Chapter-III

METHODOLOGY

In this chapter, selection of subjects, selection of variables, orientation of subjects, selection of tests, test administration, experimental design and statistical techniques have been discussed.

3.1 SELECTION OF SUBJECTS:

60 students of age 13-15 years were randomly selected from Jawahar Navodaya Vidyalaya, Doddaballapur, Bangalore Rural District, among them 30 were in control group and 30 were in experimental group.

3.2 SELECTION OF VARIABLES:

The researcher had reviewed the available literature in the area before designing the study and based on personal experience, discussions held with his guide and other experts and considering other factors such as feasibility, availability of proper techniques and instruments the following variables were selected:

I. Motor Abilities:

1. Static Strength
2. Arm and Leg Explosive Power
3. Flexibility
4. Speed
5. Cardiovascular Endurance
II. Psychological Variable:

1. Self Perception Profile

III. Academic Performance

3.3 ORIENTATION OF SUBJECTS

The purpose of the study and the nature of the training programme were clearly explained by the researcher before the commencement of the study to the subjects. The various tests in which the subjects had to participate were also explained and demonstrated.

The subjects were assembled in a class room and then the researcher explained them the nature and purpose of the study, the tests designed and the method to perform and to answer the questionnaire.

Motor Ability tests were conducted before the yoga training for control and experimental groups. The final test was conducted after the completion of the 12 weeks of the yoga training and the same were taken for the analysis. The Self Perception Questionnaire was also administered during these days.

Table-1

Table showing the selected Motor Variables, Tests and Criterion measures.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Motor Ability</th>
<th>Test</th>
<th>Criterion Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Static Strength</td>
<td>Grip Strength Test</td>
<td>Kilograms</td>
</tr>
<tr>
<td>2.</td>
<td>Arm Explosive Power</td>
<td>Softball Throw for Distance</td>
<td>Meters.</td>
</tr>
<tr>
<td>3.</td>
<td>Leg Explosive Power</td>
<td>Standing Broad Jump</td>
<td>Meters.</td>
</tr>
<tr>
<td>4.</td>
<td>Flexibility</td>
<td>Sit and Reach Test</td>
<td>Inches</td>
</tr>
<tr>
<td>5.</td>
<td>Speed</td>
<td>30 Mtrs. Dash</td>
<td>Seconds.</td>
</tr>
<tr>
<td>6.</td>
<td>Cardiovascular Endurance</td>
<td>800 Mtrs. Run</td>
<td>Minutes/Seconds</td>
</tr>
</tbody>
</table>
Table-2

Selected Psychological variable, Tool and Criterion Measure

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Motor Ability</th>
<th>Test</th>
<th>Criterion Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Self Perception</td>
<td>Susan Harter’s Self Perception Scale</td>
<td>Points</td>
</tr>
</tbody>
</table>

**Academic Performance :**

For this purpose marks obtained in the Class tests and examinations were considered.

**3.4 INSTRUMENT RELIABILITY :**

The equipments required for the test were thoroughly checked before use and the investigator had oriented himself about the procedure and method or handling the instruments. The equipments used were in good condition. Standard equipments like electronic stop watch, measuring steel tape, grip dynamometer and standard tool like Susan Harter’s Self Perception Questionnaire were used for the tests.

**3.5 TESTER RELIABILITY :**

Tests were conducted with the help of the Physical Education Teachers who were professionally trained and few other teachers and student leaders. All of them were oriented sufficiently before administering the tests.
3.6 EXPERIMENTAL DESIGN:

For the present study Randomized Groups Pre-test and Post test Design was used. In this design, subjects are assigned to the experimental and control groups randomly and are given pretest on the dependent variable ‘Y’”. The treatment is introduced only to the experimental group for a specified period of time after which two groups are measured on the dependent variable. The average difference between the post test and pre test (Y₂-Y₁) is found for each group are compared in order to find out whether the experimental group produced a greater change than the control group. The design can be presented as:

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre Test</th>
<th>Treatment</th>
<th>Post Test</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>Y₁</td>
<td>Yoga</td>
<td>Y₂</td>
<td>Y₂-Y₁</td>
</tr>
<tr>
<td>Control</td>
<td>Y₁</td>
<td>-</td>
<td>Y₂</td>
<td>Y₂-Y₁</td>
</tr>
</tbody>
</table>

The before and after measure in this design permit the investigator to study change and it is often referred to as the classical design for change experiments. The main strength of this design is the initial randomization which assures equivalence between the groups prior to experimentation. In addition the teach that the experimenter has control of the pretest will provide on additional check on the equality of the two groups on the dependent variable ‘Y’ In the present the dependent variables considered as ‘Motor Abilities’, ‘Self Perception’ and ‘Academic Performance’ of the subjects.

For the present study 60 students of age 13-16 years, 30 control group boys (who have not undergo training), 30 experimental groups (who have underwent yoga training) who were studying in residential school of Jawahar Navodaya Vidyalaya, Doddaballapur, Bangalore Rural District were selected as subjects.
3.7 YOGASANAS SELECTED FOR TRAINING PURPOSE

The asanas selected for the training purpose are as follows:

1. WARMING UP ACTIVITIES

   a) Simple Freehand Exercises

   b) Suryanamaskar

1. Stand erect with the legs together take the hands above the head and bend the trunk backwards and inhalefully.

2. Bend the body in front and touch the knee by the forehead, keep the palms on the floor.

3. Keep the right leg back takes the left knee forward, lookup and inhale.

4. Take the left leg also back, resting only on palms and toes, keep body straight from head to toes inclined to the ground at about 30° and exhale completely.

5. Without moving the hands and toes come forward on the chest and rest the forehead. In this position of Asthanga Namaskar. Forehead, chest, hands, knee and legs all the eight parts will be touching the ground. The buttocks will be raised up stay in breath out condition.

6. Inhale raise the head the trunk making the spine concave upwards without changing the position of the hands and feet keep the knee of the ground.

7. Exhale raise the buttocks push the head down and have a compete arch with the heels touching the ground and palms on the floor.

8. Inhale and bring the right leg in between the two hands and in the hale them. Arch the back concave upwards as in step three.

9. Exhale and bring the left foot forward next to the right foot and touch the knee with fore head as in count two.

10. Inhale and come up stand erect with hands along the body and relax (in 10 stages Suryanamahskar, the 5\textsuperscript{th}, 9\textsuperscript{th} stages are omitted).
A. STANDING SERIES :

1. Tadasana

Position : Stand up straight with both feet at hip-width.

Count No. 1 : Turn heels a little outward and let weight rest on toes.

Count No. 2 : Arms hang downwards along the body and the palm of the hands point towards the body.

Count No. 3 : Now make the back of the pelvis move away from the lower back. Do this by drawing in the ribs a little in the direction of the belly.

Count No. 4 : Breathe in and out a few times with full concentration. Through the breathing place the neck straight over the upper back. It would then feel as if the stretch the body upwards from the neck.

Count No. 5 : The shoulders feel broad and are relaxed.

Count No. 6 : The breathing is free and relaxed.

Count No. 7 : Look straight ahead of the at a spot within the vision and try to stand motionless with as little effort as possible.

Benefits

➢ Helps develop better posture and corrects postural weaknesses.
➢ Tones up the leg muscles, strengthens the knees, ankles and thighs
➢ Gives firm buttocks and abdomen

2. PADA HASTASANA

Count No. 1 : From the tala asana position, exhale and bend forward at the hips, keeping the arms extended throughout the movement, finishing with the upper torso and arms hanging straight downward
Count No. 2
Inhale slowly, draw the head and neck forward (look up) and lengthen the spine.
Exhale again and relax the head, neck and spine downwards, fixing the fingers and palms firmly under the toes and the balls of the feet into the complete padahastasana.
Note: Also try to hold this position for 15 to 20 seconds in the beginning, increasing the duration over time.

Count No. 3
To come out of the posture, release the hands from beneath the feet, straighten the arms, inhale and slowly come back up into tala asana, with the arms again extended high overhead.

Count No. 4
Exhale, slowly lower the hands back down and relax in sama sthiti asana. It is imperative that the legs (knees) remain straight within this posture.

Benefits:
➢ Stretches the hamstrings on the back of the legs
➢ Stretches and lengthens the entire spine
➢ Relieves problems with sciatica
➢ Invigorates the nervous system
➢ Increases the supply of blood to the brain
➢ Reduces fat at the abdomen.

3. TRIKONASANA

Position : Stand erect, feet close together.

Count No. 1 : Take right leg one step (1 meter) to right side and stretch the hand, sideways up to shoulder level and slowly inhale.
Count No. 2 : Slowly bend towards right side with inhale and fingers of the right hand touch to the right foot. The left arm straight up in line with the right hand palm. Face forward stretch up the left arm and see along with the fingers. Hold the position up to 1 minutes.

Count No. 3 : Same as Count No. 1 and Count No. 4 back to position repeat on the leftside.

4. VRUKSHASANA

Position : Stand erect (Thandasana)

Count No. 1 : Bend the Right knee. Place the right foot on the left upper thigh rest the hands on the hips.

Count No. 2 : Stretch the arms up joint the palms.

Benefits

➢ Tones the leg muscles
➢ Increases concentration
➢ Gives a sense of balance and poise

5. ARDHA CHAKRASANA

Position : Stand firmly. Inhale, slowly bend forward along with hands. The hands should be locked with the fingers

Count No. 1 : As the legs are coming down behind the head, stretch the ribs and abdomen so that arch is formed.

Count No. 2 : Hold in this position for few seconds with normal breathing.

Count No. 3 : Slowly go back to the normal position and relax.
Benefits

- The shoulder, the back, the neck and the things are stretched very well.
- Full body stretching gives good body shape.
- Back pain and pains in the region of neck will be effectively cured.
- It provides good vitality and energy to the entire body.

B. SUPINE LYING POSITION:

1. SARVANGASANA

Position : Lay supine on the ground over a blanket, keeping the arms stretched above the head.

Count No. 1 : Raise the legs together very slowly and gracefully till it forms about 45 degree to the ground.

Count No. 2 : Raise the legs further to 90 degree position.

Count No. 3 : Raise the buttocks and the trunk with taking support of the arms and the elbows without lifting the head. Rest the elbows on the ground firmly and support the back with both the palms straighten the trunk with the hands till the chin is well set in suprasternal hallow. Bring the legs parallel to the ground.

Count No. 4 : Keep the body erect stretching it up vertically supporting on the shoulders but relaxingly. Slowly come back to position though 5 to 8.

Benefits:

- stimulates the nerves
- Blood circulation improves
2. HALASANA

Position : Lay down on the back with hands stretched above the head biceps touching the ears and feet joined together.

Count No. 1 : Inhale and simultaneously lift the legs off the ground, raise them firm at an angle of 45 degree with the ground, behind the head.

Count No. 2 : Bring down the arms and rest the palms on the ground on either side of the body press the ground hard with the palms and bring the legs perpendicular to the ground inhaling further.

Count No. 3 : Exhaling stretch the legs further to bring them parallel to the ground. Support the with the hands.

Count No. 4 : Exhaling further bring the feet down so that the toes touch the ground. See that he do not bend the knees. Do not force if the toes do not touch the ground leave them wherever they are, maintain the posture for about 1 minute, or as long as he can.

Benefits :
- It stretches the shoulders and spine and improves flexibility.
- It stimulates the abdominal organs and the thyroid gland.
- It helps to reduce stress and fatigue and calms the mind.
- It is useful for backache, headache, infertility, insomnia, and sinusitis.
3. MATSYASANA

Position : Sit in Padmasana.

Count No. 1 : Slowly take the help of the elbows to lie down on the back.

Count No. 2 : Slowly lie on the back totally.

Count No. 3 : Now with the help of elbows or palms bend the head toward the back and place middle of the head on the ground.

Count No. 4 : Catch hold of the toes with the directory fingers and place the elbows on the ground.

Count No. 5 : While returning to original position, release the toes and taking the help of the hands straighten the head.

Count No. 6 : Now taking the help of elbow sit in padmasana.

Benefits

➢ Blood circulation is greater than before as the cervical, thoracic and lumber regions are stretched.

➢ The back muscles are also strengthened. It is beneficial for anyone suffering from cervical Spondylitis, neck pain and stiffness.

➢ As the chest is long-drawn-out, the ability of the lungs increases and breathing becomes easier. This helps with asthma and bronchitis.

➢ Pressure on the neckline works on the thyroid and the parathyroid gland (which regulates the body’s calcium levels). This asana balance metabolism and boosts the immune system.

➢ Most abdominal and stomach evils are also corrected as the intestines and abdominal muscles are stretched and toned. It is good for constipation and for piles.

➢ It tones the anxious system, the pelvic organs and the nerves connected with sexual function. It also helps stop and repair reproductive system disorders.
4. NAUKASANA

Position: Lie straight on the abdomen and chest with the forehead resting on the floor.

Count No. 1: Keep the feet together and the arms on the sides.

Count No. 2: Stretch out the arms on both sides of the head and keep them parallel.

Count No. 3: Turn down the palms on the floor with fingers close together.

Count No. 4: Keep the forehead on the floor between the upper arms.

Count No. 5: Inhaling, raise the arms, head, neck, shoulders, trunk and legs all together slowly and simultaneously as high as possible without bending the knees and elbows and without any jerk.

Count No. 6: While doing this, keep the upper arms touching the ears and the feet together.

Count No. 7: Bring the head up as high as possible and keep it between the raised upper arms.

Count No. 8: Bend the extremities as far back as possible, and the back should be well arched.

Count No. 8: The whole body should be curved from the fingertips to the toes, both of which should be on the same level.

Count No. 10: Balance the entire weight of the body on the lower part of the abdomen which alone should touch the ground.

Count No. 11: Maintain the posture motionlessly, as long as he can comfortably hold the breath.

Count No. 12: Exhaling return slowly to the starting position.
**Benefits**

1. Naukasana bends the middle of the spine and makes it flexible.
2. It strengthens the hips, arms, thighs, knees, calves, feet and the pelvic region.
3. It expands the chest and strengthens the lungs.
4. It strengthens the muscles of the back, abdomen, the lower limbs, neck and shoulders.

**C. PRONE LYING POSITION :**

**1. SHALABAHASANA**

Position : Prone laying.

Position : Lay fat on the abdomen and chest with chin touching the ground. Keep the legs straight and together, feet together with soles facing upwards stretch the arms above the head along the ears with palms resting on the ground.

Count No. 1 : Bring the hands down. Shut the hands into fist. Keeping the thumbs inside and place them under the respective knee joints.

Count No. 2 : Inhale and hold the breath. Raise the legs up together from the waist with the support of the fists without bending the knee. This is the final posture. Maintain as long as he can hold the breath slowly come back to position.

**Benefits:**

- Muscles of lower back and legs get strengthened.
- It helps reduce flab from thighs, hips, waist, abdomen and buttocks.
- Waist becomes supple and resilient.
- Heart muscles get massaged and function well.
- Regular practice of the pose can get rid of a bulging tummy.
Edema of ankles and feet can be treated with Shalabhasana.
Regular practice of the pose increases lung capacity.
Faulty spinal curvature is corrected.
Person suffering from bronchitis can get relief with this yoga pose.

2. BHUJANGASANA

Position : Lay prone on the blanket keeping the legs together chin touching and soles facing up. Stretch the hands straight forward alongside the head resting the palms on the ground.

Count No. 1 : Bring the arms back to the level of the left ribb. Keep the hands bent at elbows, least pressure to be exerted on the hands maintain the elbows touching the body, fist not spread out.

Count No. 2 : With out inhale raise the hand first and than upper portion of the trunk slowly, just as the Cobra raises, till the navel position is about to leave the ground. Arch the darsal and spine well keep the body below. The navel straight in touch with the ground. Retain the posture about one minute come back to the position lying of prone.

Benefits :
- Bhujangasana considerably influences the development of the abdominal muscles.
- This exercise promotes the blood circulation of these parts and influences these nerves to maintain their health and activity.
3. DHANURASANA

Position: Lay flat on the abdomen and chest with chin touching the ground. Keep leg straight and together, feet together, with soles facing upwards, stretch the arms above the head along the ears, with palms resting on the ground.

Count No. 1: Bend the knees and hold the feet by the hands.

Count No. 2: Raise the head, chest and also thigh by tugging the hands and legs so that the spine is arched backwards like a bow. Stabilize on the abdomen. Elbows must be kept unbent loop up. Initially the knees will spread out but with practice. They can be brought very near. Almost touching each other maintain for about half a minute slowly come down for position through 3 and 4.

Benefits:

The hygienic features of this posture are the extraordinary amount of pressure, due to the whole body being thrown upon the umbilical region only; the extreme stretching of the abdominal and pelvic muscles; and the steady pull anterior pull throughout the spinal column, with the alternate contraction and relaxation of the spinal muscles. Further, the venous drainage facilitates fresh supply of blood to the abdominal viscera, especially of the lower abdomen and the reproductory organs. Several muscles, including the extensors of the hip, elbow, wrist and drunk, and the abdubtors of the shoulder joints are exercised by this asana. The quadriceps and pectorals are also strained thanks to holding the legs in the bow curve position.
### 4. MAKARASANA

<table>
<thead>
<tr>
<th>Count No.</th>
<th>Instruction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lie down on the floor on the stomach with the hands on the sides. The chin and chest should also be touching the ground.</td>
</tr>
<tr>
<td>2</td>
<td>Stretch out both legs to full length.</td>
</tr>
<tr>
<td>3</td>
<td>Separate both legs and place them on the floor such that the toes are pointing outwards and heels inwards.</td>
</tr>
<tr>
<td>4</td>
<td>The feet should be at right angles to the legs.</td>
</tr>
<tr>
<td>5</td>
<td>Raise the head and trunk.</td>
</tr>
<tr>
<td>6</td>
<td>Take the right hand under the left shoulder.</td>
</tr>
<tr>
<td>7</td>
<td>Hold the left shoulder gently with the right hand.</td>
</tr>
<tr>
<td>8</td>
<td>Grasp the right shoulder with the left hand gently.</td>
</tr>
<tr>
<td>9</td>
<td>The two hands should be making a double triangle one above the other.</td>
</tr>
<tr>
<td>10</td>
<td>Place the forehead on the triangle. Face should be within the space created by both arms.</td>
</tr>
<tr>
<td>11</td>
<td>Close the eyes and relax the whole body.</td>
</tr>
<tr>
<td>12</td>
<td>Practice abdominal breathing. Remain in this position as long as the comfortable.</td>
</tr>
<tr>
<td>13</td>
<td>Turn over.</td>
</tr>
<tr>
<td>14</td>
<td>Lie on the back and start again.</td>
</tr>
</tbody>
</table>
**Benefits:**

- Makarasana is the perfect pose for relaxation of both mind and body.
- It helps relieve fatigue after a strenuous yoga session.
- The asana helps keep control over high blood pressure.
- Breathing problems and genito-urinary disorders are cured.
- Makarsana is beneficial to the digestive system.
- It helps get rid of flatulence and scoliosis.

**D. SITTING POSITIONS :**

**1. Padmasana**

**Position** : Spread both the legs and keep them at a distance of 1 to 1.5 feet.

**Count No. 1** : Bend left leg in knee and place its toe on the right thigh and heel on the groin of the left leg.

**Count No. 2** : Bend right leg in knee and place its toe on the left thigh and heel on the groin of the right leg.

**Count No. 3** : Keep the wrists of both the hands on the respective knees and take Dnyana Mudra. Continue normal breathing.

**Benefits :**

- The asana calms the brain.
- It stimulates the pelvis, spine, abdomen, and bladder.
- Stretches the ankles and knees.
2. PASCHIMOTASANA

Position : Long sitting.

Count No. 1 : Raise both hands till they come to a straight line parallel to the ground.

Count No. 2 : Inhale and raise the hands to vertical position arms touching the ears, palms facing front stretch up the whole body from coccyx.

Count No. 3 : Bend the trunk forward relaxingly with continuous exhalation, body and hands parallel to the ground.

Count No. 4 : From the hooks of the index fingers and catch hold of the big toes rest the face on the knees and touch the elbows to the ground. Do not allow the knee to bend, normal breathing retain the position of about one minute, come back to position through 5 to 8.

3. SUPTA VAJRASANA

Position : Start from Vajrasana.

Count No. 1 : Bend back slowly, vertebrae by vertebrae and place the elbows next to he for support, one elbow after the other.

Count No. 2 : Continue bending back and place the top of the head on the ground, arching the back.

Count No. 3 : Move the hands to the thighs.

Count No. 4 : Breathe in deeply and slowly.

Count No. 5 : Start from Vajrasana.
Benefits:

- Thorax mobility will be increased.
- Supta Vajrasana has beneficial effects on the gonads as well as the pelvic organs.
- Blood circulation is boosted to the neck, knees, the backside and the thighs.
- The muscles of the legs, thighs, pelvis, abdomen and the thighs are stretched and toned up in the final position of the asana. The adrenal glands are stimulated when pressure is put on the small back.
- The utero-abdominal and genitor-urinary organs get extra pressure, and as a result there is a fresh supply of oxygenated blood to the abdominal viscera.
- This also provides augmented tone to the muscles of the bowels, pancreas, liver, and kidneys.

4. YOGA MUDRA:

Sit in Padmasana. Place the palms on the heels. Exhale slowly and bend forwards and touch the ground with the forehead. If the retain the pose for a long time, breathe as usual. Or come to the former position and inhale, instead of keeping the hands on the heels. It can take them to the back. Catch hold of the left wrist with the right hand.

Benefits:

- Relaxes the mind
- Improve Concentration
4. **VAKRASANA**:

**Position**: Sit erect, stretching the legs in front together. Hands by the side, palm resting on the ground, fingers together pointing forward.

**Count No. 1**: Slowly fold the one leg (i.e left) at the knee and place the sole on the ground near the knee of the right leg. The knee of the left leg should make 90° angle straight towards sky.

**Count No. 2**: Taking the left hand towards back, place the palm on the ground at the distance of 9” straight from spine. Fingers together pointing backward. Then place the right hand towards the other side of the left knee. If legs are stretched towards east then fingers of the hand will point towards north.

**Count No. 3**: Now twist the head and back towards backside and try to look at the backside.

**Count No. 4**: While returning to the original position first bring the head to the original position.

**Count No. 5**: 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.

**Count No. 6**: Now slowly stretch out the folded leg and sit erect as in the first position.

**Benefits**

1. This removes constipation, flatulence, liver weakness and nervous weakness.
2. Reduces the rigidity of spine.
3. This is also useful for kidney and other stomach diseases.
5. GHOMUKASANA

Position : Long sitting

Count No. 1 : Sit on the floor with the legs stretched straight in front.

Count No. 2 : Place the palms on the floor and raise the seat.

Count No. 3 : Bend the left knee back and sit on the left foot. Remove the hands from floor, raise the right leg and place right thigh over the left one.

Count No. 4 : Rise the left arm over head, bend it at the elbow and place left palm below the nape of the neck between the shoulders raise the right forearm up behind the back until both hands tie up with each other.

Benefits :

The benefits are enormous and very useful as each part of the body is stretched making it more flexible. It helps one's energy level to be at its optimum high making it very useful for the lethargic body.

The stretching and toning of the thighs and knees muscles makes the agile and more in control. A sense of achievement is attained when the hands touch each other. The arms and shoulders also get stretched at the same time making helping in the long run.
5. MATSYASANA:

Position: Lie on the back on the floor with the knees bent, feet on the floor. Inhale, lift the pelvis slightly off the floor, and slide the hands, palms down, below the buttocks. Then rest the buttocks on the backs of the hands (and don’t lift them off the hands as he performs this pose). Be sure to tuck the forearms and elbows up close to the sides of the torso.

Count No. 1: Inhale and press the forearms and elbows firmly against the floor. Next press the scapulas into the back and, with an inhale, lift the upper torso and head away from the floor. Then release the head back onto the floor. Depending on how high he arch the back and lift the chest, either the back of the head or its crown will rest on the floor. There should be a minimal amount of weight on the head to avoid crunching the neck. (For more about this, see the Beginners Tip below.)

Count No. 2: He can keep the knees bent or straighten the legs out onto the floor. If he do the latter, keep the thighs active, and press out through the heels.

Count No. 3: Stay for 15 to 30 seconds, breathing smoothly. With an exhalation lower the torso and head to the floor. Draw the thighs up into the belly and squeeze.

Benefits

- A traditional text that Matsyasana is the “destroyer of all diseases.”
- Stretches the deep hip flexors (psoas) and the muscles (intercostals) between the ribs
- Stretches and stimulates the muscles of the belly and front of the neck
- Stretches and stimulates the organs of the belly and throat
- Strengthens the muscles of the upper back and back of the neck
- Improves posture
E. BALANCING : MAYURASANA

Position : The student has to kneel on his seat and bring together his forearms down up to the wrists.

Count No. 1 : Then the elbow-joints are put to be in close contact with each other, so that they provide a suitable fulcrum to support the horizontal body, during the full display of the pose.

Count No. 2 : The palms and fingers are made to take the place of the feet and the claws of the peacock. The position of the claws, however, is reversed, the palms being given a backward direction.

Count No. 3 : The fingers, when arranged must afford a very good contrivance for adjusting the balance of the whole body.

Count No. 4 : On the fulcrum thus prepared, the body is stretched out in a straight line parallel to the seat.

Count No. 5 : The elbows are to be placed on the abdomen just below the umbilicus.

Count No. 6 : The forearms should not stand exactly at right angles to the ground, but are a little inclined to the front.

Count No. 7 : The head is raised and the chin thrown out in order to counterbalance the heavy legs.

Count No. 8 : The whole body is held like a horizontal bar resting on a fulcrum.

Benefits :

Mayurasana usually checks the flow of the abdominal aorta and thus diverts a liberal blood supply to the digestive organs, making them healthier. These organs are further toned up by the increase in the intra-abdominal pressure.
F. RELAXATION : SHAVASANA

Count No. 1 : Lie on back and extend legs fully.

Count No. 2 : Concentrated on every part of the body and command, relaxation to every parts of the body from toe to head.

Count No. 3 : Relax for about 10 to 15 mns then fold the left leg and turn toward right side and slowly get up.

G. PRANAYAMA :

"Pranayama is control of Breath". "Prana" is Breath or vital energy in the body. On subtle levels prana represents the pranic energy responsible for life or life force, and "ayama" means control. So Pranayama is "Control of Breath". One can control the rhythms of pranic energy with pranayama and achieve healthy body and mind.

Types of Pranayama

- Quiet Breathing, Deep Breathing, Fast Breathing
- Nadi Shuddhi Pranayama
- Ujjayi Pranayama
- Bhramari Pranayama

1. Complete Yogic Breathing :

First inhale by filling the abdomen and then CONTINUE inhaling as you expand and fill the chest. Then exhale first from the chest as it empties and falls and then CONTINUE exhaling from the abdomen as it draws inwards completely. This is one round of the full yogic breath. Repeat this for 20 rounds.
2. Nadi Shuddhi Pranayama

This is one of the fundamental types of Pranayam. However, while describing the other eight types of Kumbhakas, this has not been included by the Hathapradeepikakars. It is necessary to have Nadi Shuddhi before performing Pranayam. Nadi Shuddhi is done with two methods. "Samanu" is performed with Nadi Shuddhi Pranayam with Beej Mantra. Nirmanu is performed through the medium of Dhouti Kriyas.

3. Ujjayi

The word Ujjayi is divided as Ut + Jayi. However, it does not indicate declaration of any type of Jay i.e. winning. In this type of Pranayama, while performing Pooraka, due to the friction of air in the throat, a typical sound is created. (The sound is different from the sound emitted from the larynx) Hence, the Pranayama is termed as Ujjayi Pranayama. The meaning of the name has not been described anywhere. Instead of wasting time on finding out the meaning, it is beneficial to view the description of the performance.

4. Bhramari:

This pranayam relates to the word bhramar, i.e. the sound that bhramar emits. The characteristics of this pranayama is to create a sound like that of the humming bee while performing Pooraka or Rechaka.

Benefits of Pranayama

- Reduced Breathing Rate.
- Reduced wear and tear of internal organs.
- Lowering of breathing rate is increase the life.
- Blood Circulation Improves
- Pranayama for Healthy Heart.
- Better functioning of autonomic system improves the working of lungs, heart, diaphragm, abdomen, intestines, kidneys and pancreas.
- Digestive system improves and diseases pertaining to digestive organs are cured.
- General irritability due to lethargy/ fatigue vanishes.
- Pranayama strengthens the immune system.
3.8 SCHEDULE OF YOGA TRAINING

Training was administered to the experimental group during evening (5 to 6 pm) on all the six days of the week except Sundays for 12 weeks, under the guidance and supervision of a professional yoga instructor. Following Table depicts the schedule of the same.

**Note:** First weeks training was given for 30 minutes only (Simple to complex principle was followed)

**Table showing the 12 week’s yoga training**

<table>
<thead>
<tr>
<th>Week</th>
<th>Asanas</th>
</tr>
</thead>
<tbody>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt; week</td>
<td>Introduction to yoga and Suryanamaskars</td>
</tr>
<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt; week</td>
<td>Suryanamaskar, simple standing and sitting asanas and introduction of Pranayama starting with simple breathing.</td>
</tr>
<tr>
<td>3&lt;sup&gt;rd&lt;/sup&gt; week</td>
<td>Repetition of the above and standing forward and backward bending asanas.</td>
</tr>
<tr>
<td>4&lt;sup&gt;th&lt;/sup&gt; week</td>
<td>Repetition of the above and introduction of supine and prone lying asanas and new techniques of pranayama.</td>
</tr>
<tr>
<td>5&lt;sup&gt;th&lt;/sup&gt; week</td>
<td>Repetition of the above and introduction of twisting asanas.</td>
</tr>
<tr>
<td>6&lt;sup&gt;th&lt;/sup&gt; week</td>
<td>Combination of standing, sitting, twisting, balancing, prone and supine lying asanas and different techniques of pranayama</td>
</tr>
<tr>
<td>7&lt;sup&gt;th&lt;/sup&gt;–12&lt;sup&gt;th&lt;/sup&gt; week</td>
<td>Starting with Suryanamaskar all the other asanas standing, sitting, bending, lying, balancing asanas and pranayamas were taught and were made to practice with some alterations whenever required.</td>
</tr>
</tbody>
</table>

- All periods of asanas were concluded with relaxation asanas followed by pranayama.
- Mind setting and goal setting techniques were also used during training.
3.9 DESCRIPTION OF TESTS:

3.9.1 MOTOR ABILITIES

1. Grip Strength Test

Purpose:

To measure Static Strength

Equipment:

Hand Grip Dynamometer

Description:

The pointer of the grip dynamometer was set to zero. The subjects held the dynamometer in their hand, with the dial against their hand, with the dial against their palm and the pressing edge in the heel of their palm. The subjects squeezed sharply and steadily as possible making sure that no part of the arm touched the body.

Scoring: Scoring was recorded in kgs.

2. Softball Throw

Purpose: To find out Arm Explosive Power.

This test was used to measure the Arm strength of the subjects

Method:

A Restraining line was drawn on the ground. The subject stood behind the line and threw the softball as far as possible without stepping over or crossing the restraining line.

Scoring:

The best of three trials was recorded in meters.
3. **Standing broad Jump:**

**Purpose:**
To measure the leg explosive power.

**Equipment:**
Measuring tape.

**Procedure:**
The subject stood behind a take off line with his feet several inches apart. He then jumped forward by simultaneously extending his knees and swinging his arms forward. Three trials were permitted and the best of the three was recorded. Measurement of the jump was made from the nearest imprint made by jumper on landing to the take off point. Distance was recorded in meters.

4. **Sit and Reach.**

**Purpose:**
To measure the flexibility of back and hamstring muscles of the subjects.

**Equipments:**
Measuring scale and box

**Procedure:**
The subject was asked to sit in long position with the knees fully extended and arms stretched forward with one placed on the top of the other, palm down. Subject bending towards measuring scale, pushed the scale forward as far possible with fingertips.

**Scoring:**
Measurements were recorded in Cms.
5. **30 Meters Run (Standing Start)**

**Purpose:**
To measure the running speed.

**Equipment:**
Electronic stop watch, measuring tape.

**Procedure:**
A sufficiently large free flat area was chosen for the conduct of the test. Two straight lines were drawn parallel to each other at a distance of thirty meters from each other. The subject stood behind the starting line in a comfortable position. On the command 'go' the subject ran thirty meters distance at top speed. A timer positioned in line with the finish line recorded the time taken to cover the thirty-meter distance.

**Scoring:** Time taken to cover 30 mtr. was recorded in 1/100 of a second.¹

6. **800 Meters Run**

**Purpose:**
To measure the cardiovascular endurance of the subjects.

**Equipments:**
Stop watch and clapper.

**Procedure:**
400 Meters Track was used to conduct this test. The subjects were divided in to different groups consisting of ten in each group. The test was conducted for one group at a time. The subjects were asked to stand behind starting line and on the signal (clapper sound), they started running to cover the distance of 800 metres in the shortest possible time.

**Scoring:** The time taken by each subject to cover the distance was recorded in minutes and then converted to seconds.

3.9.2 Psychological Variable

7. Self Perception

To find the self perception, Susan Harter’s Self perception Profile for Children was used. The researcher administered the questionnaire for both control and experimental group students. The researcher translated the Susan Harter’s questionnaire into the Kannada version and administered the same for the benefit of the students who were not able to understand the questionnaire in English version.

It was administered with the help of the Physical Education teachers of the particular school giving brief introduction about the purpose of administering the questionnaire, also asking the students to read the instructions given in the questionnaire and also clarify any doubts.

The researcher after confirming the ability of the students regarding answering the questionnaire, handed over the questionnaire to each one of the students and asked them to sit separately to answer the questionnaire. The duration was restricted as per the instructions of the author and it was collected and tabulated as per the norms table. This scale focused primarily on children’s judgments of competence. This scale contains six separate subscales tapping five specific domains, as well as global self worth.

1. Scholastic competence.
2. Social Acceptance.
3. Athletic Competence.
4. Physical Appearance.
5. Behavioural conduct
6. Global Self-Worth
Each of the six subscales contains six items, constituting a total of 36 items. Within each subscale, three of the items are worded such that the first part of the statement reflects high competence or adequacy, and three items are worded such that the first part of the statement reflects low competence or adequacy. The six subscale items are presented in the following order for the first six items of the scale, and then continue to repeat themselves in that order throughout the instrument: (1) Scholastic competence, (2) Social Acceptance, (3) Athletic Competence, (4) Physical Appearance, (5) Behavioural Conduct and (6) Global Self-worth. The Master list of items grouped according to subscale is given in Appendix. Items are scored either 4,3,2, or 1, where 4 represents the most adequate self judgement and 1 represents the least adequate self judgement. Items within each subscale are counter balanced such that three items are worded with the most adequate statement on the left and three items are worded with the most adequate statement on the right. Thus, the item scores for those with the most adequate description on the left are scored, 4,3,2,1 (from left to right) whereas the item scores for those with the most adequate description on the right are scored, 1,2,3,4 (from left to right) a data coding sheet is included in the appendix. Scores from the child’s protocol can be transferred to this sheet whereas all items for a given subscale are grouped together to facilitate the calculation of the mean for each subscale. Scoring, thus, will result in a total of six subscale means which will define a given child’s profile.

The primary objective of the study was to identify the self perception of the control and experimental group students. The previous research evidence shows marked differences between the pre and post tests of control and experimental group students with regard to the self perception
of the students. For this purpose, the different tests were conducted and the raw scores were converted into the standard scores by using statistical analysis.

3.9.3 Academic Performance:

Academic performances of the subjects were taken from the school records.

3.10 STATISTICAL DEVICES USED:

The author collected the data and employed the most appropriate statistical techniques noted below to analyze the data and interpret the data.

1. Mean and Standard Deviation

2. ‘t’ test for testing significance of mean difference (t)

1. Mean and Standard Deviation

Mean: Mean is obtained by adding all the scores together, dividing it by the number of cases.

\[
Mean = \frac{\sum X}{N}
\]

Where

\[N = \text{Sample size and}\]

\[\sum X = \text{Total Score}\]
2. **Standard Deviation**:

   It is obtained as the square root of the Arithmetic Mean of squares of the deviations about the Mean. It is written symbolically as:

   \[
   SD = \sqrt{\frac{\sum fd^2}{N}}
   \]

   Where

   \(fd^2\) = Sum of the squares of deviation from Mean

   \(N\) = Number of items

   In the present study, standard deviation was used by the researcher to measure each item.

3. **'t' test for Testing the Significance of Mean Difference**:

   't' test technique was used to find out whether the difference between the Mean to two groups was significant. There are two 't' models. The two groups is found out by using of 't' test. For determining the \(t\)-value the following formula was used.

   \[
   t = \frac{(\bar{X}_1 - \bar{X}_2)}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}
   \]

   Where,

   \(\bar{X}_1\) = Mean of the first group

   \(\bar{X}_2\) = Mean of the second group

   \(\sigma_1\) = Standard deviation of the first group

   \(\sigma_2\) = Standard deviation of the second group

   \(N_1\) = Number of students in the first group.

   \(N_2\) = Number of students in the second group.
In this chapter, methodology and procedure adopted for the study were discussed. In the next chapter, analysis of the data collected will be presented and the interpretation of the results will be given.