Chapter - III

METHODOLOGY

In this chapter selection of subjects, variables used, experimental design, training programme, manuals and procedures of test and statistical treatment of data have been discussed.

Selection of Subjects:

The purpose of this study was to find out the effect of selected yogic practices on selected psycho-physiological variables of prisoners of Meerut, Mandaliya Karagar (Jail). The subjects for the study were randomly selected for the purpose of the study. The subjects were divided in two equal groups: Group A and Group B, Group A was Experimental, (N=100) and B was Control (N=100). The age of the subjects was ranging between 18 to 30 years.

Criterion Measure:

The data on selected psychological and physiological variables was collected by using following standard tools and techniques before starting the training programme and after training, were utilized in collection of the data

Psychological Criterion:

Attitude - Attitude Opinioniare (Hamare dristikona) of N.S. Chauhan and Saroj Arora,

Aggression Aggressions Inventory (A. Inventory) of M.K. Sultania of Agra

Anxiety – Comprehensive anxiety test (C.A.Test) of Dr. Harish Sharma, Dr. R.L. Bhardwaj and Dr. Mahesh Bhargav of Agra

Personality- 16 PF test of Dr. Raymond Cattell, Hindi version prepared by Dr. S.D. Kapoor

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1 N.S. Chauhan and Saroj Aurora; Hamarey- Dristicona (Attitude Scale); (Meerut : Manovigyan Anushandhan-peeth; 1997), p.p-1-8
3 Dr. R. L Bhardwaj, Dr. H. Sharma and Dr. M. Bhargave ‘Comprehensive Anxiety test’, Agra.
4 Dr. Raymond Cattell (1949), 16 PF test, (Form A) Revised by Dr. S.D. Kapoor.
Physiological Criterion:

Blood Pressure -- Sphygmomanometer and stethoscope

Pulse Rate -- Manually through Redial artery

Vital Capacity -- Dry Spirometer (Developed and manufactured by Lovely Electronics, Lampur Road, Bankner, Rajasthan.)

Cardio vascular Endurance -- Harvard Step Test\(^5\)

Selection of variables: There is only one independent variable in the study i.e. Yogic Practices.

Reliability:

Instrument reliability: The instrument reliability was established before the data collection through testing by three different testers on 10 students with the same instrument and time. The reliability coefficient of the data obtained was 0.96.

Tester’s reliability: The tester reliability was established before the data collection through testing 10 students repeatedly thrice with the same instrument and time. The reliability coefficient of the data obtained was 0.86.

Administration of test:

The data from the subjects were collected twice before and after the yogic training programme with the same procedure discussed below. Researcher well studied the all manual of psychological variables before the data collection. Data from each psychological variable was collected on different days. The data collection from both groups of the subjects was completed in ten days.

Collection of data:

Psychological Variables:

**Attitude:** The attitude of the prisoners was measured through standard questionnaire of Dr. N S Chauhan and Saroj Arora. Researcher studied the complete manual before the data collection. Researcher distributed the photocopies of questionnaire along with answer sheet to the all the selected subjects for the study and asked not to open the questionnaire before instruction. Researcher instructed them how to the answer the question on answer sheet. Researcher read out the question one by one and asked them to fill the answer sheet given to him. All the experimental and control group prisoners were filled the answers of the questions. Researcher collected the question booklet and answer sheet separately and tagged it. Later researcher filed sheet III for the scoring on the basis manual and of answer sheet filled by subjects.

![Prisoners filling questionnaires under the observation of the researcher](image)

**Aggression:** Aggression of the prisoners was measured by standard questionnaire of Dr. M.K. Sultania. a proper instruction was given to the prisoners before distributing the photocopied questionnaire. Prisoners were requested to fill the questionnaire. Researcher observed them all
and also helped them wherever they found difficulty. After they all replied and 30-45 min and returned the question booklet. The data were collected through the scoring table of the manual.

**Anxiety:** The anxiety of the prisoners was measured through standard questionnaire of Dr. R.L Bhardwaj, Aligarh, Dr. H. Sharma and Dr. M. Bhargave. Similarly, the anxiety level of the prisoners was measured after complete instruction about anxiety and how to fill the questionnaire. Researcher distributed the photocopied questionnaire and requested them to fill it. The data were collected through scoring procedure given in the manual and tabulated for both group separately.

**Personality:** The 16 personality factor questionnaire (16PF) is an objectively scorable test devised by basic research in psychology to give the most complete coverage of personality possible in brief time. The test was designed for use with individuals age sixteen and above. These sixteen dimensions or scales are essentially independent. Any item of the test contributes to the score on one and only one factor so the no dependencies were introduced at the level of scale construction. The personality of the prisoners was measured through standard questionnaire 16 PF Personality inventory of Dr. S.D. Kapoor Hindi version was utilized in the collection of data. This inventory was very lengthy in itself. Researcher simplifies the question before the prisoners and also solved their individual queries after distributing the questionnaire. They had to fill a separate answer sheet after reading the questions from the questionnaire. After duration of an hour, Researcher collected the question booklet and answer sheet. Researcher used utensil provided with the test for scoring the stens score of all 16 factors separately. The capsule descriptions of the sixteen factors are as follows.

### Factor A (Warmth)

<table>
<thead>
<tr>
<th>Reserved, detached, critical, Cool</th>
<th>Outgoing, Warmhearted, Easy going, participating</th>
</tr>
</thead>
<tbody>
<tr>
<td>The person who scores low on factor ‘A’</td>
<td>The person who scores high on factor ‘A’</td>
</tr>
</tbody>
</table>
tends to be stiff, cool skeptical, and aloof. He likes things rather than people, working alone, and avoiding compromises of viewpoints. He is likely to be precise and ‘rigid’ in this way of doing things and in personal standards, and in many occupations these are desirable traits. He may tend at times to be critical, obstructive or hard.

tend to be good natured and easy going, emotionally expressive, ready to cooperate, attentive to people, soft hearted, kindly adaptable. He likes occupations dealing with people and socially impressive situations. He ready forms active groups. He is generous in personal relations, less afraid of criticism, better able to remember names of people.

**Factor B (Reasoning)**

<table>
<thead>
<tr>
<th>Less intelligent, concrete thinking</th>
<th>More intelligent, abstract thinking, Bright</th>
</tr>
</thead>
<tbody>
<tr>
<td>The person scoring low in factor B tends to be slow to learn and grasp dull, given to concrete and literal interpretation. His dullness may be simply a reflection of low intelligence, or it may represent poor functioning due to psychopathology.</td>
<td>The person who cores high on Factor B tends to grasp ideas, a fast learner, intelligent. There is some correlation of culture, and some with alertness. High scores contra indicate deterioration of metal functions in pathological conditions.</td>
</tr>
</tbody>
</table>

**Factor C (Emotional Stability)**

<table>
<thead>
<tr>
<th>Affected by feelings, emotionally less stable, easily upset</th>
<th>Emotionally stable, Faces reality, clam Mature.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The person who score low in factor C tends to be low in frustration, tolerance for unsatisfactory conditions, changeable and plastic, evading necessary reality demands, neurotically fatigued, fretful, easily emotional and annoyed, active in dissatisfaction, having neurotic symptoms (phobias, sleep, disturbances, psychosomatic complaints etc.) Low factor C is common in almost in all forms of neurotic and some psychotic disorders</td>
<td>The person who scores high on Factor C tends to be emotionally mature, stable, realistic about life, unruffled, possessing, ego strength, better able to maintain solid group morale. Some times he may be a person making a resigned adjustment to unsolved emotional problems.</td>
</tr>
</tbody>
</table>

**Factor E (Dominance)**

<table>
<thead>
<tr>
<th>Humble, mild, accommodating, conforming</th>
<th>Assertive, Independent, aggressive competitive Stubborn</th>
</tr>
</thead>
</table>
The person who scores low in Factor E tends to give way to others, to be docile, and to conform. He is often dependent, anxious for obsession correctness. This passivity is part of many neurotic syndromes.

The person who scores high in Factor E is assertive, self assured and independent minded. He tends to be austere, a law to himself, hostile or extra punitive, authoritarian, and disregards authority.

**Factor F (Liveliness)**

<table>
<thead>
<tr>
<th>Sober, prudent, abstract, serious, and taciturn</th>
<th>Happy-go-lucky, Impulsive lively, Enthusiastic</th>
</tr>
</thead>
<tbody>
<tr>
<td>The person who scores low in factor F tends to be restrained, reticent, and introspective. He is sometimes dour, pessimistic, unduly deliberate &amp; considered smug and primly correct by observers. He tends to be a sober, dependable.</td>
<td>The person who scores high in Factor tends to be cheerful active, talkative, frank, expressive, effervescent, and carefree. He is frequently chosen as an elected leader. He may be impulsive and mercurial.</td>
</tr>
</tbody>
</table>

**Factor G (Rule Consciousness)**

<table>
<thead>
<tr>
<th>Expedient, Ecadés rules, Feels Few Obligations</th>
<th>Conscientious, Persevering, staid, rule bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>The person who scores low on factor G tends to be unsteady in purpose. He is often casual lacking in comfort for group undertaking and cultural demands. His freesom from group influence many lead to anti social acts, but at times makes him more effective, while his refusal to be bound by rules causes him to have less somatic upset from stress.</td>
<td>The person who scores high in factor G tends to be exacting in character, dominated by sense of duty, preserving, responsible, painful, “fills fills the unforgiving minute”. He is usual conscientious and moralistic and he prefers hard working people to witty companions. The inner “categorical imperative” of this essential superego (in the psychoanalytical sense) should be distinguished from the superficially similar “social ideal self” of Q+.</td>
</tr>
</tbody>
</table>

**Factor H (social Boldness)**
<table>
<thead>
<tr>
<th>Shy, Restrained, diffident, Timid</th>
<th>Venturesome, socially-bold, Uninhibited, spontaneous</th>
</tr>
</thead>
<tbody>
<tr>
<td>The person who scores low in this trait tends to be shy, withdrawing, cautious, retiring, a ‘Wallflower’. He usually has inferiority feeling. He tends to be slow and impeded in speech and in expressing himself, dislikes occupations with personal contacts, prefer one or two close friends to large groups, and is not given to keeping in contact with all that is on around them.</td>
<td>The person who scores high on factor H is sociable, bold, ready to try new things, spontaneous and abundant in emotional response. His thick skinned ness enables him to face wear and tear in dealing with people and grueling emotional situations, without fatigue. How ever he can be careless of detail ignore danger signals, and consume much time talking. He tends to be pushy and actively interested in the opposite sex.</td>
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</table>

**Factor I (Sensitivity)**

<table>
<thead>
<tr>
<th>Tough minded, self-reliant, realistic, no-nonsense</th>
<th>Tender minded, dependent overprotected, sensitive</th>
</tr>
</thead>
<tbody>
<tr>
<td>The person who scores low on factor I tends to be practical, realistic, masculine, independent, responsible, but skeptical of subjective cultural elaborations. He is sometimes unmoved, hard, cynical, and smug. He tends to keep a group operating on a practical and realistic no-nonsense basis.</td>
<td>The person who scores high in factor G tends to be tender minded, day dreaming, artistic, fastidious, feminine. He is sometimes demanding of attentions and help, impatient, dependent, impractical. H dislikes crude people and rough occupations. He tends to slow up grow performance and to upset group morale by unrealistic fussiness.</td>
</tr>
</tbody>
</table>

**Factor L (Vigilance)**

<table>
<thead>
<tr>
<th>Trusting, adaptable, Free of jealously, easy to get on with</th>
<th>Suspicious, self opinionated, hard to fool</th>
</tr>
</thead>
<tbody>
<tr>
<td>The person who scores low on factor L tends to free of jealous tendencies, adaptable, cheerful, un-competitive, concerned about other people, a good team worker.</td>
<td>The person who scores high on factor L tends to be mistrusting and doubt full. He is often involved in his own ego, is self opinionated, and interested in internal mental life. He is usually deliberate in his actions, unconcerned about other people, a</td>
</tr>
</tbody>
</table>
Factor M (Abstractness)

<table>
<thead>
<tr>
<th>Practical, careful, conventional, regulated by external realities, Proper</th>
<th>Imaginative, Wrapped up in Inner urgencies, careless of practical matters, absent minded.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The person who scores low on factor M tends to be anxious to do the right things, attentive to practical matters, and subject to the dictation of what is obviously possible. He is concerned over detail, able to keep his head in emergencies, but sometimes unimaginative.</td>
<td>The person who scores high on factor M tends to be unconventional over every day matters, Bohemian, self motivated, imaginatively creative, concerned with ‘essentials’ and oblivious of particular people and physical realities. His inner directed interests sometimes lead to unrealistic situations accompanied by expressive overbrust. His individuality tends to cause to be rejected in group activities.</td>
</tr>
</tbody>
</table>

Factor N (Privateness)

<table>
<thead>
<tr>
<th>Forthright, Natural, Artless, Sentimental</th>
<th>Shrewd, Calculating, Worldly, Penetrating</th>
</tr>
</thead>
<tbody>
<tr>
<td>The person who scores low on factor N tends to be unsophisticated, sentimental and simple. He is sometimes crude and awkward, but easily pleased and content with what comes, and is natural and spontaneous.</td>
<td>The person who scores high in factor N tends to be polished, experienced, worldly, and shrewd. He is often hardhead and analytical. He has an intellectual, unsentimental approach to situations, an approach akin to cynicism.</td>
</tr>
</tbody>
</table>

Factor O (Apprehensiveness)

<table>
<thead>
<tr>
<th>Placid, Self assured, Confident, Serene</th>
<th>Apprehensive, Worrying, Depressive, Troubled</th>
</tr>
</thead>
<tbody>
<tr>
<td>The person who scores low on factor O tends to be placid, with unshakable nerve. He has a mature unanxious confidence in himself and his capacity to deal with things. He is resilient and secure, but to the</td>
<td>The person who scores high in factor O tends to be depressed, moody, a worrier, full of foreboding, and brooding. He has child like tendencies to anxiety in difficulties. He does not feel accepted in</td>
</tr>
</tbody>
</table>
point of being insensitive of when a group is not going along with him, so that he make evoke antipathies and distrust.

<table>
<thead>
<tr>
<th>Factor Q₁ (Openness to Change)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservative, Respecting, Established Ideas, Tolera of traditional difficulties</td>
</tr>
<tr>
<td>The person who scores low on factor Q₁ tends to be confident in what he has been taught to believe, and accepts the “tried and true” despite inconsistencies, when something else might better. He is cautious and compromising in regard to new ideas. Thus, he tends to oppose and postpone change, is inclined to go along with tradition, is more conservative in religion and politics, tends not to be interested in analytical “intellectual” thought.</td>
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<table>
<thead>
<tr>
<th>Factor Q₂ (Self Reliance)</th>
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</thead>
<tbody>
<tr>
<td>Group dependent, A ‘Joiner’ and sound follower</td>
</tr>
<tr>
<td>The person who scores low on factor Q₂ tends to be preferred to work and make decisions with other people, like and depends on social approval and admiration. He tends to go along with the group and may be lacking in individual resolution. He is not necessarily gregarious by choice.</td>
</tr>
</tbody>
</table>
rather he needs group support. simply does not need their agreement or support.

### Factor Q₃ (Perfectionism)

<table>
<thead>
<tr>
<th>Indiscipline self-conflict, careless of protocol, follows own urges</th>
<th>Controlled, Socially precise, Following, Self image.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The person who scores low on factor Q₃ will not be bothered with will control and regard for social demands. He is not overly considerate careful, or pain-taking. He may feel maladjusted, and may maladjustment (especially the effective but not the paranoid) show Q₃.</td>
<td>The person who scores high in factor Q₃ tends to have strong control on his emotions and general behaviour, is inclined to be socially aware and careful, and evidence what is commonly termed as “self respect” and regard for social reputation. He sometimes tends, however, to be obstinate. Effective leaders and some paranoids, are high on Q₃.</td>
</tr>
</tbody>
</table>

### Factor Q₄ (Tension)

<table>
<thead>
<tr>
<th>Relaxed, Tranquil, Torpid, Unfrustrated</th>
<th>Tense, Frustrated, Driven, overwrought</th>
</tr>
</thead>
<tbody>
<tr>
<td>The person who scores low on factor Q₄ tends to be sedate, relaxed, composed, and satisfied. In some situations, his over satisfaction can lead to laziness and low performance, in the sense that low motivation produces little trial and error. Conversely, high tension level may disrupt school and work performance.</td>
<td>The person who scores high in factor Q₁ tends to be tense, excitable, restless, fretful, and impatient. He is often fatigued, but unable to remain inactive. In groups he takes a poor view of the degree of unity, orderliness, and leadership. His frustration represents an excess of stimulated, but undercharged, drive.</td>
</tr>
</tbody>
</table>

**Physiological Variables:**
**Blood Pressure:** The pressure created by the blood (flowing in the arteries) on the wall of the artery is known as blood pressure. Blood pressure of the prisoners was measured through the instrument named Sphygmomanometer and stethoscope. Researcher was trained to measure accurate blood pressure under the training of Dr. P.N. Ronghe, Medical Officer, Panjabrao Deshmukh Medical College, Amravati. The subject was asked to sit on the chair comfortably, researcher took his left hand and round the airbag of the sphygmomanometer on the brachial artery. Researcher pumped the air by rubber pump in the air bag till the pressure reached up to 140 mm/hg, lock the valve. He put the stethoscope below the air bag on the brachial artery and released the air by losing the valve and tried to listen the sound exerted by the blood flow on the air bag. At the point on pressure gage when first sound appeared was measured as systolic blood pressure and when the sound disappeared was measured as diastolic blood pressure.

The blood pressure of the all prisoners was measured in the same way. If someone found abnormal he was measured twice for confirmation.
Cardiovascular Endurance: It is efficiency of an individual to continue or persist in strenuous task involving large muscle group longer period of time. It was measured though Harvard Test developed by Bhrowha. A 20 inch wooden box was manufactured by the carpenter as per the requirement of the test and stop watch was used. Researcher explained the procedure of action required for the test and demonstrated before the prisoners in well manner. They were asked to perform the test to know their Cardiovascular endurance. Procedure: The subjects steps up and down on the platform at a rate of 30 steps per minute for 5 minutes. The prisoners immediately sits down on completion of the test, and the heartbeats are counted for 1 to 1.5 (1st pulse count), 2 to 2.5 (2nd pulse count), and 3 to 3.5 (3rd pulse count) minutes.
Scoring: The P E I score is equal to (100 X test duration in seconds) divided by 2 X (total heartbeats in the recovery periods).

\[
P.E.I = \frac{100 \times \text{Test duration in seconds}}{2 \times \text{Total heartbeats in the recovery periods}}
\]

Vital Capacity: Vital capacity of prisoners was measured through dry Spiro meter. It is an instrument with dial of vital capacity in liter. It is a scientifically approved and reliable equipment to measure vital capacity. Researcher explained the procedure of action required with instrument verbally and demonstrated twice before the prisoners. There is a removable mouth piece with the instrument made of plastic. Subjects had to blow the air in the mouth piece from his mouth forcefully. The dial of the dry spirometer show the reading will be the Vital capacity. I also gave the three trail chances for practice before collection of data. Data was collected later in
the same way. Every subject performed the test and the reading on the dial of the instrument was recorded and tabulated later.

(Dry Spirometer)

**Pulse Rate:** Pulse rate is the wave of increased pressure on the artery when heart pumps blood. The produced waves in minute are known as pulse rate. Researcher measured the pulse rate of the prisoners through the redial artery by using the index and middle fingers of the right palm and wrist watch. The reading was measured and written in the sheet against their names. It was also well practised by the researcher on students repeatedly.
3.6 The Administration of Yogic Practices Programme:

A twenty six week yogic training programme was developed with the help of experts and related literatures. (See annexure) This yogic practice was executed on the experimental group after the pre data collection, up to six month thrice a week for 1 hour (except Sunday). The duration of practice was pre decided for max 2 hour but jail authority allowed for only for one hour due to their daily schedule. The yogic practice included the following factors, along with their procedure used in this study.
(Prisoners doing devotional prayer and Om chanting)

A) Surya Namaskar: There was 11 steps this yogic exercise, includes Namaskar pose, Ardha Chandrasan, Uttanasan, Ekpad prasarnasan, Dandasan, Sastnga dandwatasan, Bhujangasan, Adomukhswanasan, Urdwamukhswanasan, Ek pad prasarnasan (another leg), Uttanasan, Ardha Chandrasan respectively. It was performed in progressive manner from 5 repetition upto 13 repetitions.

(Prisoners performing Surya Namaskar during training session)

Step 1

Step 2
B) Yogasanas:

Prisoners were practised the following yogasanas with understanding the basic rules of yogasans. A set of twenty five yogic asana were selected and taught in the prison on the experimental; group with the combination of pranayama, bandhas and mudras. The 26 week yogic programme was divided in 14 schedules, each schedule was followed for two week and next weeks had a different schedule with appropriate progression of load.

**Sukhasan:**

Procedure: place the right foot on the left thigh slowly and left foot below the right thigh, with the sole of the feet upwards. Spine should be straight.

**Padmasan:** It is lotus pose.

Procedure: place the right foot on the left thigh and left foot on the right thigh, with the sole of the feet upwards. The hands are either place on the lap, with palms up most. Release this asana in the reverse manner it was done. Observe the breath during the practice.
**Siddhasan:**
Procedure: Siddhasan is as like as but the both thighs should touch the floor. It will show a swastic among your feet. Observe the breath during the practice

**Vajrasan:**
Procedure: sit in dandasan position. Fold your both leg one by one from your knee and place it behind the buttock. Erect your posture and maintain this position for sometime. Observe the breath during the practice

**Tadasan:**
Procedure: it is a tree pose. In Standing position, slightly place the feet apart in normal stance to sideward it is normally shoulder width of the individual. Slowly raise the arms above the head and interlock the fingers, palm facing up or downward. Slowly raise the heel and balance on the toes. Maintain it for few seconds. Come back slowly. Observe the breath during the practice

**Ardha Chandrasan**
Procedure: raise your both hands from both side adjoin them and try to go back and draw a curve of your spine. Maintain this position for sometime. Come back to your initial position and bend forward. Observe the breath during the practice

**Ardha Kati Chakrasan:** it is pose like half moon as Id ul fitar;s moon.
Procedure: Raise your left hand draw a body curve slowly to another side as far as possible. Do the same from another side. Observe the breath during the practice

**Chandrasan:** Procedure: it is pose like moon. raise your both hands from both side adjoin them and try to go back and draw a curve of your spine and touch the floor. Maintain this position for sometime. Come back to your initial position and bend forward.
**Padhastasan:**
Procedure: In Standing position, slightly place the feet apart in normal stance to sideward it is normally shoulder width of the individual. Inhale the breath stretch your hand and take them as far as you can beyond your head. Now bring your arms forward from the front and bend your body down. Try to put your palm of yours hand on the floor and place them besides yours feet. Knee should be straight.

**Veerbhadrasan:**
Procedure: It is a warrior pose. Stand properly with abroad leg of 3-4foot in your both side. Change your torque direction towards left leg then raise your both hands slowly and adjoin them together then shift your body weight on the left leg slowly and stretch your body upward hold the position as far as possible.

**Janu sirasan**
Procedure: Sit properly in dandasan, now fold your left leg from your knee horizontally to the floor and palce it near the another leg’s knee. Now raise your hands from both side adjoin them and go downward slowly towards your feet, try to touch it put your chin on your knees. Knees should not be bend. Breathe slowly solwly and try to maintain this position. Do from another leg similarly. Come back and relax in lieing position.

**Paschimotansan**
Procedure: Sit properly in dandasan, Now raise your hands from both side adjoin them and go downward slowly towards your feet, try to touch it put your chin on your knees. Knees should not be bent. Breath slowly slowly and try to maintain this position. Come back and relax in lieing position.
Pawan muktasan
Procedure: lie down on your back, fold your both legs from your knee towards your stomach and hold it with your hands. Press your thigh on your stomach. Uphold head and put your chin to your knees. Hold as possible as you can. Release in proper way slowly.

Vakrasan
Procedure: Sit properly in dandasan, fold your left leg vertically and put it near the knee of another leg turn your torso in left direction across your upward knee by your shoulder and arms, hold the feet of your left leg with the right hand. Put your left hand on your back. Hold as possible as possible you can. Do from another side in the same way.

Gomukhasan
Procedure: Sit properly in dandasan, fold your left leg crossing your another leg horizontally and place it behind the hips. Fold your right leg across the left leg. Keeping your body straight raise your left arm upward and fold it on your back, take your right hand on your back from below try to adjoin them. Hold as possible as possible you can. Do from another side in the same way.

Sahankasan
Procedure: Sit on vajrasan, raise your both hand from your from face, now take your body downward. Lie down on your thigh, take your both hands back and place it near to your thigh.

Sarvangasan
Procedure: Lie down on your back on horizontal surface gently, raise your both leg slowly upward, hold it. Put force from your back and take your leg toward your head, place your palms on your upper back. Raise your body straight toward sky. Hold as possible as possible you can.
**Setu Banda Sarvangasan:** it is a flyover pose

Procedure: Lie down on your back on horizontal surface gently, raise your both leg slowly upward, hold it. Put force from your back and take your leg toward your head, place your palms on your upper back. Raise your body straight towards sky. Come down slowly slowly without releasing your hand from your back, put your one leg on the floor and then another. Hold as possible as possible you can.

**Bhujangasan**

Procedure: it is a snake pose, lie down on your stomach, put your both hands nearest to your chest. Leg should be adjoin together. Raise your head, then shoulder, then upper back from the floor, don’t take force from the surface. Hold it as possible as you can.

**Halasana:** It is a plough pose.

Procedure: lie down on your back, on horizontal surface gently, raise your both leg slowly upward, hold it. Put force from your back and take your leg toward your head, place your palms
on your upper back. Raise your body straight toward sky. Now take your both legs towards your head and put it on the floor. Hold it as possible as you can.

**Ardha Salbhasan**

Procedure: Lie down on your stomach, insert your both arms inside your lower abdomen (palm facing towards floor). Join your both legs and raise it upward slowly. Hold as possible as you can.

**Ardha Danurasan. It is a bow position**

Procedure: Lie down on your stomach, fold your both leg upward from your knee, put it on your hips, take your both hands back and hold your ankle, apply force from your lower back and arms, try to raise your upper body and lower body slowly. Hold as possible as you can.

**Adhomukhswanasan**

Procedure: Lie down on your front facing, put both hands nearest to your chest, raise your body upward with holding your weight on your arms. Take your head inside and put your chin to your chest now stretch your body to backward heel should touch the floor. Breathe normally and hold the final position as far as possible you can.

**Ardhamukhswanasan**

Procedure: Lie down on your front facing, put both hands nearest to your chest, raise your body upward with holding your weight on your arms. Take your body ahead with moving your hands. Take your head back and draw a curve in your spine.

**Savsan**

Procedure: lie down on your back with your legs apart from each other, both arms should also apart from each other. Close your eye, breathe deeply continuous and don’t open your eyes till it is not said to do so. Feel your body relaxed. Gradually mind your every organ of body starting from your thumb of your feet up to your head. Think it is relaxing really with sizzling it neural control. Come upward slowly by relaxing every organ individually. After loosing primary neural control on your whole body think about unconscious mind or God. Please don’t sleep, maintain this status up to 20-30min. It will refresh you.

C) **Pranayama:**
The process of controlling the Prana is called Pranayama. So pranayama is the science related to vital force supplying energy and controlling the body mind complex. Breathing is the process of taking in this vital energy and removing the waste products out of our body and mind. Generally breathing includes inhalation and exhalation but pranayama includes retention of breath (known as "Kumbhaka" in Sanskrit) as well. This is a very important process. The air can be retained in the lungs or out of the lungs. The ancient texts say that retention of air, increases the level of prana (energy) in the body, also it regulates the flow of pranic energy through out the body. So pranayama helps remove all the ailments and also can stop the aging process of the body.

Mind and breath: The mind, consisting of thoughts and emotions is closely related to the breath. When the mind is calm and relaxed, the breathing is smooth and slow. If you are stressed breathing is fast & shallow but mostly through chest. When one gets angry, the breathing becomes fast and forceful, in depressed states sighing, when in pain gasping, in anxiety shallow and rapid. In this way, the mental and emotional states affect breathing.

Rhythmic Breathing is Pranayama -

All the processes and organs like heart, brain, digestive organs, endocrine glands in the body have rhythms. Also the breathing has specific rhythms. Pranayama is Rhythmic breathing, bringing the breath in natural rhythm by controlling the process of inhalation, exhalation and retention.

Physiology of Yogic breathing -

In process of breathing, one uses diaphragm, intercostals muscles in the chest. The diaphragmatic breathing is called vertical breathing and is considered a more efficient way to inhale air than inhaling while expanding the chest which is called horizontal breathing. In Pranayama, one should utilize the diaphragm efficiently to get more oxygen without making more efforts. The diaphragm is attached to the organs like heart and lungs, also the liver, spleen, pancreas and stomach from the bottom side. Efficient movement of the diaphragm makes the functioning of these organs more efficient.

We will see Deep breathing &. Fast breathing from Pranayama Perspective in next article.
Types of pranayama-
- Quiet Breathing
- Deep Breathing
- Fast Breathing
- Tribandha and Pranayama
- Nadi Shuddhi Pranayama or Anuloma-Viloma (Alternate nostril breathing – I, Anuloma " Viloma or Alternate Nostril Breathing – II, Suryan Bhedan Pranayama (Right Nostril Breathing), Ujjayi Pranayama, Bhramari Pranayama, Pranayama from Hatha Yoga (Surya Bhedan, Bhasrika, Ujjayi, Shitali, Sitkari, Bhramari, Murchha & Plavini Pranayama)

Preparation for Pranayama

As people have attraction towards Yogasanas, similarly they have attraction to Pranayama. The process of Pranayama is concerned with the breathing, the indicator of life. And therefore, if it is done wrongly, it may do harm to the person. This fear dissuades many from taking up Pranayama. The second reason for its unpopularity is the absence of teachers who can teach it scientifically. However, it is true that if one does Pranayama unscientifically, without proper guidance, one certainly suffers. But it does not mean that it is such a difficult process, that it cannot be done by a common man. On the contrary, if it is learnt and practiced under an expert's guidance, one learns soon and experiences the wonderful and even unimaginable benefits.

In Patanjali's "Ashtanga Yoga", Pranayama appears at the fourth stage. This means unless one observes Yama-Niyama and does Asanas well, he cannot reach this fourth stage. Even the Asanas discussed here are presented in their preliminary form. Therefore, for doing Pranayama, it is not enough to have done the Asanas as mentioned here. Even after learning these Asanas and having practised them, one needs some preparation before actually taking up Pranayama. And an attempt is made to discuss that preparation. Actual Pranayama means the holding up of the process of exhaling and inhaling. And it is not possible to discuss or guide this serious aspect of Yogabhyasa in preliminary discussion. Therefore, as the preliminary exercises are discussed and which are to be done before the actual beginning of the Asanas: similarly, for Pranayama too, the preliminary exercises of breathing are designed and only this part is going to be discussed here. Before examining the exercises of breathing it is necessary to understand the process of breathing. The breathing process chiefly involves two activities, viz., inhaling and exhaling. Of these the former is called "Puraka" and the latter "Rechaka"
Yogashastra. These two activities continue non-stop right from the birth to the death of a person. The state when these two activities are made to halt is given the name "Kumbhaka" in Yoga Studies. The halt after inhaling, i.e., Puraka is called "Abhyantara Kumbhaka" and after exhaling, i.e. rechaka. It is called "Bahya Kumbhaka". Two more types of Kumbhaka are mentioned. But instead of talking of them in detail, let us turn to the process of breathing.

**Pranava Mudra for Pranayama**

The first two fingers of the right hand palm are to be curved and last two fingers are to be kept straight and to be held together. Now straighten the thumb and bending the right hand in the elbow, place the curved fingers in such a way that they come near the lips. Keep the hand from shoulder to elbow glued to the chest. Keep the right hand thumb on the right side of the nose and last two fingers on the left side of the nose. Now by pressing the thumb, the nasal cavity on the right side can be closed and by pressing the last two fingers left side cavity can be closed. The pressure should be light and on just below the nasal bone, where the fleshy part begins. With this arrangement of the fingers, one can close any of the two nasal cavities. Here only the movement of thumb and the last two fingers is expected.

Movement of other parts should be avoided. The face should be kept quite gay and relaxed in order to practice breathing more effectively. Further, in order to practice the cycle of inhaling and exhaling, six supplementary types are given. In all these types, the speed of breathing is more. These are actually the types of quick breathing. While practising these types one should first sit in one of the following Asanas: Padmasana, Vajrasana or Swastikasana. Then, the left hand should be kept in Dhyana Mudra and the right hand in Pranava Mudra. The eyes should be closed and the whole attention should be concentrated on breathing so that it will be possible to acquire it.

Type - 1

Keep both the nostrils open and then inhale and exhale with both the nasal passages. This type is nothing but quick breathing with both the nasal cavities. One should inhale and exhale with as much speed as possible and for as much time as feasible.

Type - 2
Take up Pranava Mudra and close the right nostril with the help of the thumb of the right hand, and inhale with left nostril and also exhale through the same nasal passage. In brief this type can be described as quick breathing with the left nostril.

Type - 3

In this type left nostril is to be closed and the quick breathing is done with the right nostril.

Type - 4

In this type close the right nostril, and inhale with the left nostril, and then immediately close left nostril and exhale with the right nostril. In this way try quick breathing by changing the nostrils.

Type - 5

This type of breathing is just opposite the previous one, that is, the left nostril is closed and inhaling is done with the right nostril, then immediately closing the right nostril, exhaling is done with the left nostril.

Type - 6

This type of breathing is designed by combining previous two types i.e., type 4 and type 5. First inhale with left nostril and exhale with right one, then inhale with right nostril and exhale with left nostril. Later continue the same process i.e. inhaling & exhaling with left and right nostrils alternately. Further switch to fast breathing by increasing the speed of breathing. After sufficient practice the speed of breathing can be increased immensely.

Initially one should start with eleven cycles of breathing, and it should be increased to one hundred and twenty one without any fear. However, later the breathing should be made a part of daily practice of other Asanas, and be practiced for two to three minutes. All these types can also be practised with slow inhalation and exhalation. Here it is important to note that practising these types of breathing does not mean doing Pranayama. This is simply a preparation of the actual practice of Pranayama,
TRIBANDHA AND PRANAYAMA

As Kumbhaka is important in Pranayama, so also the Tribandha. We have studied the Bandhas earlier. It is necessary to practice Jalandhar Bandh, Uddiyan Bandh and Mul Bandh while studying Pranayam. When the Pranayama is to be practiced for increased duration, the use of these three bandhas is unavoidable. If Kumbhaka is observed without the bandhas, it may be detrimental to health. This has happened before, hence before studying the Pranayama technique, the bandhas should be studied in detail and it should also be learnt how the bandhas should be used while performing Pranayama.

While fixing Jalandhar Bandh, we fold the neck a little bit forward. The pressure of the neck is felt on the breath pipe, hence the bandh is not observed while inhaling or exhaling, but after inhaling i.e. after Pooraka and it should be released before exhaling i.e. after Rechaka. That means the bandh is fixed while being in Kumbhaka. After Pooraka, while being in Kumbhaka, when this bandh is performed, it is used for stopping the inhaled air from going out. The bandh also exerts pressure on Carotial Sinus and also tries to reduce the blood pressure. If
internal Kumbhaka is observed without this Jalandhar Bandh, there is a fear of increasing the blood pressure. This risk is eliminated by performing this bandh. However, the bandh should be released before performing Rechaka. When Jalandhar Bandh is fixed while in Kumbhaka after performing Pooraka, the pressure of the air in the lungs is increased to considerable extent. This pressure is further increased by performing Uddiyan Bandh. The Uddiyan Bandh also regulates the pressure in an appropriate direction. Both the bandhas must be released while performing Rechaka after Kumbhaka. However, Mul Bandh is to be continuously performed during the practice of Pranayam. In the initial stages, Mul Bandh must be performed during Kumbhaka at least, so that the generated air pressure is kept under proper control.

In short, it means that after Pooraka, the bandhas should be fixed in the order as Jalandhar Bandh, Mul Bandh and then Uddiyan Bandh and they should be released in the reverse order i.e Uddiyan Bandh, Mul Bandh and Jalandhar Bandh before performing Rechaka.

We have seen that Pranayam means Kumbhaka. The Kumbhaka can be performed or observed after Pooraka or after Rechaka too. Kumbhaka performed after Pooraka is known as " Abhyantar Kumbhaka " ( Internal Kumbhaka ) and Kumbhaka performed after Rechaka is known as " Bahya Kumbhaka " ( External Kumbhaka ). The main text of Hatha Yoga i.e Hathapradeepika has described eight types of Kumbhakas, however they are all Abhyantar Kumbhakas. No one has given much importance to Bahya Kumbhaka, We will also limit our study of Pranayam to the studies of Abhyantar Kumbhaka.

In the eight types of Kumbhaka described in Hathapradeepika, the three procedures of Pooraka, Kumbhaka and Rechaka (inclusive of three bandhas) are enumerated. The Kumbhaka is of a single type only, however Pooraka and Rechaka are to be performed in different manners. The text states that by changing the method of Pooraka and Rechaka, the effects of Pranayam differ. The pranayama done, by performing Pooraka with the right nostril and Rechaka with the left or Kumbhaka after swift iterations of inhalation or exhalation is of a warm kind and the Kumbhaka performed after inhaling air with mouth while in Pooraka is cold, as is stated by Hathapradeepika. We will not get into the details of all these, but we will study some of the Kumbhaka Pranayamas.
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. But this has been described independently under a Nadishuddhi procedure known as "Samanu". 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. Of course, the study of Pranayam must start with such basic procedures, so that it becomes easier to study the different types of Pranayams. With this in mind, we will study this Nadi Shuddhi Pranayam first. It is necessary to sit in Padmasan for practice of Pranayam. The pose should be "Samkayshirogreevam" that means, the spinal cord must be absolutely erect, neck straight, gaze should be firmly centered in front and then the eyes should be closed. Without affecting the straight posture of the cord, loosen the body, by reducing the strain in the muscles. Pay attention to the breath.

The mind should be concentrated on the air that gradually moves in and out of the nostrils. The tip of the nose will start feeling the touch of the air. The mind should be concentrated on that touch. Do not try to control the breathing, it should be completely natural. The breathing will become gradual on its own, then try to control it gradually. Pooraka and Rechaka should be prolonged and gradual. Try to count the time measure for Pooraka and Rechaka and try to have them in the ratio of 1:2. In that pose, continue deep breathing in the same ratio (1:2) then gradually try deep Pooraka with only the left nostril. After the deep Pooraka, keeping both the nostrils closed; fix Jalandhar Bandh, Mul Bandh and Uddiyan Bandh. Kumbhaka should be of the same duration as that of Pooraka. Then release Uddiyan Bandh, Mul Bandh and Jalandhar Bandh in that order and keeping the left nostril closed, perform Rechaka with the right nostril for exactly double period. This completes half the duration of Nadi Shuddhi Pranayam. Immediately with the same right nostril, perform deep Pooraka. Keeping both the nostrils closed, perform Kumbhaka and fix all the three bandhas. When the Kumbhaka is of the same duration as that of Pooraka, releasing all the three bandhas, perform Rechaka gradually with the left nostril. This completes the rest half of one cycle of Nadi Shuddhi Pranayam. Immediately, start Pooraka with the left nostril and begin the second cycle of Pranayam. In the
initial stages, the ratio of 1 : 1 : 2 (i.e Pooraka 1, Kumbhaka 1 and Rechaka 2) is useful. We have learnt deep breathing in the ratio 1:0:2, hence here only 1 measure of Kumbhaka (pranayam) is introduced. The measure is to be gradually increased to the ideal ratio of 1: 4: 2.

**Duration**: If one second is regarded as a unit, then the Pooraka should be for 4 units, Kumbhaka for 16 and Rechaka for 8. This means total 28 seconds for half a cycle. One complete rotation will take 56 seconds i.e. approximately 1 minute. However, this does not mean that the duration of a minute is fixed for Nadi Shuddhi Pranayam. It should be possible to go through a number of rotations at the rate of one per minute. When the rotations continue, the time measure can go on changing. Sometimes, the control over the breathing is lost, sometimes it is continued on its own. At times, it may turn out to be suffocating and the practice may have to be discontinued for breathing in a natural manner. These are the hindrances in the study of Pranayama. The study of Pranayama means the ability to practice without encountering such hindrances. However, it is advisable to stop the practice when such hindrances occur. There should be no unnecessary strain on the breathing which proves harmful to the body. The duration for which the pranayama is to be practised is the time for which it can be practised easily without encountering any disturbances. Considering the gamut of the syllabus of Yoga Parichay and the abilities of the Sadhaka, it is stated that he should be able to practise pranayam with ease for a period of often minutes without facing any disturbances in the proportion of 1 : 1 : 2. The progress should be with this aim.

**Precaution**: The effect of the strain and pressure caused by the asanas reaches the internal organs only after considerable practice. However, pranayam affects the internal organs directly. To face the effects, the internal organs should have the required capability. This capability is generated through the right practice of asanas. Hence, it is advisable to practice pranayam only after a proper study of asanas for a considerable time period.

Also, certain points as under should be observed carefully:

1. The period of Pooraka should be half of that for Rechaka.
2. Pooraka and Rechaka should be of equal speed. This means the rate of the air which was at the beginning of Pooraka or Rechaka should be constant till the end. However, during Rechaka, it should be half of that in Pooraka.

3. Pooraka to be performed after Rechaka should be controlled. The air should not be breathed in suddenly. If it is observed that it is breathed in suddenly, then it is necessary to reduce the units of the Rechaka and Pooraka.

Even if Pranayam is described in such detail over here, to study it practically, the presence of the Guru is a must. When the practice is started, there are different types of difficulties or doubts. The types differ as per the health of each sadhaka. Only the Guru can solve such problems. Also, the reasons why the different problems arise should be researched so as to eliminate them. Such a guidance is beyond the purview of the book and can be given properly only by the guru.

**Anuloma Viloma or Nadi Shodhan pranayama:**

At any time, we only breathe through one nostril, left nostril is active for about 90 minutes, and after that it changes to right nostril and it remains active for another 90 minutes. This is a healthy pattern. But due to imbalances in physical and mental energies, the rhythm is unbalanced. Yoga says that left nostril is IDA Nadi which represents mental energy and mind, and right nostril is Pingala Nadi, which represents physical energy and body. If there is imbalance between Ida and Pingala then body and mind are imbalanced.

The purpose of the alternate nostril breathing is to balance these 2 forces, the mental energy and physical energy, to bring harmony between Body and Mind. Following are the benefits of Alternate Nostril Breathing - Proper supply of oxygen is ensured and carbon dioxide is effectively removed. More oxygen is made available per breath, making the breathing most efficient. Blood is purified of toxins. It is very effective for stress management. It also helps in 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.

**Practice**-Beginners can start with deep breathing practice in sitting position, (Padmasana - Lotus, Swastikasana- Auspicious, Vajrasana - Thunderbolt, Any Cross legged position in which the body can be relaxed and spine is erect.) Pranav Mudra of right hand, will help close the right
nostril while inhaling through left nostril and ring finger can close the left nostril while inhaling through right. Initially 4 seconds inhale through left and exhale for 6 seconds through right nostril, then inhale through right for 4 seconds and exhale through left for 6 seconds can be practised for about 5 minutes. With practice one can increase the counts to 4:8, or 5:10 or 6:12 seconds

**Precautions** - If you feel little bit of discomfort then you can reduce the ratio of breathing. Under no circumstances the proportion of the breathing should be forced. People who have undergone abdominal surgeries, heart surgeries, brain surgeries should consult the medical expert or consultant. Please do not rush to increase the proportions, as it will not help, but trying to practice easy ratio (4:6 seconds) for little more time may help. Initially one should start slowly by 30 inhalation and exhalations in 1 minute, and slowly build the speed to 60 rounds in 1 minute. You may practice it for about 3 minutes.

After practising for 15 to 20 days, one can increase the speed to about 80 rounds per minute and then you may even do 120 rounds in 1 minute.

**Surya Bhedan Pranayama:**

Right nostril is Pingala Nadi, which represents physical energy and body. The breath through right nostril is important for many important metabolic processes.

The purpose of the Right nostril breathing is to increase the Pranic energy, the physical energy, to revitalize the body. It increases the efficiency of digestive system, also boosts the nervous system, especially the sympathetic nervous system.

Following are the benefits of Alternate Nostril Breathing - It increases the body temperature, which removes the Kafa (mucus) imbalance. This is very effective in obesity. Prana increases in the body, increasing the vitality. Very effective for depression, low energy. Helps reducing the anxiety, depression and other mental illnesses. It gives all the benefits of deep breathing as well.

**Practice** - Beginners can start with deep breathing practice in sitting position, (Padmasana - Lotus, Swastikasana - Auspicious, Vajrasana - Thunderbolt, Any Cross legged position in which
the body can be relaxed and spine is erect.) Pranav Mudra of right hand, will help close the left nostril while inhaling through right nostril. Initially 4 seconds inhale through right and exhale for 6 seconds through right nostril or left nostril, this can be practiced for about 5 minutes. With practice one can increase the counts to 4:8, or 5:10 or 6:12 seconds

**Precautions** - If you feel little bit of discomfort then you can reduce the ratio of breathing. Under no circumstances the proportion of the breathing should be forced. People who have undergone abdominal surgeries, heart surgeries, brain surgeries should consult the medical expert or consultant. Please do not rush to increase the proportions, as it will not help, but trying to practice easy ratio (4:6 seconds) for little more time may help.

**Ujjayi Pranayama:**

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.

To perform the Pranayama: While studying Nadi Shuddhi Pranayama, we have reviewed in detail how the Pooraka, Kumbhaka and Rechaka should be performed and the conditions or certain things to be remembered while performing Pranayama. All these are necessarily observed while performing this type of Pranayama too. Wherever any change is expected, that only is outlined without reiterating the earlier descriptions.

**Pooraka:** Poorak performed in a typical manner is the characteristics of this type of Pranayama. The Pooraka is to be performed with both the nostrils. While performing Pooraka, a sound is generated when the air passes through the throat due to its friction. This sound should be consistent from the beginning of the Pooraka till its end. The chest should expand while performing the Pooraka. The stomach should not be contracted while expanding the chest. A control over the muscles of the stomach is to be exercised, so as to achieve only a little bit of
contraction, focusing the entire attention on the expansion of the chest. However, attention should be paid to the fact that while expanding the chest, the stomach also is not expanded. The Pooraka should be done at a constant pace and the sound generated should be low and pleasing to the ear. There should not be any ups and downs in the sound. The sound should come out of the upper part of the throat and not from the upper or front part of the nose. If it is generated through these parts, it may prove to be harmful for the nervous system. While performing Pooraka, the facial muscles should not be stretched. The start and the ending of the Pooraka has to be natural. At the end of the Pooraka, one should not strive to inhale further air by using more strength.

**Kumbhaka** : The Kumbhaka is to be performed as described earlier. After Pooraka, both the nostrils should be closed, Jalandhar Bandh should be fixed and the Kumbhaka should be performed. During Kumbhaka, the other two bandhas, Uddiyan Bandh and the Mul Bandh should be fixed. The Kumbhaka should be performed till such time as not to have any strain on the breathing system. Then the bandhas should be released and Rechaka should be performed. The units for which Kumbhaka is to be performed cannot be defined, but it should be performed with ease and capability. If the units for which the Kumbhaka is performed are less, then accordingly the Pooraka and Rechaka can also be adjusted.

**Rechaka** : In this type, Rechaka is to be performed by left nostril. After completing Kumbhaka, the three bandhas should be released and the left nostril should be opened. Then the chest should be contracted and the Rechaka performed at a constant pace. The pace should be gradual and the Rechaka should be performed without any hurry. During Rechaka too, glottis is to be pressed upwards and a sound should be generated as was stated in Pooraka. Rechaka should be double the time allotted for Pooraka. However, while performing such deep Rechaka, it should be limited to the time, so as to perform the subsequent Pooraka in a neat and controlled manner.

**Duration** : The duration for which Pooraka, Kumbhaka and Rechaka are performed, will change according to the capability of the Sadhaka. Hence, the time or the units are not specified. The duration should be such as can be easily performed. There should be seven continuous cycles in one rotation of Pranayama and thereafter each week, three more cycles should be added.
However, according to the capacity of each sadhaka, the duration or the number of cycles may be changed and as such no hard and fast rule can be laid down.

**BHRAMARI PRANAYAMA**

The original word in the term Bhramari is Bhramar (humming bee). This pranayam relates to the word bhramar, i.e. the sound like that of the humming bee while performing Pooraka or Rechaka. Hence, we can state that the name is quite appropriate. To perform the Pranayama: The earlier dos and don'ts and cautions apply to this type too. The pranayama should be studied while sitting in asanas such as Padmasan or Simhasan. Since the left or right nostril is not to be used independently, there is no need for Pranavmudra. The entire action is with both the nostrils.

**Pooraka :** To perform the Pooraka efficiently, first perform a gradual Rechaka and then start Pooraka. While inhaling air, the soft palate of the breathing tube in the throat area should be pressed a little so as to obstruct the air flow. Since this palate is soft and flexible, it starts vibrating and a peculiar sound is generated. Initially, the sound is hoarse and odd. However, with continuous practice, the sound turns melodious and similar to the beautiful tone of the humming bee. This sound is of a lower volume than that in Rechaka. Hence, it is termed as Bhramar Dhwani (sound of humming bee). When the Pooraka with a constant pace and the sound is complete, then Kumbhaka is performed.

**Kumbhaka :** When the Pooraka is completed, both the nostrils are closed with pranavmudra, all the three bandhas are fixed and Kumbhaka is performed. No sound is expected while being in Kumbhaka. All the three bandhas should be observed as described earlier. Initially, the duration of the Kumbhaka should be same as that of Pooraka and then gradually it should be increased with continued practice to be four times that of Pooraka.

**Rechaka :** After completion of Kumbhaka, the bandhas should be released in the order defined earlier and Rechaka should be started. The Rechaka, too should generate sound as that in Pooraka. However, the sound generated here is more in volume than that in Pooraka. This can be termed as Bhraamari Naad (sound of female humming bee) this is more melodious than earlier.
The sound should be gradual and at a constant pace without any ups and downs. With continued practice, the sound will be more clear and pleasing to the ears. The units in Rechaka should be double that that in Pooraka. After Rechaka, the next rotation can be immediately commenced.

**Duration** : The duration of the study of Pranayama cannot be limited to the duration of one cycle only. Maintaining the same proportion of Pooraka, Kumbhaka and Rechaka in one cycle, the number of cycles that can be performed at a stretch will define the duration for the Pranayama study. During this syllabus, the Pranayama should be practiced for at least ten minutes duration. Initially, only a single cycle is performed. However, with practice, the duration can be increased.

**Physical Effects** : The effects of this Pranayama have not been researched and hence cannot be definitely stated. Earlier, we have reviewed the effects of Kumbhaka performed with all the three bandhas. Those effects are no doubt present, but due to the sound, the concentration of the mind is also facilitated. The vibrations generated in the body due to the sound, also have a good effect on the internal organs and mainly the brain and the nervous system.
D) **Bandhas:**

Bandhas are special characteristics of hatha yoga. Bandha may be defined as particular action involving pressure or strain on the muscles. It is expected in the yoga to retain a farm position in bandha as it is retained in the asnas.

Bandhas are the energy locks, these locks are essential while doing the kumbhka that is retaining the air inside outside the lungs, always used in advance phase in pranayama, when it is difficult to hold the breath above the normal time, it is being used. These are very sensitive and dangerous can also harm your life. It must be practiced in the close observation of the expert. The following bandhas were practices during the programme.

**Jalandhar Bandha:** Padmasan or siddhasna are considered as best position to practice this bandhas. It is expected to contract the muscle of the neck and to press the chin firmly on the dression at the end of the throat. The neck is to bend a little for achieving this bandhas but it
should not be bend much. It is to be pressed in to the depression just as a spring is pressed with little force. The release of the force bring the spring back in to normal position.

(Prisoners performing Jalandhar Bandh during training session)

**Uddiyan Bandha:** This bandha involves action of muscles of the stomach and hence it may be performed while being in standing pose. Stand up with distance of 1-1.5 feet between the legs, bend the little in the knees and place left palm on the left knee and right palm on the right knee, bend the shoulders a little towards the front the neck also towards the front so that the weight of the body is shifted on the knees through the hands. This reduces the strain on the stomach and the muscles of the stomach can be relaxed. Inhale deeply and exhale gradually. While exhaling try to shift the muscle of the stomach towards inner side, Lift up the ribs a little bit and push the muscles from within with a gentle push toward the upward direction. the muscle of the stomach must be relaxed at this time so that they can be pushed up. This results in muscles of diaphragm being pushed upwards. This is a final stage of uddiyan bandha. Try to remain firmly in this pose. This pose is to be retained when the breath is fully exhaled when there is urgent need to inhale the bandha must be released gradually.
**Mula Bandha:** This bandha relates mainly to the muscle of anus, penis and the muscle located nearby. The muladhar chakra is supposed to be located near penis. Hence this bandh relates to muladhar chakra and it termed as mulabandha. Sit in siddhasan or padmasan, after sitting in siddhasan, the left heel is properly placed under the penis. The weight of the body creates pressure on that part. After achieving a firm pose, the anal muscles and the other supporting muscles should be contracted and moved upward.

**Mudras:**

a) **Yoga Mudra:** You should sit in vajrasan and raise your both hands from both sides, stretch your body upward and go down in front, lie on your lap relax and observe your breath.

b) **Vipritkri Mudra:** This mudra is as similar as Halasan. Lie down on your supine position, raise your both legs upward (knees should be straight), take support of from your both hands. Raise your legs till it comes on your.

c) **Singh Mudra:** Stand on your knees put your both hands in between your knees. Open your mouth and tongue out, sound like lion for three to four times. Take a 2min. puse and repeate it for four to five repetition.

**Statistical Measures:**

As a statistical measure ANCOVA and ‘t’ test was used to analyse the data collected from experimental and control group, before and after yogic programme through SPSS software.