

## **Chapter III**

### **METHODOLOGY**

In this chapter the selection of the subjects, selection of the variables, criterion measures, administration of the training programme, collection of the data, research design and statistical technique are described.

#### **Selection of Subjects**

The subjects for the proposed study were total 80 (40 girls and 40 boys) studying in class eight standard with the age ranged between 12-15 years, belonging to the Haldia Government sponsored Vivekananda Vidyabhawan of Purba Medinipur district, West Bengal, India. The subjects for the present study were selected by applying systematic random sampling technique and divided into two equal groups 20 each in control and experimental of boys and girls independently. They were named as experimental group (Yoga Practice group) and control group (Non-practicing group).

The subjects of Experimental group was given a systematic training programme of Asana and Pranayama by the number of experts on the supervision of the research scholar, whereas, the control group was not given any kind of training by the research scholar. The training schedule was of 10 weeks.

#### **Selection of Variables**

##### **Asana:**

Keeping the feasibility criterion in mind, the following Asanas were selected for the proposed training programme in the study and students were introduced with basic training of these Asana;

1. Suryanamaskar Kriya
2. Halasana
3. Matsyasana

4. Bhujangasana
5. Dhanurasana
6. Gomukhasana
7. Ardhamatsendrasana
8. Paschimotanasana
9. Padmasana
10. Tadasana
11. Garudasana
12. Shavasana
13. Makarasana

**Pranayama:**

The following Pranayamas were selected for the proposed training programme in the study and students was introduced with basic training of these Pranayamas;

1. Ujjayi
2. Nadishodhan
3. Suryabhedan
4. Bhastrika

**Physical and physiological Components:**

For the purpose of this study the following selected Physical and physiological Parameters were tested:

- a) Muscular endurance

- b) Static balance
- c) Vital capacity
- d) Breathe holding capacity(Antara Kumbhak)
- e) Resting Pulse Rate
- f) Systolic Blood Pressure
- g) Diastolic Blood Pressure

**Table – 1**  
**Criterion Measures for Physical & Physiological Components**

<b>Physical &amp; Physiological Components</b>	<b>Tools/Test/Equipment Used</b>	<b>Unit of Measurement</b>
Muscular endurance	Squat Thrust	Jumps/min
Static balance	Stork Stand Test	Duration in seconds
Vital capacity	Dry Spiro Meter	Mililitres
Breathe holding capacity (Antara Kumbhak)	Stopping one's inhalation or exhalation	Seconds
Resting Pulse Rate	In resting position	Numbers/min
Systolic Blood Pressure	Sphygmomanometer	mm Hg
Diastolic Blood Pressure	Sphygmomanometer	mm Hg

**Independent Variable:**

The independent variable was the 10 weeks training programme of selected Asanas and Pranayamas.

**Dependent Variable:**

The dependent variable was the selected Physical & Physiological parameter.

**Reliability of data**

The reliability of the data was measured by establishing the instrument reliability, tester reliability, reliability of tests and subject's reliability.

**Instruments reliability**

The instruments and equipments to be used in this study for collection of data were procured from standard company. A standard stop watch was used in order to measure the time taken for breath holding capacity, heart rate and Respiratory rate. All the instruments were being used for the research purpose and considered reliable for testing above variables. **Tester Competency**

For establishing the tester's competency in order to record the selected structured variables, the investigator was having sufficient practice under the guidance of an expert. Several practice sessions were conducted till an acceptable consistency in recording the measurement was achieved.

**Table – 2**

**Tester Competency from Test Retest of Selected Variables**

<b>S. No.</b>	<b>Variables</b>	<b>Coefficient of correlation</b>
1	Muscular Endurance	0.90*
2	Static Balance	0.93*
3	Vital capacity	0.95*
4	Maximum Breath Holding	0.89*
5	Resting Pulse Rate	0.92*
6	Systolic Blood Pressure	0.90*
7	Diastolic Blood Pressure	0.90*

**Reliability of test**

Reliability of tests was established by test- retest method using product moment method of correlation. The score of subjects for various variables were recorded on two days with an interval of one day between, under the identical conditions.

**Subject's reliability**

The test-retest coefficient of correlation was also established for the reliability of subjects, because the one tester was testing the same subjects under similar condition and no motivational techniques was used during the testing.

**Table – 3**

**Administration of Training Programme**

**Yoga Training Program**

Days	Asanas 7:00am to 08.00am	Pranayama 08.00am -8:30am
Monday	Suryanamaskar (3 set), Halasana, Matsayasana, Bhujangasana, Paschimottanasana, Tadasana Makrasana, Savasana,	Nadishodhan, Suryabhedan
Tuesday	Padmasana, Suryanamaskar (3 set), Dhanurasana, Gaumukhasana, Ardhamatsendrasana, Garurasana, Savasana, Makrasana,	Ujjai,Bhastrika
Wednesday	Suryanamaskar (3 set), Halasana,Matsayasana, Bhujangasana,Paschimottanasana,Tadasana, Makrasana, Savasana,	Nadishodhan, Suryabhedan
Thursday	Suryanamaskar (3 set), Dhanurasana, ,Padmasana, Gaumukhasana,Ardhamatsendrasana,Garurasana, Savasana, Makrasana	Ujjai,Bhastrika
Friday	Suryanamaskar (3sets), Halasana, Matsayasana, ,Bhujangasana,Paschimottanasana, Tadasana, Makrasana, Savasana	Nadishodhan, Suryabhedan
Saturday	Suryanamaskar(3set),Dhanurasana,Padmasana,Gaumukhasana,Ardhamatsendrasana,Garurasana, Savasana, Makrasana	Ujjai,Bhastrika

**NOTE:**

1. Each asana was repeated two times;
2. These asana was continued for all the phases;
3. Total length of training programme: Ten weeks
4. Duration of training programme (each day basis): an hour.
5. Morning Session (7:00 am 08:30 am) Duration:- 1:30 Hrs
6. The training programme was repeated in all the six days in a week

**Suryanamaskar:**

**Benefits:** The Suryanamaskar has many benefits and if done regularly can not only help you lose flab but can also help you combat diseases. Here are a few benefits of this asana:

- Suryanamaskar, or Sun Salutations, ideally done facing the early morning sun, helps our body to soak in its benefits - sun rays are a rich source of vitamin 'D' and helps to strengthen our bones and also helps to clear our vision.
- This asana apart from improving one's posture also gives a appropriate workout to the body and so helps in losing unwanted flab.
- Regular practice of this asana can also help you lose the surplus belly fat.
- The posture in Suryanamaskara stretches our muscles and makes our body very flexible.
- The moves and postures of the asana help all our inside organs function better -a range of poses regulates our blood flow, benefits the digestive system and makes it more efficient.
- It helps to combat insomnia as it relaxes the body and calms the mind.

- It helps to regulate menstrual cycles and makes childbirth easier.
- This asana is known to facilitate blood circulation and thereby help hair growth and prevent hair problems.
- It reduces anxiety and restlessness and enhances our strength and vitality.
- Suryanamaskar benefits adults as well as kids too.

#### 1. Pranamasana (Salutation posture)

Stand straight with feet together. Join the palms together in front of the chest. Concentrate while standing straight, balanced and in a prayerful attitude. This posture helps to persuade a state of introversion, relaxation and calmness. It activates the anahata chakra. Exhale completely.

#### 2. Hastauttanasana (Raised arm posture)

Inhaling stretch both arms above the head, palms facing upward. Arch the back and stretch the whole body. This posture stretches the chest and the abdomen and lifts the Prana (energy) upward to the upper parts of the body propelled by inhalation.

#### 3. Padahastanasana (Hand to foot posture)

With the breathing stroke out of body, slowly bend the body forward down, keeping the spine straight, avoid collapsing the chest or over-rounding the upper back, keep the legs in a straight line and perpendicular to the ground. The knees may be a little flexed if needed. This posture massages the abdominal organs, especially the liver, kidneys, pancreas, adrenals, uterus and ovaries. The power of digestion increases and female disorders such as prolapsed and menstrual irregularities are relieved through this asana. A healthy flow of blood is sent to the spinal nerves as they are stretched and toned. The hamstring groups of muscles at the back of the thigh and calf muscles are stretched and toned. Inversion increases blood flow to the brain. The Prana is channeled to the lower regions of the body propelled through exhalation.

#### 4. Ashwa Sanchalanasana (Equestrian posture)

On your next inhalation, extend the left leg back and drop the knee to the ground. The right knee is bent and kept between the hands and the right foot placed flat on the ground, lift the spine and open the chest, concentrate at the eyebrow center.

#### 5. Parvatasana (Mountain posture)

With exhalation bring the right leg back to join with the left leg, at the same time raise the buttocks and lower the head between the arms, so that the body forms a triangle with the floor; try to place the heels flat on the ground, focus awareness at the neck area. This posture strengthens the nerves and muscles in the arms and legs, stretches the calf muscles and Achilles tendons and makes the spine straight and tight, it relieves various veins and tones spinal nerves, maintain the posture take a deep inhalation.

#### 6. Ashtanga Namaskara (Salutation with eight limbs)

Exhaling gently drop down both the knees to the ground and slowly slide the body down at an angle as you bring the chest and chin to the ground, all eight limbs - toes, knees, chest, hands and chin - touch the floor, the buttocks are kept up, hold the breathe, this pose develops the chest and strengthen arms, it sends additional blood to this area helping to revitalize the nerves.

#### 7. Bhujangasana (Cobra posture)

Start with inhalation, lower the hips while pushing the chest forward and upward with the hands until the spine is fully arched, the head should be facing up, the knees and lower abdomen remain above the floor, focus the awareness at the base of spine and feel the tension from the forward pull, this pose gives energetic expansion to the organs of the chest and abdomen, relieving many ailments such as asthma, constipation, indigestion, kidney and liver problems. It is very helpful in relieving tension in the back muscles and spinal nerves.

8. Parvatasana (Mountain posture)

Exhale and get back to posture no.5.

9. Ashwa Sanchalanasana (Equestrian posture)

Again inhale and swing the right leg forward between the hands, the left leg remains back, take up again posture no. 4.

10. Padahastanasana (Hand to foot posture)

Exhale and bring the left foot forward, join both legs and take up again posture no.3.

11. Hastauttanasana (Raised arm posture)

Inhale and raise the trunk up, bend backward, take up again posture no.2.

12. Pranamasana (Salutation posture)

Make straight the body and bring the hands in front of the chest, carry on posture number one.

### The Surya Namaskar Postures, Breathing & Mantras Patterns:

Posture	Asanas	Procedure	Breathing	Mantras
<b>1</b> 	Pranamasana (Salutation posture)	Stand facing the Sun with palms folded and both the thumbs touching the chest.	Exhale	Aum Mitraya Namah
<b>2</b> 	Hastauttanasana (Raised arm posture)	Raise hands upward, with feet firmly on the ground, bend backwards, stretch arms fully.	Inhale	Aum Ravayre Namah
<b>3</b> 	Padahastasana (Hand to foot posture)	Slowly bend forward, hands touching the earth with respect, head touching the knees.	Exhale	Aum Suryaya Namah
<b>4</b> 	Ashwa Sanchalanasana (Equestrian posture)	Set both hands with the palms down firmly on the ground, pull the left leg backward, raise the head looking at the Sun, full weight resting on the two palm and ten fingers.	Inhale	Aum Bhanave Namah

<p>5</p> 	<p>Parvatasana (Mountain posture)</p>	<p>Bring right leg back close to left leg, keeping hands and legs straight; bend the body at the hip forming an arch, just like a mountain pose.</p>	<p>Exhale</p>	<p>Aum Khagaya Namah</p>
<p>6</p> 	<p>Ashtanga Namaskara (Salutation with eight limbs)</p>	<p>Stretch yourself fully on the ground in the Saastanga Namaskar pose (all eight 'anga' or parts of the body on the ground head, thigh, mind, word, feet, hands and ears (hearing)). In reality, feet, knees, thighs&amp; chest.</p>	<p>Inhale &amp; Exhale</p>	<p>Aum Pushne Namah</p>
<p>7</p> 	<p>Bhujangasana (Cobra posture)</p>	<p>Slowly raise the head, bend backward as much as possible, hands straight, in the cobra pose.</p>	<p>Inhale</p>	<p>Aum Hiranyagarbha ya Namah</p>
<p>8</p> 	<p>Parvatasana (Mountain posture)</p>	<p>Parvathasan – same as Step 5.</p>	<p>Exhale</p>	<p>Aum Marichaye Namah</p>

<p>9</p> 	<p>Ashwa Sanchalanasana (Equestrian posture)</p>	<p>Same as Step 4 with the difference that the right leg is brought forward.</p>	<p>Inhale</p>	<p>Aum Adityaya Namah</p>
<p>10</p> 	<p>Padahasthasana (Hand to foot posture)</p>	<p>Same as Step 3.</p>	<p>Exhale</p>	<p>Aum Savitre Namah</p>
<p>11</p> 	<p>Hastauttanasana (Raised arm posture)</p>	<p>Same as Step 2.</p>	<p>Inhale</p>	<p>Aum Arkaya Namah</p>
<p>12</p> 	<p>Pranamasana (Salutation posture)</p>	<p>Same as Step 1.</p>	<p>Exhale, Inhale and Exhale</p>	<p>Aum Bhaskaraya Namah</p>

There are many benefits of Surya Namaskar on various body parts physical abilities and physiological aspects. It can decrease the possibility of heart disease, lung cancer, type two diabetes, heart stroke and many other sicknesses. Cardio-respiratory endurance helps improve the condition of our lungs and heart, and will create feel strong.

### **HALASANA**

- 1) Lie down in supine position.
- 2) Join your legs together and keep both the hands near the thighs
- 3) Inhale and gradually raise both the legs at the angle 30, 60, 90, raise the spine up and slowly put both the legs on the ground, behind the neck.
- 5) Interlock the hands.
- 6) Stretch the legs back as much as possible.
- 7) Hold the pose according to the capacity.
- 8) Open the lock of the hands. Exhale and put the spine down on the ground and make an angle of 90 then 60 and 30 respectively, come back to the supine position.
- 9) Relax

### **Benefits:**

- Stretches all muscles and ligament in your calves and thighs, resulting in greater leg flexibility
- Therapeutic for leg cramps
- Stimulates your thyroid, parathyroid, throat, lungs and abdominal organs
- Helps relieve gas and upper/lower back pain or discomfort
- Promotes good digestion

- Stretches your shoulders and spine
- Therapeutic for menopause, infertility, insomnia, headache and sinusitis
- Relieves stress and fatigue

### **MATSYASANA**

- 1) Lie down in supine position.
- 2) Join your legs together and keep both the hands near the thighs.
- 3) Raise the chest, shoulders and touch the head on the ground. Stretch the neck.
- 4) The body weight should be on the elbows.

#### **Benefits:**

- Stretches your deep hip flexors and intercostals (muscles between the ribs)
- Relieves tension in your neck, throat, and shoulders
- Stretches and tones the front of your neck and your abdominals
- Stretches and stimulates the organs of your belly and throat
- Strengthens your upper back and the back of your neck
- Relieves stress and irritation
- Improves posture
- Therapeutic for rounded-shoulders, asthma, spasms in the bronchial tubes, and other respiratory issues

### **BHUJANGASANA**

- 1) Lie down in prone position; join both the legs and heels at the back.

2) Put the hands near the chest.  
3) Inhale and raise the body up. Open the shoulders and stretch the neck  
back.

- 4) Hold.  
5) Exhale and slowly come back.

**Benefits:**

- Stretches muscles in the shoulders, chest and abdominals
- Decreases stiffness of the lower back
- Strengthens the arms and shoulders
- Increases flexibility
- Improves menstrual irregularities
- Elevates mood
- Firms and tones the buttocks
- Invigorates the heart
- Stimulates organs in the abdomen, like the kidneys
- Relieves stress and fatigue
- Opens the chest and helps to clear the passages of the heart and lungs
- Improves circulation of blood and oxygen, especially throughout the  
spinal and pelvic regions
- Improves digestion
- Strengthens the spine
- Soothes sciatica
- Helps to ease symptoms of asthma

**DHANURASANA**

- 1) Lie down in prone position.  
2) Bend the knees and catch the ankles.  
3) Inhale and raise the thighs and chest. Stretch the neck up. Elbows should  
be straight.  
4) Hold.  
5) Exhale and slowly come back.

**Benefits:**

- One who regularly practices Halasana, Mayurasana and Dhanurasana never becomes lazy. One is always active and energetic.
- This asana gives a good massage to the abdomen so it cures prolonged constipation, dyspepsia, and other disorders of the stomach.
- Increases energy and counteracts depression.
- It cures spinal hump and rheumatism of the legs, the knees and the hands.
- It reduces fat. It activates the intestines and increases the digestive power.
- It nourishes all the abdominal organs by supplying blood to them. This asana is a blessing to those who suffer from gas and other intestinal disorders.
- Stretches the chest and lungs.
- This asana is very beneficial especially to women because it alleviates the menstrual disorders and improves the reproductive system.
- This asana rejuvenates the spine. It prevents bones from being untimely degenerated.
- It activates the pancreas and insulin is produced in proper proportion.

**ARDHA MATSYENDRASANA**

- 1) Sit in dandasana, bend the left leg and it put under the right hip.
- 2) Now, bring the right feet across the left knee.
- 3) Inhale and raise the left hand up.
- 4) Exhale and catch the right feet with the left hand.
- 5) Keep the right hand on the spine.
- 6) Bend the neck and the body towards the right side.
- 7) Try to bring both the shoulders in one line.
- 8) Hold
- 9) Slowly return to the starting position.

10) Repeat the practice in opposite direction.

**Benefits:**

- Tones and strengthens abs and obliques
- Stretches and energizes the spine
- Open the shoulders, neck, and hips
- Increases flexibility, especially in hips and spine
- Cleanses the internal organs
- Improves digestion and elimination of wastes
- Relieves symptoms of backache, fatigue, menstrual discomfort and sciatica
- Stimulates liver, heart, lungs, kidneys and spleen
- Releases excess heat and toxins from organs and tissues

**PASCHIMOTTANASANA**

- 1) Sit in dandasana.
- 2) Take a deep breath in and lift both hands up near the ear.
- 3) Exhale and try to catch the feet and touch the forehead on the knees.
- 4) Don't force yourself and do as much as possible.
- 5) Hold the pose according to the capacity.
- 6) Inhale and raise both the hands up, then exhale and come back in dandasana.

**Benefits:**

- Stretches your shoulders, spine and hamstring muscles
- Stimulates your kidneys, liver and uterus
- Results in better digestion, increases your appetite
- Good for reducing weight and obesity

- Highly beneficial in cases of high BP, sinusitis and asthma
- Relieves symptoms of dysmenorrhea and menopause
- Soothes anxiety headache and helps reduce fatigue
- Relieves stress and tension by calming the brain

### **TADASNA**

- 1) Stand straight and open the legs, equal to the shoulders.
- 2) Interlock the hands.
- 3) Inhale and raise the hands and heels up simultaneously. Maintain the body on the toes.
- 4) Stretch the body upward.
- 5) Hold the pose according to the capacity.
- 6) Exhale and slowly return to the starting position.

#### **Benefits:**

- Improves posture
- Strengthens thighs, knees, and ankles
- Increases awareness
- Steadies breathing
- Increases strength, power, and mobility in the feet, legs, and hips
- Firms abdomen and buttocks
- Relieves sciatica
- Reduces flat feet
- Develops strength and flexibility simultaneously, especially in the spine
- Relieves tension, aches, and pains throughout the body
- Improves blood circulation
- Encourages healthy digestion and elimination
- Leaves you feeling refreshed and rejuvenated
- Expels dullness and depression
- Harmonizes the body and mind
- Increases energy and enthusiasm

## **GARUDASANA**

- 1) Stand straight and wrap the left leg across the right leg.
- 2) Bend the legs.
- 3) The feet of the left leg should be on the right calf.
- 4) Also wrap the hands and make Namaskar mudra, hold the pose.
- 5) Repeat the practice by changing the legs and hands.

### **Benefits:**

- Practicing this asana regularly strengthens your legs and hands. It gives a good massage to your calf muscles, thighs, arms and shoulders.
- It helps you to learn balancing. It increases your concentration.
- When you perform this asana, your blood vessels automatically get stretched which increases blood circulation and strengthens the blood carrying vessels.
- It avoids joint-pain and knee pain. Practice this asana regularly and keep pain away.
- Twisting exercises are always considered to be the best for the body as they give a good massage to most of your body parts and boost flexibility.

## **SHAVASANA**

- 1) Lie down in Supine position.
- 2) Open the legs and maintain the gap 1 -1 ½ feet.
- 3) Keep the hands little apart from the thighs and palms facing upwards.
- 4) Relax the body and start deep inhale and exhale.
- 5) Keep the eyes close.

### **Benefits:**

- It removes fatigue of the body and pacifies the wandering mind.
- This is the best way to take complete rest.
- Energy from the non fatigued organs is redistributed to the fatigued ones.

- All the organs of the body, both external and internal are relieved of stresses and strains.
- It alleviates all the tensions of body and mind.
- The practice of shavasana will make you enjoy a sound sleep. The sleep will also be efficient- more rest in less time. This will make us more calm, alert and energetic.
- It regulates the respiratory system and brings high blood pressure down to normal.
- A natural harmony between the body and the mind is established. The practitioner becomes more contented and achieves greater equanimity of mind.
- Equability, freshness, energy, harmonious body and mind and an unflinching health are the blessings of shavasana. Beauty of the soul radiates itself in the charm of outer personality.
- Heart disease, insomnia, nervous debility, mental imbalance, weak memory, fear-psychosis and many other psychological ailments are cured by this asana.
- Practice of this asana after meals aids digestion.

### **MAKRASANA**

- 1) Lie down in Supine position.
- 2) With the help of both Elbows raise the Chest and keep the chin over both the palms.
- 3) Keep and maintain the distance of 2 -3 feet between both the legs, keep heels in and toes out.
- 4) Close the eyes.

#### **Benefits:**

- Lengthens the spine gently
- Release lower back compression
- Relaxes the body
- Calms the mind
- Therapeutic for high blood pressure
- Helps relieve fatigue

## **PADMASANA**

- 1) Sit in Dandasana by keeping both the legs straight.
- 2) Bend the left leg & keep the feet on the right thigh.
- 3) Then bend right & keep its feet on left thigh
- 4) Put both the hands over the knees.
- 5) Head, Neck, Spine should be keep straight.

Change the leg and do same with another leg.

### **Benefits:**

- Opens up the hips
- Stretches the ankles and knees
- Calms the brain
- Increases awareness and attentiveness
- Keeps the spine straight
- Helps develop good posture
- Eases menstrual discomfort and sciatica
- Helps keeps joints and ligaments flexible
- Stimulates the spine, pelvis, abdomen, and bladder
- Restores energy levels

## **GOMUKHASANA**

- 1) Sit in dandasana.
- 2) Fold the left leg and put under the right thigh.
- 3) Now fold right leg and put near the left thigh

- 4) Try to keep both the knees one over another.
- 5) Inhale and lift right hand up near the ear and try to catch the left hand at the back.
- 6) Keep the spine straight and maintain the pose.
- 7) Change the legs and hands
- 8) Repeat the same.

**Benefits:**

➤ Stretches your hips, thighs, ankles and chest, shoulders, anterior deltoids, triceps, inner armpits and lats

**PRANAYAMA**

**UJJAYI**

- 1) Sit in any meditative pose like sukhasana, padmasana etc.
- 2) Keep both the hands on the knees in gyan mudra.
- 3) Inhale with both the nostrils while contracting the throat and producing the sound of the baby snores or sound of the sea waves, perform the kumbhaka (holding the breath) by doing jalandar bandha.
- 4) Release the kumbhaka by lifting the chin up and keep the neck straight, exhale with the both the nostril while producing the same sound.
- 5) Repeat the process.

### **Benefits:**

- It has tremendous healing effect ohm Thyroid related problem and also controls snoring. It is very useful for other throat related problem such as Tonsil. Patients have also relief in Asthama and cold.
- The warmth of the head is reduced, and lung diseases like asthma, tuberculosis etc. is cured. It enhances the capacity of digestive systems, respiratory systems etc.

### **NADI SHODHAN**

- 1) Sit in any meditative pose like sukhasana, padmasana etc. and keep the neck and spine straight.
- 2) With the right hand make the pranav mudra by folding index and the middle finger and touching them at the end of the thumb, now close the right nostril with the help of the thumb and exhale slowly-slowly with the left nostril, then inhale with the left nostril close the nostril with the rest of the 2 fingers and then do kumbhaka with the help of Jalandar bandha by touching the chin on the chest then lift the chin up , release the thumb from the right nostril and exhale slowly.
- 3) Now inhale with the right nostril, perform the kumbhaka then exhale with the left nostril. The left hand should be in gyan or chin mudra.
- 4) Continuously repeat the same process.
- 5) Keep the spine and neck straight.

### **Benefits:**

- Excellent breathing technique to calm and center the mind. Our mind has a tendency to keep regretting or glorifying the past and getting anxious about the future. Nadi Shodhan pranayama helps to bring the mind back to the present moment.
- Works therapeutically for most circulatory and respiratory problems.

- Releases accumulated stress in the mind and body effectively and relax it.
- Helps harmonize the left and right hemispheres of the brain, which correlate to the logical and emotional sides of our personality.
- Helps purify and balance the nadis, the subtle energy channels, thereby ensuring smooth flow of prana (life force) through the body.
- Maintains body temperature.

### **SURYABHEDAN**

- 1) Sit in any meditative pose like sukhasana, padmasana etc.
- 2) Keep both the hands on the knees in gyan mudra and keep the spine and neck straight.
- 3) With the right hand make the pranav mudra and inhale with the right nostril and then perform the kumbhaka, release the kumbhaka and then exhale through the left nostril.
- 4) Repeat the same process.

### **Benefits:**

- It increases the body temperature, which removes the Kafa (mucus) imbalance. This is very effective in obesity. Regular practice of Right nostril breath is used for weight loss.
- Prana increases in the body, increasing the vitality.
- Very effective for depression, low energy.
- Very effective for stress management.
- Helps reducing the anxiety, depression and other mental illnesses.

➤ Balancing Ida and Pingala removes all the blockages in the pranic energy channels, which may lead to spiritual awakenings.

➤ It gives all the benefits of deep breathing as well.

### **BHASTRIKA**

1) Sit in any meditative pose like sukhasana, padmasana etc.

2) Keep both the hands on the knees in gyan mudra and keep the spine and neck straight.

3) Inhale- exhale forcefully through the nose until we get tired after this make the pranav mudra with the right hand and inhale with the right nostril then perform kumbhaka, release the kumbhaka and exhale through the left nostril. The left Hand should be in gyan mudra.

4) Repeat the same process.

### **Benefits:**

➤ Relieves inflammation of the throat

➤ Increases gastric fire

➤ Removes diseases of the nose and chest and eradicates asthma etc.

➤ It gives good appetite.

➤ It breaks and dissolves the tumors.

➤ It enables one to know the Kundalini.

➤ It removes all diseases which arise from excess of wind, bile and phlegm.

➤ It gives warmth to the body.

➤ Purifies the Nadis considerably

- Very much useful in Muscular Dystrophy and Oxygen deficiency disorders.
- This Pranayama brings about a proper balance of the three Doshas i.e. Vata, Pitta, and Kapha, and maintains their balance. Blood is purified and the body gets rid of foreign objects and toxins.
- Stabilizes Prana and calms mind, and helps the upward journey

### **Administration of test**

### **Physical Variables**

### **Muscular endurance (Burpee test)**

**Objectives:** This test measures the rapidity by which one can change body position.

**Equipments:** A stopwatch

**Administration:** With the help of a trained helper, the tester gives a live demonstration of various changing positions of the body along with test instructions to a group of 10 to 15 subjects at a time.

The subject is asked to take a standing position, and the tester speaks ready, steady and go. At the word 'go' the tester starts the stopwatch and the subject starts performing the test by bending at the knees and waist, place the hands on floor in front of the feet that is he/she takes the squat rest position, then quickly thrusts the legs backward to a front leaning rest position, again returns to the squat position and the rises to a standing position. The subject continues repeating the above positions as rapidly as possible with his/her best efforts till the tester asks to stop. The command 'stop' is given by the tester exactly after 10 seconds from the start of the test.

### **Scoring-**

The number of parts of the squatting exercises is completed in 10 seconds is taken as score of the test. Each cycle from standing to standing position consists of four parts (4 points).

### **Static Balance (Stork stand test)**

**Objectives:** The test used to measure the static balance on the ball of foot.

**Equipment:** A stopwatch

**Test Administration:** the performer was asked to stand on the foot of the dominant leg and to place the ball of the other foot on the inside of the supporting knee. The subject was instructed to place the hand on the respective side of the waist. The subject was informed that he/she were to stand on the ball of the foot by raising his/her heel from the floor on the signal "Start". The tester then announces, Ready, Steady, Start. On the signal "start", the subject raises the heel from the floor to maintain the balance as long as possible without moving the ball of the foot from the floor from its initial position, and the tester start the stop watch. The performer is also encouraged to maintain balance with his/her best efforts and not to let the heel to touch the floor for the longest duration. As soon as the subject loses the balance, indicated either by touching heel to the floor or by the movement of the foot from initial position, the tester stops the stopwatch.

**Scoring:** the score was given by the time in second for the duration of the maintenances of the balance on the ball of foot as described above in test administration

### **Physiological Components**

#### **Vital capacity**

**Objective:** To measure vital capacity of subjects.

**Procedure:** Vital capacity was measured in litres by using Wet-spirometer. The spirometer was brought in to zero position. The subject performed maximum inspiration and after closing the nose, the air was blown intensely in the mouth piece of the spirometer. Then the amount of expired air was read directly from the calibrated scale and that was the score of vital capacity.

**Scoring:** The vital capacity of the subjects was recorded in litres.

### **Maximum Breath holding capacity (antara kumbhak)**

**Objective:** To measure breath holding of subjects.

**Equipment:** stop watch.

**Procedure:** To measure the breath holding, the subjects was instructed to place the nose lip tightly. They were asked to inhale through the mouth to the maximum capacity. As soon as the subjects took a deep breath to the fullest capacity of their lungs and close the lips, the stop watch was started. As soon as the subjects opened their lips to exhale, the stop watch was stopped and the time recorded through the watch was recorded as the score of breath holding.

### **Resting pulse Rate**

**Objective:** To measure the pulse rate of each subject per minute

**Equipments:** stop watch.

**Procedure:** The pulse rate of all the subjects will be recorded in a sitting position. Before taking heart rate the subjects were asked to relax about 30 minutes.

The heart rate, each subject was recorded to count the heart beat for one minute by palpation of the carotid artery. The subject was requested to lie down quietly for ten minutes before taking his heart rate.

**Scoring:** The number of heart rate per minute was recorded as the scores of subject.

### **Blood Pressure (Systolic & Diastolic Pressure)**

**Objective:** To measure the diastolic and systolic blood pressure of the subject

**Equipment required:** Mercury sphygmomanometer, cuff, and stethoscope.

**Procedure:** The sphygmomanometer was placed on a bench where the subject cannot see the mercury column. Blood pressure was recorded after the subject has rested quietly for 5 minutes, and this measure should precede all other measures. The subject was seated with the arm resting on the bench, the elbow approximately at the level of the heart. The cuff was attached, the pressure then increased to approximately 180 mm Hg. The stethoscope was placed over the brachial artery in the cubital fossa. The pressure was released at a rate of approximately 2 mm per second. The pressure at which the first sounds was heard (systolic pressure) and the pressure when all sounds disappear (diastolic pressure) was recorded.

**Measurement:** Blood pressure was recorded in the units of millimeters of mercury (mm Hg).

### **Collection of Data**

The data for proposed study was collected from 80 students(40 boys & 40 Girls) by administering test for each physical and physiological component i.e., Muscular Endurance, Static Balance, Vital Capacity, Maximum Breath Holding Capacity(Antara Kumbhak), Resting Pulse Rate, Systolic & Diastolic Blood Pressure.

### **Research Design**

Keeping in view the purpose of the present study the investigator adopted the experimental Design method to examine the effects of training ability with the help of Yogic asanas and breathing exercises among the school students belonging to the Haldia Government sponsored Vivekananda Vidyabhawan of Purba Medinipur district, West Bengal, India.

### **Statistical Technique**

The below mentioned statistical technique was used to fulfill the need of objectives of the study:

1. Descriptive Statistics
2. Analysis of Co-Variance (ANCOVA)

(The hypothesis was tested at 0.05 level of significance. The statistical analysis was done with the help of SPSS 16 version)