribs at the back) and the shoulder blades, the palms should face upwards.

4. Hold the pose for a minute or two with deep and even breathing change the crossing of the legs and the interlock of the fingers and repeat the post, keeping the back erect.
3.12.11 YogaMudra

1. Sit in Padmasana Position.

2. Take your hands behind you body and catch hold of one wrist with the other hand.

3. Inhale deeply, and than with an exhalation bend the trunk forward from the hip and rest the head on the floor, without releasing the hand grip.

4. Hold the page for thirty to sixty second and then relax.

3.12.12 Virasarana

Vira means a hero, warrior, Champion. This sitting posture is done by keeping the knees together spreading the fear and resting them by the side of the hips. The pose is good for mediation and Pranayama.

Techniques

1. Kneel on the floor. Keep the knees together and spread the feet about 18 inches apart.

2. Rest the bullocks on the floor. But not the body on the feet. The feet are kept by the slide of the thighs, the inner side of each calf touching the outer side of its respective thigh. Keep the toes pointing back and touching the floor. Keep the wrists.

3. Stay in this position as long as you can with deep breathing.

4. Then rest the palms of the knees for a while.
5. Now interlock the fingers and stretch the arm straight over the head palms up.

6. Stay in this position for minute with deep breathing.

7. Extrude, release the finger lock, place the palms on the soles, and forward and rest the chin on the knees.

8. Stay in this position for a minute with normal breathing.

9. Inhale, raise the trunk up, bring the feet forward and relax.

10. If you find it difficult to perform the pose as described above, try placing the feet one above the other and rest the buttocks on them. Gradually move the toes further apart, separate the feet and bring them to rest outside the thighs. Then, in time the buttocks will rest properly on the floor and body will not rest on the feet.

3.12.13 Paschimottansana

Paschima literally means the west. It implies the back of the whole body from the head to the heels. The anterior or eastern aspect is the front of the body from the face down to the toes. The crown of the head is the upper or northern aspect while the soles and heels of the feet form the lower or Southern aspect of the body. In this asana the back of the whole body is intensely stretched.

Techniques

1. Sit on the floor with legs stretched straight in front. Place the palms on the side of the hips. Take a few deep breaths.
2. Exhale, extend the hands and catch the toes. Hold the right big toe between the right thumb and the index and middle fingers and likewise the left big toe.

3. Extend the spine and try to keep the back concave. The start with the back will be like a hump. This is due to stretching the spine only from the area of the shoulders. Learn to bend right from the pelvic region of the back and also to extend the arms from the shoulders. Then the lump will disappear and the back will become flat as in take a few deep breaths.

4. Now exhale, bend and widen the elbows, using them as levers, pull the trunk forward and touch the forehead to the knees. Gradually rest the elbows on the floor, stretch the neck and trunk, touch the knees with the nose and then with the lips.

5. When this becomes easy, make a further effort to grip the soles and rest Chin on the Knees.

6. When this also becomes easy, clasp the hands by interlocking the fingers and rest the chin on the shins beyond the knees.

3.12.14 Trikonasana

Tri means thrice. This Asana has also come through tradition. We assume a triangular form through this practice, hence it is called Trikonasana.
**Techniques**

1. Stand erect with legs together, hands by the side of the thighs.

2. Make two or two and half feet distance between two legs and raise both the hands towards each side so as to make a parallel line with the shoulder.

3. Slowly bending towards right side touch the toes of the leg with the fore finger and middle finger of the right hand and raise the left hand towards the sky. Gaze up towards the left hand.

4. After maintaining it for some time, slowly return to the second position.

5. Now start bending slowly lateral towards left side and touch the toe of right leg with left hand. Keep right hand pointing towards sky. Gaze should be towards raised hand.

6. While returning back to the original position, bring down your raised hand, leave the toes and stand erect with legs together.

**3.12.15 Shavasana**

Shava or Marta means a corpse. In this asana, the object to imitate a corpse, once life has departed, the body remains still and no movements are possible. By remaining motionless for sometime and keeping the mind still while you are full conscious, you learn to relax. This conscious relaxation invigorates and refreshes both body and mind, but it is much harder to keep the mind than the body still.
Techniques

1. Lie flat on the back full length like a corpse. Keep the hands a little away from the thighs, with the palms up.

2. Close the eyes, keep the heels together and toes apart.

3. To start with, breath deeply, no jerk movements.

4. Concentrate on deep and fine exhalations in which the nose do not feel warm at the end of the breath.

5. Lower jaw should hand loose and not to be lunched.

6. Relax completely and breath out slowing. In good relaxation, one feels the energy flow from the back of the head, travels to be heels is elongated other way round. One also feels as if the body is elongated.

3.12.16 Pranayama

Anuloma - Viloma

Subjects were directed to sit in any comfortable meditative pose with back erect and rigid. Head is lowered to the trunk keeping the chin in the notch between the collar bones just above the breast bone (This is Jalandhara Bandha). They were instructed to keep the eyes closed, the left arm is kept straight, the back of the wrist resting on the left knee. The fore finger was made to bent towards the thumb, its tip touching the tip of the thumb (Jnana Mudra). The right arm is bent at the elbow with index and middle fingers bend towards the palm, keeping them passive. Bring the ring and little fingers towards the thumb. Place the right thumb on the right side of the nose just below the nasal bone, the ring and little fingers on the left side of the nose just below the nasal bone.
The right nose was closed with right thumb and inhaled slowly through the lest nose. Hold the breath for some time. Then slowly exhale through the right nose closing the left nose with the ring finger and the little finger. The same is done in the reverse order. The process in repeated several times comfortably.

3.12.17 Ujjayi pranayama

Position is same as in Amuloma Viloma. Keep the head in Jalandhara Bandha and hands in Jnana Mudra. Exhale completely. Then take a slow, deep steady maximum breath through both nostrils. The passage of incoming air is felt on the roof of the palate and makes a sibilant sound (Sa). This sound should be heard. Hold the breath deeply and steadily until the lungs are completely empty. While exhaling the passage of the outgoing air should be felt of the air on the palate should make an aspirate sound (ha), the Pranayama is repeated.

3.12.18 Kapalabhati

Stand with ease. Relax and keep the hands on both sides of the body. Here the inhalation is slow, deep and steady, but the exhalation is vigorous. There is a split second of retention after each exhalation. The sound made resembles air rushing through bellows Kapalabhati is an exercise for the purification of the nasal passage and lungs. Though this is one of the six purificatory exercise, it is a variety of Pranayama.
3.13 EXPERIMENTAL DESIGN AND STATISTICAL PROCEDURE

Random group design, involving sixty students divided into two groups of thirty each, was used in this study.

The control group "A" was not subjected to any treatment during experimental period whereas experimental group "B" was subjected to the experimental treatment during the period of experiment, group "B" was given yogic training daily for a period of twelve weeks, excluding Saturday and Sunday.

All the subjects were tested prior and after yogic training programme and cessation on Speed, Agility Standing broad jump, Resting pulse rate, Skin temperature, and Breath holding time. The study was aimed at mainly in find out the effects of yogic training on selected variables.

The data collected from the two groups were statistically examined for significant difference, if any, applying the analysis of covariance (ANCOVA).

In all the cases 0.05 level of confidence was fixed as a level of confidence to test the hypothesis.

The following statistical procedure was observed to estimate the effect of yogic training on the development of motor ability components, physiological and psychological variables of the deaf and dumb college boys.

In this study, two groups (Control and Experimental Groups) were taken. Since the two groups were equaled and also the selected variables were more than one, analysis of covariance was used. When the groups were two, application of post-hoc test was not necessary.
FLOW CHART SHOWING THE METHODOLOGY
ADAPTED IN THE RESEARCH

Deaf and Dumb Students
Numbers = 60

Control Group
Numbers = 30

Experimental Group
Numbers = 30

Pre Test

Motor Ability Components Variables
1. Speed
2. Agility
3. Leg Explosive Power

Physiological Variables
1. Resting Pulse rate
2. Skin Temperature
3. Breath Holding Time

Psychological Variables
1. Trait Anxiety
2. Self Concept

Experimental Treatment

Control Group
No Experimental Treatment

Experimental Group
Selected Yogic Exercise
1. Asanas
2. Pranayama

Post Test

Motor Ability Components Variables
1. Speed
2. Agility
3. Leg Explosive Power

Physiological Variables
1. Resting Pulse rate
2. Skin Temperature
3. Breath Holding Time

Psychological Variables
1. Trait Anxiety
2. Self Concept

Results, Discussions, Conclusions and Recommendations