

CHAPTER III

METHODOLOGY

Research methodology involved the systematic procedures by which the research started from the initial identification of the problem to its final conclusion. The role of the methodology was to carry on the research work in a scientific and valid manner. The purpose of the study was to find out the effect of yogic practices with and without diet modification on selected physiological, hormonal and psychological variables among menopausal women. The methodology used in this research involved the selection of the subjects, selection of the variables, experimental design, orientation of the subjects, pilot study, instrument reliability, tester's reliability, test administration and statistical technique employed for analysis of the data have been presented in detail.

3.1 SELECTION OF THE SUBJECTS

Advertisement in media was given in selecting subjects. 90 Women voluntarily come forward for the study. Medical examination was conducted and screened for 60 women. From the 60 suitable women 45 perimenopausal women were selected finally from Chennai city women are more prone to earlier problems. The subjects were from different family background and homogeneous in their perimenopausal symptoms. The subjects were selected at random by following simple random sampling design. They were in the age group of 40 – 50 years. Perimenopausal symptoms of the subjects were determined through a person's irregular period from two to twelve months. For the purpose of this study, women with hot flash, night sweat and irregular period are considered as perimenopausal stage. The subjects were randomly divided into three groups and each group contains fifteen subjects.

Group ----I -----acted as Experimental Group-I and

Group ----II -----acted as Experimental Group-II

and **Group--- III -----**acted as Control Group.

Experimental Group-I underwent Yogic Practices with Diet Modification and Experimental Group-II underwent Yogic Practices without Diet Modification, Control Group was not exposed to any treatment but kept in active rest for twelve weeks in the random group experimental study.

The requirement of the experiment procedures, testing as well as training schedule were explained to the subjects so as to get full co-operation of the effort required on their part and prior to the administration of the study. All the 45 subjects were given written information about the study and the investigator got individual consent from each subject. Further criteria included that they were not currently practicing yoga.

Ethical guidelines of the Indian Council of Medical Research, New Delhi were followed by getting consent of the subjects.

3.2 SELECTION OF THE VARIABLES

The research scholar reviewed the available various scientific literature pertaining to the present scenario of yogic practices with and without diet modification on selected physiological, hormonal and psychological variables from books, journals, and research papers, taking into consideration the feasibility of criteria, availability of instruments and the relevance of the variables of the present study, the following suitable and appropriate two independent and nine dependent variables were selected to test the experiment in table I and II.

TABLE I
SELECTED INDEPENDENT VARIABLES OF THE STUDY

| SL.NO | INDEPENDENT VARIABLES |
|--------------|---|
| 1. | Yogic Practices with Diet Modification |
| 2. | Yogic Practices without Diet Modification |

TABLE II
SELECTED DEPENDENT VARIABLES OF THE STUDY

| SL.NO | DEPENDENT VARIABLES | |
|-------|-------------------------|---------------------------------|
| 1 | PHYSIOLOGICAL VARIABLES | 1. Blood Pressure |
| | | 2. Pulse Rate |
| | | 3. Body Mass Index |
| 2 | HORMONAL VARIABLES | 1. Estradiol |
| | | 2. Follicle Stimulating Hormone |
| | | 3. Cortisol |
| 3 | PSYCHOLOGICAL VARIABLES | 1. Anxiety |
| | | 2. Adjustment |
| | | 3. Self Confidence |

3.3 EXPERIMENTAL DESIGN

The study was formulated as a true random group design from the research design consisting of a pre-test and post-test. For the purpose of the study the subjects of forty five (N=45) Perimenopausal women between the age group of 40 to 50 years were selected. The random group design was used as experimental design for the study. The subjects were randomly divided into three equal groups of 15 perimenopausal women each. Pre tests were conducted for all the 45 subjects on selected physiological, hormonal and psychological variables. After the pre test scores recorded the experimental groups went training as follows.

Group I--Experimental Group I underwent Yogic Practices with Diet Modification.

Group II--Experimental Group II underwent Yogic Practices without Diet Modification.

Group III--Control Group underwent no training

Both the experimental groups were given respective training for about six days a week from Monday to Saturday except Sundays approximately from 6.00 to 7.00 a.m. then slightly increased to one hour and 15 minutes from 6.00 to 7.15 am. Practices were introduced in progressive manner, simple to complex. After the experimental period of twelve weeks post-test were conducted and the scores were also recorded on the physiological, hormonal and psychological variables. And both

pre and posttests mean values were compared for analysis using statistical technique of Analysis of Co-variance (ANCOVA).

3.4 PILOT STUDY

The pilot study was conducted before analyzing of training program with ten subjects with the help of experts in yogic practices and diet modification to ensure the suitability, frequencies and duration of yoga practices and customization of diet modification. For this purpose ten peri menopausal women, who were not the subjects for this study were selected. The aim of the pilot study was to know the subjects capability and to know the difficulty of conducting training program and to set a clear understanding about the duration of time, which is required for conducting the test.

A pilot study was conducted to assess the initial capacity of the entire subjects in order to fix the intensity and volume of yogic practices, based on the response of the subjects in the pilot study, the training schedule was constructed however the individual differences were also considered while constructing the training program. The basic principles of training were followed while giving the training program. During the pilot study phase, the subject's intake capacity, eating habits were studied and yogic diet was tested, apart from the yogic practices suited for perimenopausal women was tested and it was found that they were within the reach of the individual's capacity. And during the training, the training schedules for group I and II were constructed the training programs, diet chart and the principles of training were followed. The number of repetitions assigned to each subject.

Pilot study considers a host of practical issues equipment needs preparation of materials and so on. It is thus a miniature version of the study in which the chosen procedures and materials work the way, they will to satisfy the needs. Thus, it is small, scaled- down version of a study used to test the validity of experimental procedures and measures.

3.5 CRITERION MEASURES

The present study was undertaken primarily to assess the effects of yogic practices with and without diet modification on selected physiological, hormonal and psychological variables among menopausal women.

By glancing the literature and in consultation with professionals and experts, the following variables were selected as the criterion measures in this study.

TABLE III
CRITERION MEASURES AND SELECTION OF TESTS

| VARIABLES | INSTRUMENT RELIABILITY | UNIT OF MEASUREMENT |
|-------------------------------|---|----------------------------|
| Blood Pressure | Sphygmomanometer and Stethoscope | mmHg |
| Pulse Rate | Panasonic Portable Automatic Arm Blood Pressure Monitor | Number of Beats per minute |
| Body Mass Index | BMI Calculation (Stature Meter 2M and standardized weighing machine) | kg/m ² |
| Estradiol | Lab test | pg./mL |
| Follicles Stimulating Hormone | Lab test | mIU/ml |
| Cortisol | Lab test | mcg/dL |
| Anxiety | Taylor's Manifest Anxiety Scale developed by Taylor (1953) consisting of 50 questions. | Marks |
| Adjustment | DYADIC Adjustment Scale developed by Spanier, G. B (1979) consisting of 32 questions. | Marks |
| Self confidence | Self-confidence questionnaire developed by Rekha Agnihotri (1987) consisting of 52 questions. | Marks |

3.6 RELIABILITY OF DATA

One month before the commencement of the investigation, a pilot study was conducted and the reliability of the data was established by randomly selecting ten perimenopausal women as subjects, To ensure reliability, test and re-test method was

executed and the consistency of scores/values were statistically tested. Between the test and re-test, a rest of four days was given to all the subjects. The same testing technicians and assisting personnel, by using the same instruments, under similar identical conditions, tested all the variables selected in the present investigations. The tests were done twice, on the same subjects. The intra-class co-efficient of correlation was used to find out the reliability of the data and the results have been given in Table IV. Since the „R“ values were much higher than the required value, the data were accepted as reliable in terms of the instrument, test and subjects. The intraclass correlation coefficient obtained for test-retest data are presented in Table IV

TABLE IV
INTRA CLASS CORRELATION COEFFICIENT OF TEST – RETEST
SCORES

| Sl.No | Variables | Coefficient of Correlation |
|-------|------------------------------|----------------------------|
| I | PHYSIOLOGICAL VARIABLES | |
| 1 | Systolic Blood Pressure | 0.92* |
| 2 | Diastolic Blood Pressure | 0.91* |
| 3 | Pulse Rate | 0.90* |
| 4 | Body Mass Index | 0.88* |
| II | HORMONAL VARIABLES | |
| 1 | Estradiol | 0.89* |
| 2 | Follicle Stimulating Hormone | 0.88* |
| 3 | Cortisol | 0.89* |
| III | PSYCHOLOGICAL VARIABLES | |
| 1 | Anxiety | 0.94* |
| 2 | Adjustment | 0.91* |
| 3 | Self-confidence | 0.90* |

* **Significant at 0.05 level of confidence**

The reliability of data was ensured by establishing the tester's competency, instrument reliability and subject reliability. All the instruments such as Sphygmomanometer, stethoscope, Blood Pressure Monitor, Weighing Machine, Stature meter, laboratory equipment and questionnaires used were standard and

therefore their calibration were accepted and accurate enough for the purpose of the study.

3.7 RELIABILITY OF INSTRUMENTS

The instruments which were required to test the selected criterion variables were, Sphygmomanometer and Stethoscope were procured and recorded from Raj Nursing Home. Panasonic Portable Automatic Arm Blood Pressure Monitor, (Manufactured by Panasonic electric works Co. Ltd, Beijing, China) was purchased from USA, Weighing Machine and Stature Meter were purchased from Chennai, All the imported instruments used in this study were in excellent condition and were purchased from reputed and reliable scientific companies. The same brands are used in many reputed hospitals and medical labs. Their calibrations were tested and accepted to be accurate enough to serve the purpose of the study. Well qualified technicians and assistants were made use of to measure the selected physiological and hormonal variables. The Taylor's manifest Anxiety scale developed by Taylor used to measure Anxiety, DYADIC Adjustment Scale developed by Spanier, G. B used to measure Adjustment and Self-confidence questionnaire developed by Rekha Agnihotri self-confidence were obtained from the Department of Yoga of the Tamil Nadu Physical Education and Sports University, Chennai, Tamil Nadu. They were used for individual setting. The testing procedure was started only after establishing reliability of the instruments.

3.8 TESTER'S RELIABILITY

Reliability was established by the test re-test processes. Subjects from all the three groups were tested on selected variables. The repeated measurement of individuals on the same test is done to determine reliability. It is a uni-variate not a bi-variate situation; it makes sense then to use a uni-variate statistics like the intra class correlation coefficient.

As for psychological variables Anxiety, Adjustment and Self-confidence, the author of the questionnaire have determined reliability and the same was adapted for this study and considered as reliable.

The reliability and validity of the Taylor's manifest Anxiety scale developed by Taylor used to measure Anxiety, DYADIC Adjustment Scale developed by Spanier, G. B used to measure Adjustment and Self-confidence questionnaire

developed by Rekha Agnihotri self-confidence of peri menopausal women were determined by the author and was treated enough for the purposes of this study.

3.9 SUBJECT RELIABILITY

The intra class correlation value of the above test and retest also indicated subject reliability as the same subjects were used under similar conditions by the same tester for the entire experimental processes. The co-efficient of reliability were significant at 0.05 level for the above test under investigation.

3.10 ORIENTATION TO THE SUBJECTS

For the collection of data, the investigator explained the purpose of training programme to the subjects and their part in the study. The investigator explained the procedures of test on selected criterion variables and gave instructions about the points and procedures to be followed by the subjects for measuring. Three sessions were spent to familiarize the subjects with the techniques used to execute the yogic practices and diet modification. It was useful to them while performing the yogic practices and diet modification correctly. The subjects were verbally motivated to attend the training session and follow the modified diet regularly. Further control group was specially instructed to avoid any special training programme till the end of the experimental period. The subjects of all the groups were motivated adequately to perform their maximum during the training and testing periods.

3.11 TRAINING PROGRAMME

The subjects were selected at random and were divided into three groups and the experimental group I was given yogic practices with diet modification and experimental group II was trained yogic practices without diet modification for duration of two hours from Monday to Saturday (six days a week) for 12 weeks. And the group III which is control group was not given any training. Yoga training programmes for selected groups are presented in the table V.

TABLE V
TRAINING PROGRAMME FOR SELECTED GROUPS

| GROUPS | PROGRAMMES |
|---|--|
| Exp Gr I Yogic Practices with diet modification | Prayer, Loosening the Joints Surya Namaskar, Asanas, Pranayama, Relaxation and Meditation. And Diet modification included Yogic Diet |
| Exp Gr II Yogic practices without diet modification | Prayer, Loosening the Joints Surya Namaskar, Asanas, Pranayama, Relaxation and Meditation |
| Control Group | No practice |

| SL .NO | NAME OF THE PRACTICES | |
|---------------|------------------------------|---|
| 1 | PRAYER | Om Sahana Vavatu |
| 2 | LOOSENING THE JOINTS | Pawana Muktasana Series |
| 3 | SURYA NAMASKAR | With Body awareness, Breath awareness & Mantra Chanting |
| 4 | ASANAS | <ol style="list-style-type: none"> 1. Padahastasana 2. Trikonasana 3. Veerabhadrasana II 4. Janusirasasana 5. Paschimotthanasana 6. Matsyasana 7. Ardha Matsyendrasana 8. Upavista konasana 9. Ustrasana 10. Gomukhasana 11. Supta Veerasana 12. Shantiasana 13. Setu Bhandasana 14. Supta Bhaddhakonasana 15. Noukasana |

16. Halasana
17. Sarvangasana
18. Dhanurasana
19. Shashanga Bhujangasana


2. Kapalbhathi,
3. Nadi Shoddhana
4. Bhrahmari
5. Sitali

- 6 **RELAXATION** Visualization of Whole Body
- 7 **MEDITATION** Chakra Meditation

A few modifications were executed for the subjects as per their capability.


3.11.1 YOGIC PRACTICES PROCEDURES AND TECHNIQUES

3.11.1.1 PRAYER SHANTHI MANTHRA (At the time of starting)

| | |
|---|---|
|  | <p>Step 1: Sit in comfortable position</p> <p>Step 2: Inhale and Exhaling pronounce A for two seconds with lips open.</p> <p>Step 3: Inhale and Exhaling pronounce U for three seconds with lips partially closed.</p> <p>Step 4: Inhale and Exhaling pronounce M for five seconds with lips completely closed.</p> |
| <p>Figure: 2</p> <p>Om.....Om..... Om.....</p> <p>Sahana Vavathu, Sahanou Bhunaktu</p> <p>Sahaveeryam-Karvavahai</p> <p>Tejaswinaa Vadhitamastu, Ma...Vidvishavahai Om.... Shanthi.....</p> | |

3.11.1.2 LOOSENING THE JOINTS - PAWANA MUKTASANA SERIES

3.11.1.2.1 PRARAMBHIK STHITI (BASE POSITION)

| | |
|---|---|
|  | <p>Step 1: Sit with the leg outstretched, feet close together but not touching.</p> <p>Step 2: Place the palms of the hands on the floor to the side.</p> <p>Step 3: The back neck and head should be comfortably straight.</p> |
| <p>Figure:3</p> | |

3.11.1.2.2 PADANGULI NAMAN (TOE BENDING)



Figure: 4

Step-1. Sit The base position.
 Step-2. Be aware of the toes.
 Move only the toes of both feet upright and the ankle relaxed.

3.11.1.2.3 GOOLF NAMAN (ANKLE BENDING)



Figure: 5

Step 1: Remain in the base position.
 Step 2: Slowly move both feet backward and forward, bending them from the ankle joints.
 Step 3: Try to stretch the feet forward to touch the floor and then drew them back towards the knees.

3.11.1.2.4 GOOLF CHAKRA (ANKLE ROTATION)

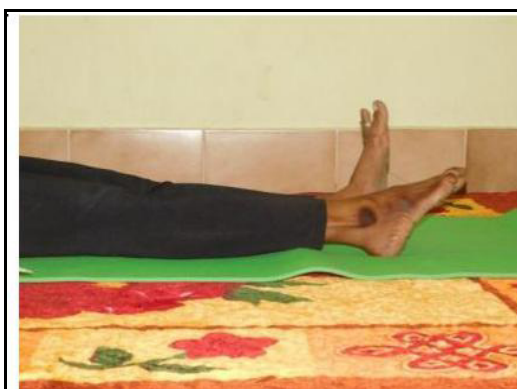


Figure: 6

Step 1: Keep the legs shoulder-width apart and straight. Keep the heels on the ground throughout the practice.
 2: Slowly rotate the right feet clockwise from the ankle and then repeat anti-clockwise.
 Step 3: Slowly rotate both feet together in the same direction.

3.11.1.2.5 POORNA TITALIASANA (FULL BUTTERFLY)



Figure: 7

Step 1: Bend the knees and bring the soles of the feet together, keeping the heels as close to the perineum as possible, fully relax the inner thigh muscles.

Step 2: Clasp the feet with both hands. Gently move the knees up and then down towards the floor, allowing them to spring up again.

3.11.1.2.6 SKANDHA CHAKRA (SHOULDER SOCKET ROTATION)



Figure: 8

. Step 1: Place the fingers of the right hand on the right shoulder and fingers of the left hand on the left shoulder.

Step 2: Touch the ear while moving up and stretch the arms back in the backward movement and touch the side of the trunk while coming down

3.11.1.2.7 GREEVA SANCHALANA (NECK MOVEMENTS)



Figure: 9

Step 1: Sit in a cross legged pose with the hands resting on the knees in jnana or chin mudra. Close the eyes. Slowly move the head forward and try to touch the chin to the chest.

Step 2: Move the head as far back as is comfortable, Feel the stretch of the muscles in front and back of the neck and the loosening of the vertebrae in the neck.

Step 3: Relax the shoulders. Slowly move the head to the right, bringing the right ear close to the right shoulder without raising the shoulders.

Step 4: Move the head to the left side and bring the left ear close to the left shoulder.

Step 5: Keep the head upright and the eyes closed. Gently turn the head to the right so that the chin is in line with the right shoulder.

Step 6: Feel the release of tension in the neck muscles and the loosening of the neck joints. Slowly turn the head to the left as far as is comfortable.

Step 7: Slowly rotate the head downward to the right backward and then to the left side in a relaxed, smooth, rhythmic, circular movement.

Step 8: Feel the shifting stretch around the neck and the loosening up of the joints and muscles of the neck.

3.11.1.2.8 PADOTTHANASANA (RAISED LEGS POSE)



Figure: 10

Step 1: Lie in the starting position with the palms flat on the floor. Inhale and raise the right leg as high as is comfortable keeping it straight and the foot relaxed. Step 2: The left leg should remain straight and in contact with the floor. Step 3: Exhale and slowly lower the leg to the floor. Do the same in the left. Step 4: Inhale and raise the legs as high as is comfortable keeping it straight and the feet relaxed.

3.11.1.2.9 PADA SANCHALANASANA (CYCLING)



Figure: 11

Step 1: Lie in the starting position and relax. Raise the right leg. Bend the knee and bring the thigh to the chest. Raise and straighten the leg completely. Then lower the straight leg in a forward movement. Step 2: The heel should not touch the floor during the movement. Raise both legs, practice alternate cycling movements as though peddling a bicycle.

3.11.1.2.10 SUPTA PAWANAMUKTASANA (LEG LOCK POSE)

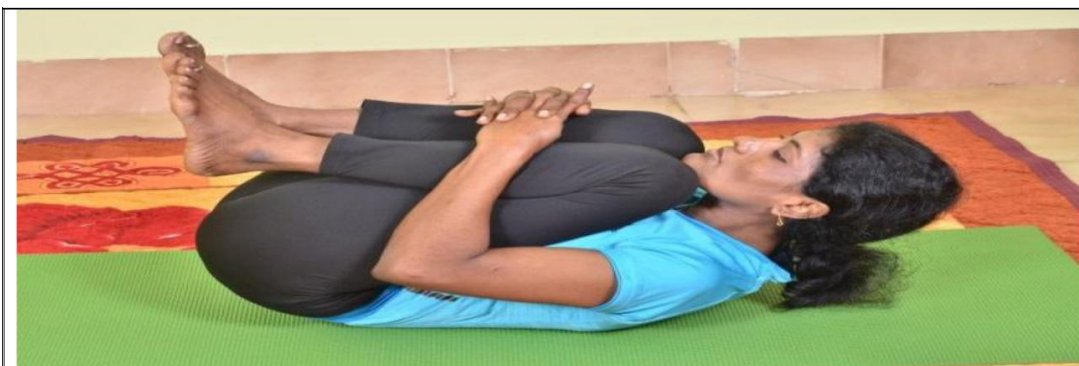


Figure: 12

Step 1: Lie in the supine position and relax, bend the right knee and bring the thigh to the chest interlock the fingers and clap the hands on the shin just below the right knee. Step 2: Keep the left leg straight and on the ground inhale deeply filling the lungs as much as possible. Exhaling raise the head and shoulders off the ground and without straining bring the right knee to the nose. Do the same in the left. Step 3: Bend both knees and bring the things to the chest. Interlock the fingers and clasp the hands on the shin bones just below the knees. Raise the head and shoulders and try to place the nose in the space between the two knees.

3.11.1.2.11 GATYATMAK MERU VAKRASANA (DYNAMIC SPINAL TWIST)



Figure: 13

Step 1: Sit on the floor with separate the legs as far apart.
 Step 2: Stretch the arms sideways at shoulder level. Keeping the arms straight, twist to the left and bring the right hand down towards the left big toe.
 Step 3: Stretch the straight left arm behind the back as the trunk twists to the left. Keep both arms in one straight line, turn the head to the left and gaze at the left outstretched hand.
 Step 4: Twist in the opposite direction.

3.11.1.2.12 CHAKKI CHALANASANA (CHURNING THE MILL)



Figure: 14

Step 1: Lie in the supine position and relax, bend the right knee and bring the thigh to the chest interlock the fingers and clap the hands on the shin just below the right knee.

Step 2: Keep the left leg straight and on the ground inhale deeply filling the lungs as much as possible. Exhaling raise the head and shoulders off the ground and without straining bring the right knee to the nose. Do the same in the left.

Step 3: Bend both knees and bring the thighs to the chest. Interlock the fingers and clasp the hands on the shin bones just below the knees. Raise the head and shoulders and try to place the nose in the space between the two knees.

3.11.1.2.13 NAUKA SANCHALANASANA (ROWING THE BOAT)

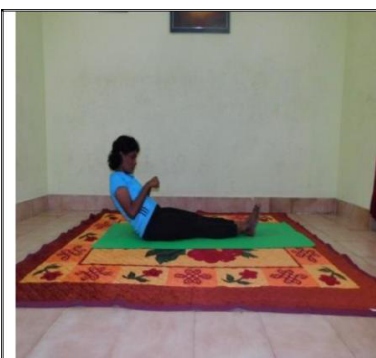








Figure: 15




Step 1: Sit with both legs straight in front of the body. Imagine the action of rowing a boat. Clench the hands as though grasping oars, with the palms facing down.




Step 2: Breathe out and bend forward from the waist as far as is comfortable, straightening the arms. Breathing in, lean back as far as possible, drawing the hands back towards the shoulders.

3.11.1.3 SURYA NAMASKAR (SUN SALUTATION)

| | |
|---|--|
|  <p data-bbox="509 701 639 730">Figure: 16</p> | <p data-bbox="808 254 1062 283">Step 1: Pranamasana</p> <p data-bbox="808 304 1247 333">Chant Manthra: Aum Hram Mitraya</p> <p data-bbox="808 354 915 384">Namah ;</p> <p data-bbox="808 405 1045 434">Breathing: Normal,</p> <p data-bbox="808 455 1230 485">Stand upright in Namaskara mudra</p> |
|  <p data-bbox="509 1268 639 1297">Figure: 17</p> | <p data-bbox="808 747 1110 777">Step 2: Hastauthanasana</p> <p data-bbox="808 798 1240 827">Chant Manthra: Aum Hrim Ravaye</p> <p data-bbox="808 848 915 877">Namah;</p> <p data-bbox="808 898 1029 928">Breathing: Inhale</p> <p data-bbox="808 949 1182 978">Raise the hands and bend back</p> |
|  <p data-bbox="509 1740 639 1770">Figure: 18</p> | <p data-bbox="808 1314 1094 1344">Step 3: Padahasthasana</p> <p data-bbox="808 1365 1256 1394">Chant Manthra: Aum Hrum Suryaya</p> <p data-bbox="808 1415 915 1444">Namah;</p> <p data-bbox="808 1465 1029 1495">Breathing: Exhale</p> <p data-bbox="808 1516 1289 1591">Bend forward and place the head on the knees and hand on the floor.</p> |

| | |
|---|---|
|  <p data-bbox="516 751 636 781">Figure: 19</p> | <p data-bbox="812 184 1071 214">Step 4: Asvasanchala</p> <p data-bbox="812 235 1266 319">Chant Manthra: Aum Hraim Bhanave Namah</p> <p data-bbox="812 340 1023 369">Breathing: Inhale</p> <p data-bbox="812 390 1226 474">Bring the right leg back, hip down raise the chest and look up.</p> |
|  <p data-bbox="516 1247 636 1276">Figure: 20</p> | <p data-bbox="812 785 1047 814">Step 5: Parvatasana</p> <p data-bbox="812 835 1274 919">Chant Manthra: Aum Hroum Khagaya Namah; Breathing: Exhale</p> <p data-bbox="812 940 1266 1075">Bring the left leg back, raise the waist and knees try to place head on the floor.</p> |
|  <p data-bbox="516 1738 636 1768">Figure: 21</p> | <p data-bbox="812 1276 1128 1306">Step 6: Astanaganamaskar</p> <p data-bbox="812 1327 1226 1411">Chant Manthra: Aum Hrah Pushne Namah;</p> <p data-bbox="812 1432 1234 1461">Breathing: Bahyakumbhaka (Hold)</p> <p data-bbox="812 1482 1234 1566">Keep eight parts on the ground and raise the hip</p> |

| | |
|---|--|
|  <p data-bbox="511 657 641 688">Figure: 22</p> | <p data-bbox="808 184 1088 216">Step 7: Bhujanagasana</p> <p data-bbox="808 237 1144 268">Chant Manthra: Aum Hram</p> <p data-bbox="808 289 1120 321">Hiranyagarbhaya Namah;</p> <p data-bbox="808 342 1144 426">Breathing: Inhale Raise the chest.</p> |
|  <p data-bbox="532 1140 787 1182">Figure: 23</p> | <p data-bbox="808 699 1047 730">Step 8: Parvatasana</p> <p data-bbox="808 751 1258 835">Chant Manthra: Aum Hrim Maricaye Namah;</p> <p data-bbox="808 856 1031 888">Breathing: Exhale</p> <p data-bbox="808 909 1128 940">Raise the waist and knees.</p> |
|  <p data-bbox="511 1680 641 1711">Figure: 24</p> | <p data-bbox="808 1239 1071 1270">Step 9: Asvasanchala</p> <p data-bbox="808 1291 1258 1417">Bring the right Chant Manthra: Aum Hrum Adityaya Namah; Breathing: Inhale leg forward</p> |

| | |
|---|---|
|  <p data-bbox="509 627 634 659">Figure: 25</p> | <p data-bbox="808 191 1094 222">Step 10: Padahasthasana</p> <p data-bbox="808 239 1247 270">Chant Manthra: Aum Hraim Savitre</p> <p data-bbox="808 289 915 321">Namah ;</p> <p data-bbox="808 340 1029 371">Breathing: Exhale</p> <p data-bbox="808 390 1122 422">Bring the left leg forward</p> |
|  <p data-bbox="509 1152 634 1184">Figure: 26</p> | <p data-bbox="808 695 1143 726">Step 11: Hastauttahasana</p> <p data-bbox="808 743 1260 774">Chant Manthra: Aum Hroum Arkaya</p> <p data-bbox="808 793 915 825">Namah;</p> <p data-bbox="808 844 1029 875">Breathing: Inhale</p> <p data-bbox="808 894 1227 926">Raise the hands up and band back.</p> |
|  <p data-bbox="509 1644 634 1675">Figure: 27</p> | <p data-bbox="808 1199 1078 1230">Step 12: Pranamasana</p> <p data-bbox="808 1247 1263 1278">Chant Manthra: Aum Hrah Bhaskaraya</p> <p data-bbox="808 1297 915 1329">Namah;</p> <p data-bbox="808 1348 1045 1379">Breathing: Normal</p> <p data-bbox="808 1398 1247 1482">Bring the hands in front of the chest and do namaskara mudra.</p> |

3.11.1.4 ASANAS (YOGA POSTURES)

3.11.1.4.1 TRIKONASANA (TRIANGLE POSE)



Figure: 28

Step 1: Keep the legs two to three feet apart and raise both hands sideways, up to shoulder level.

Step 2: Exhale; lower the right hand to touch the big toe on the right foot.

Step 3: Turn the head upwards and focus the eyes on the left thumb.

Steps 4: Then raise slowly do the same in the left.

3.11.1.4.2 VEERABHADRASANA II (WARRIOR II POSE)



Figure: 29

Step 1: Stand in Tadsana

Step 2: spread the legs about three to four feet apart.

Step 3: Turn right foot outwards by about 90 degrees and left foot inwards by about 15 degrees.

Step 4: Inhale and lift the arms sideways up to shoulder level

Step 5: Exhale, bend the right knee, turn the head, and look to the right.

Step 6: Return and repeat on the other side.

3.11.1.4.3 PDAHASTASANA (HAND TO FOOT POSE)



Figure: 30

Step 1: Stand in Tadasana.

Step 2: Inhale and lift the hands straight up

Step 3: Exhale and stretch the arms out while slowly bending at the waist.

Step 4: Keep bending until the hands reach the toes. Chin should come in contact with the knees.

Step 5: Hold the toes with the hands and remain steady. Relax

3.11.1.4.4 SARVANGASANA (SHOULDER STAND)



Figure: 31

Step 1: Lie down in the supine position.

Step 2: Raise the legs slowly upward and bring it to 90° angle.

Step 3: Bring the legs towards head by raising the buttocks up.

Step 4: Raise the legs; abdomen and chest try to form a straight line.

Step 5: Place the palms on back for support and Place the chin against the chest.

Step 6: Maintain the position for few breaths

and slowly return back to the original position.

3.11.1.4.5 MATSYASANA (FISH POSE)

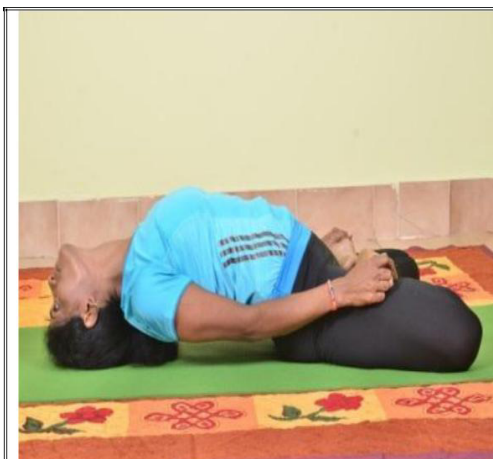


Figure: 32

Step1: Lie on back in Padma Asana:

Plant hands under lower back, raise the chest and bend the head.

Step 2: Hold big toes with hands and breathe deeply. Stay in this position for few seconds and come to normal position.

3.11.1.4.6 HALASANA (PLOUGH POSE)

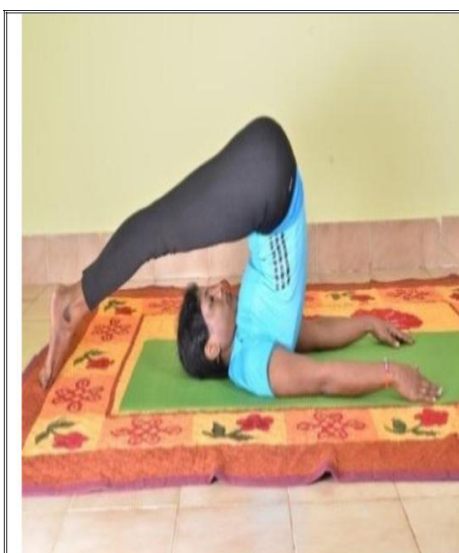


Figure: 33

Step 1: Lay down in Supine position.

Step 2: Raise both the legs together up to 90 degrees

Step 3 :Raise the buttocks and the trunk

Step 4 : Support the back with both the hands

Step 5 : Place the legs down above the head

Step 6 :Slowly bring the legs straight down

Step7: Stay for few breaths and release.

3.11.1.4.7 DHANURASANA (BOW POSE)



Figure: 34

- Step 1: Lay down in prone posture
 Step 2: Fold the Knees and hold with both hands
 Step 3: Raise the head and stretch legs and hands out
 Step 4: The spine is arched backwards like a bow
 Step 5: Slowly release hands and legs and come to starting position.

3.11.1.4.8 USTRASANA (CAMEL POSE)

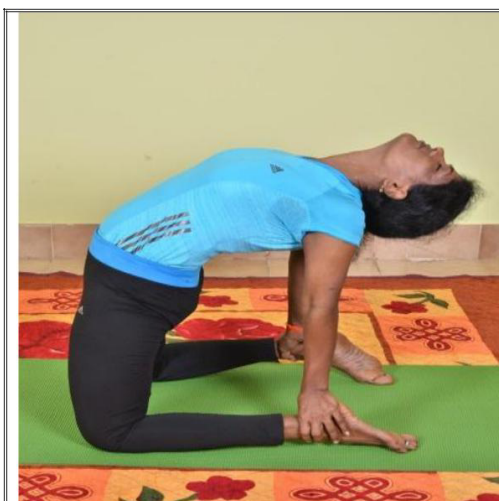



Figure: 35

- Step 1: Sit with knees bend.
 Step 2: Hold the ankles with hands.
 Step 3: Raise the buttocks from the seated position and bend head back.
 Step 4: Inhale deeply and hold for few breaths.

3.11.1.4.9 SETUBHANDHASANA (BRIDGE POSE)

| | |
|--|--|
|  | <p>Step 1: Lie on the back</p> <p>Step 2: Knee bent bring feet closer to the hip</p> <p>Step 3: Hold the ankles and raise the hip high.</p> <p>Step 4: Stay for few breaths and release.</p> |
| <p>Figure: 36</p> | <p>Figure: 36</p> |

3.11.1.4.10 NAVASANA (BOAT POSE)

| | |
|--|---|
|  | <p>Step 1: Lie in the starting position, keep the eyes open throughout. Breathe in deeply, hold the breath and then raise the legs arms, shoulders, head and trunk off the ground.</p> <p>Step 2: Balance the body on the buttocks and keep the spine straight. Remain in the final position and hold the breath.</p> |
| <p>Figure: 37</p> | |

3.11.1.4.11 SHASHANGA BHUJANGASANA (RABBIT COBRA POSE)



Figure: 38

Step 1: Resemble Shashangasana. Be sure to keep the hands in the same position throughout the practice.

Step 2: Lift the buttock from the heels and slowly begin to move forward. Slide the chest as close to the ground as possible and begin to arch the back as extend the elbows.

Step 3: Open the chest and lift the chin in the final position.

Step 4: Stay here for a few moments and then begin to move backward. Exhale, Push the hips back toward the heels.

3.11.1.4.12 ARDHA MATSYENDRASANA (HALF LORD OF THE FISHES POSE)



Figure: 39

Step: 1 Sit in dandasana with spine erect.

Step 2: Bend the right leg and place the heel of the right foot beside the left hip.

Step 3: Take the left leg over the right knee.

Step 4: Place the right hand on the left knee and the left hand behind.

Step: 5 Twist the waist, shoulders and neck in this sequence to the left and look over the left shoulder

Step 6: Exhale, release the left hand first, release the waist, then chest, lastly the neck and sit up relaxed yet straight.

Step 7: Repeat to the other side.

3.11.1.4.13 SUPTA BHADDAKONASANA (RECLINING BOUND ANGLE POSE)

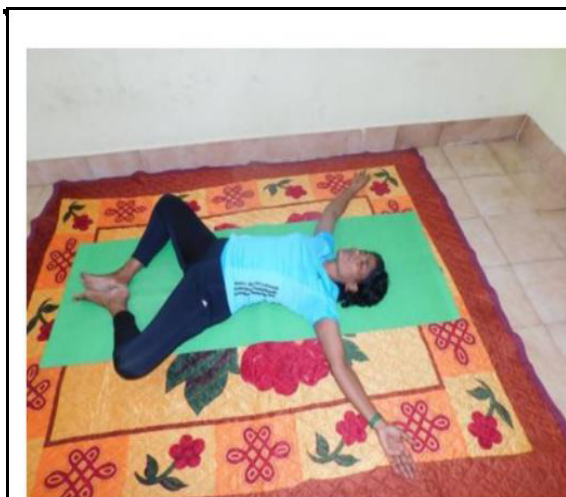


Figure: 40

Step 1: Lie down the back and bring the soles of the feet together, allowing the knees to drop open, stretching the thighs.

Step 2: Make a cactus shape with the arms to open the chest.

Step 3: Stay for few breaths and release..

3.11.1.4.14SUPTA VEERASANA (RECLINING HERO POSE)



Figure: 41

Step 1: Start this posture by first performing the Veerasana .

Step 2: Place the hands by the sides.

Step 3: Exhale and lean backwards towards the floor.

Step 4: Take the weight on to the hands and then elbows and forearms.

Step 5: While lean on the elbows, put the hands at the back

Step 6: Release the buttocks and lower back by pushing downwards towards the tailbone.

3.11.1.4.15 UPAVISTAKONASANA (SEATED WIDE ANGLE POSE)

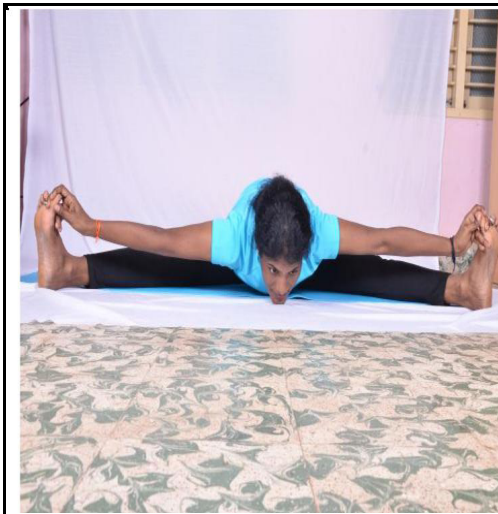


Figure: 42

Step 1: Sit with legs open to a 90 degree angle. Inhale and flex the feet to align the knees, toes pointing up to the sky.

Step 2: Exhale and allow the pelvis to tilt forward.

Step 3: Place the chin on the floor.

Step 4: Move deeper, support the low back using core musculature. Draw the muscles of the pelvic floor gently upward. Draw the lower abdomen gently in

3.11.1.4.16 JANUSIRASASANA (HEAD TO KNEE POSE)



Figure: 43

Step 1: Sit in Dandasana. Bend left leg, by the left heel press the anus.

Step 2: Inhale; Lift up the both arms over the head.

Step 3: Exhale and bend forward. Hold the right feet big toe with hands and try to touch the crown of head to knee.

Step 4: Hold the position for few seconds after that release the pose slowly and repeat on the other side.

3.11.1.4.17 PASCHIMOTTHANASANA (SEATED FORWARD BEND POSE)



Figure: 44

Step 1: Sit in dandasana with legs stretched and heels together. Back, neck and head should be held straight. Bring both the hands with the palms down, parallel to the legs.

Step 2: Inhale and proceed towards the toes and try to touch them.

Step 3: Exhale and slowly bring your head down in between the hands; stretch out the hands, toes and head.

3.11.1.4.18 GOMUKHASANA (COW FACE POSE)



Figure: 45

Step 1: Sit in Dandasana

Step 2: Gently bend the left leg and place it under the right buttock.

Step 3: Fold the right leg and place it over the left thigh.

Step 4: Place both knees close together one on top of the other.

Step 5: Gently fold the left arm and place it behind the back.

Step 6: Take the right arm over the right shoulder, and stretch it as much as until it reaches the left hand.

Step 7: Keep the trunk erect, expand your chest, and lean slightly back. Release and do the same on the other side.

3.11.1.4.19 SHANTIASANA (RELAXATION POSE)



Figure: 46

Step 1: Lie on the back with the feet comfortably apart.

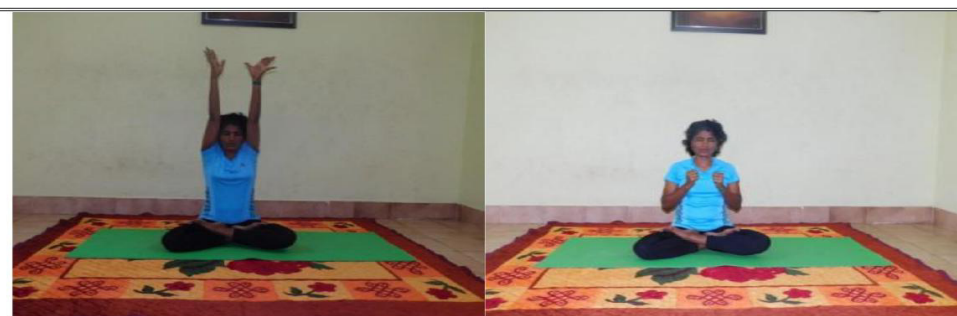
Step 2: The spinal column is straight but not rigid and the arms rest.

Step 3: The head is in line with the spine eyes and mouth is closed gently.

Step 4: Relax the body completely.

3.11.1.5 PRANAYAMAS (BREATHING EXERCISES)

3.11.1.5.1 BHASTRIKA (BELLOW BREATHING)



Fig

ure: 47

Step 1: Sit in any comfortable position. Relax the shoulders, and take a few deep, breaths in and out from the nose.

Step 2: Begin bellows breathing by exhaling forcefully through the nose. Follow by inhaling forcefully at the rate of one second per cycle.

Step 3: Make sure the breath is coming from the diaphragm; keep the head, neck, shoulders, and chest still while belly moves in and out.

3.11.1.5.2 KAPALBHATI (SKULL SHINING BREATH)



Figure: 48

Step 1: Sit in comfortable crossed leg position with back straight .Face to be relaxed.

Step 2: Exhale forcibly using abdominal muscles.

Step 3: Inhale deeply through nostril, expanding abdomen and exhale with the forceful contraction of abdominal muscles.

3.11.1.5.3 NADI SHODHANA

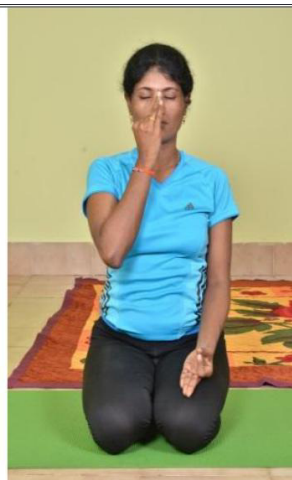


Figure: 49

Step 1: Sit comfortably in any meditative posture. Be calm and close the eyes.

Step 2: Close the right nostril with the right thumb.

Step 3: Inhale slowly through the left nostril and fill the lungs.


Step 4: After complete inhalation, press the left nostril with the ring finger of the right hand and close the left nostril. Open the right nostril, exhale slowly.

Step 5: After complete exhalation, again inhale through the right nostril and fill the lungs.


Step 6: Close the right nostril by pressing it with the right thumb.

Step 7: After opening the left nostril, breathe out slowly.

3.11.1.5.4 BHRAHMARI (HUMMING BEE BREATH)

| | |
|---|--|
|  | <p>Step 1: Sit comfortably in any meditative posture.</p> <p>Step 2: Inhale slowly and deeply through the nose. Let the inhalation caress the throat area.</p> <p>Step 3: Then gently plug the ears with the respective index fingers and closed eyes.</p> <p>Step 4: Exhale slowly producing a long and continuous humming sound.</p> <p>Step 5: Enjoy the sound and vibrations produced during these breathing techniques.</p> |
| <p>Figure: 50</p> | |

3.11.1.5.5 SITALI PRANAYAMA (COOLING BREATH)

| | |
|--|---|
|  | <p>Step 1: Sit in Easy Pose with a straight spine and take chin mudra.</p> <p>Step 2: Curl your tongue by curving the sides upward. Let the tongue stick out just past lips.</p> <p>Step 3: Inhale deeply through the tongue and mouth. Feel a cooling sensation.</p> <p>Step 4: Exhale fully through the nose. Repeat few times.</p> |
| <p>Figure: 51</p> | |

3.11.1.6 MEDITATION

3.11.1.6.1 CHAKRA MEDITATION

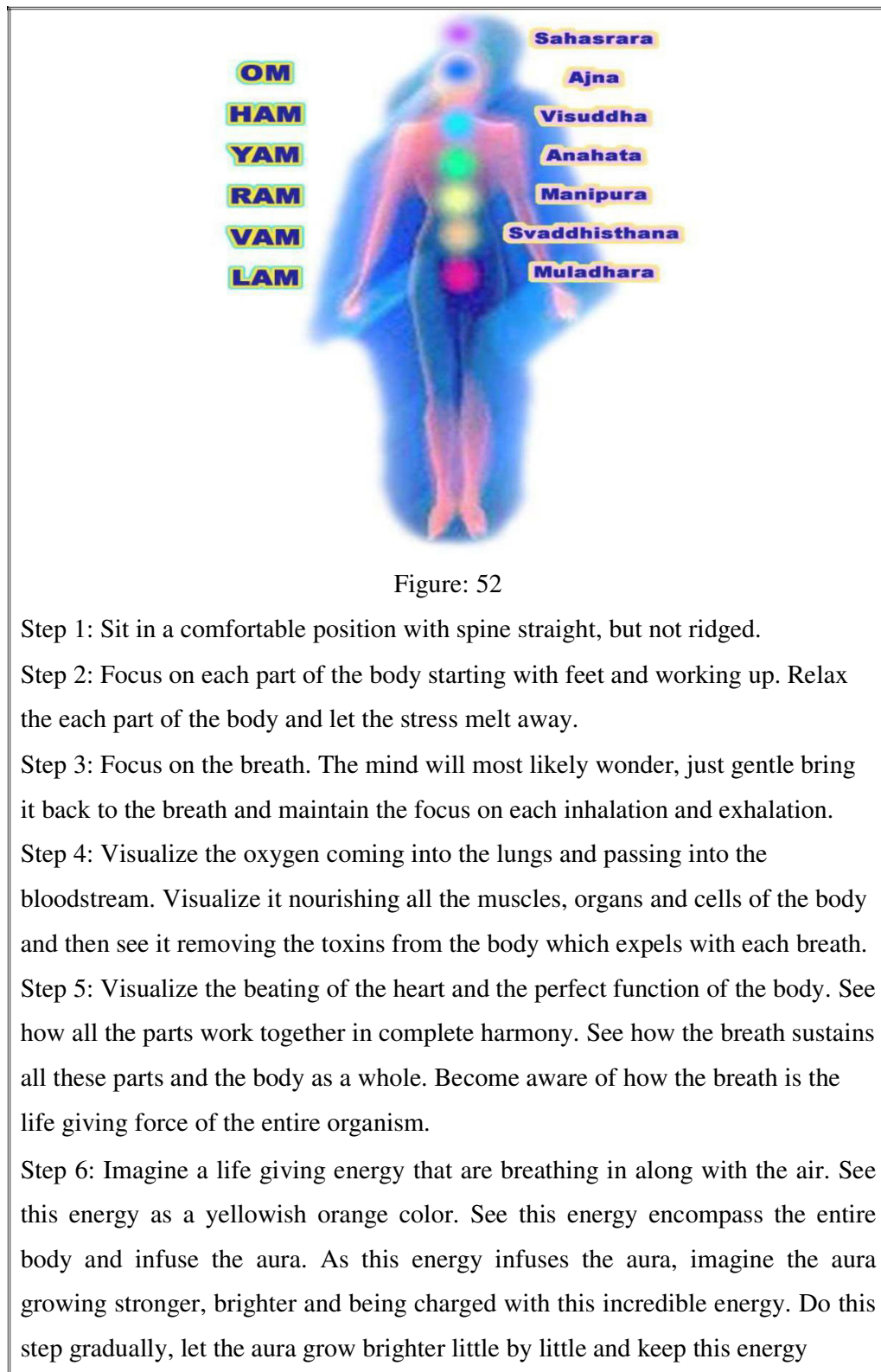


Figure: 52

Step 1: Sit in a comfortable position with spine straight, but not ridged.

Step 2: Focus on each part of the body starting with feet and working up. Relax the each part of the body and let the stress melt away.

Step 3: Focus on the breath. The mind will most likely wonder, just gentle bring it back to the breath and maintain the focus on each inhalation and exhalation.

Step 4: Visualize the oxygen coming into the lungs and passing into the bloodstream. Visualize it nourishing all the muscles, organs and cells of the body and then see it removing the toxins from the body which expels with each breath.

Step 5: Visualize the beating of the heart and the perfect function of the body. See how all the parts work together in complete harmony. See how the breath sustains all these parts and the body as a whole. Become aware of how the breath is the life giving force of the entire organism.

Step 6: Imagine a life giving energy that are breathing in along with the air. See this energy as a yellowish orange color. See this energy encompass the entire body and infuse the aura. As this energy infuses the aura, imagine the aura growing stronger, brighter and being charged with this incredible energy. Do this step gradually, let the aura grow brighter little by little and keep this energy

flowing in with each breath.

Step 7: Energize each individual chakra. Start with the root chakra in the lower back. Imagine a clockwise swirl of energy and the energy in each individual breathe in feeds this swirl and makes it strong and brighter.

Step 8: Imagine another source of energy that is coming up from the earth. This is the same life giving energy and it adds to the swirling energy at the root chakra.

Step 9: Move up to the sacral chakra. Then one by one the solar plex chakra, heart chakra, throat chakra, head chakra and finally the crown chakra, infusing each with the life giving energy. Take time with this and do not worry about spending more time on one chakra based on individual need to.

Step 10: Visualize all the chakras at once being feed by this energy coming in from the breath and up from the earth. Remember to see the chakras and aura become brighter, clearer and super charged from this life giving energy.

Step 11: Finally open the eyes and relax a couple minutes with eyes open. Pay the attention to body and how incredible and energized.

3.11.1.7 PRAYER - OM CHANTING (END OF THE PRACTICE)

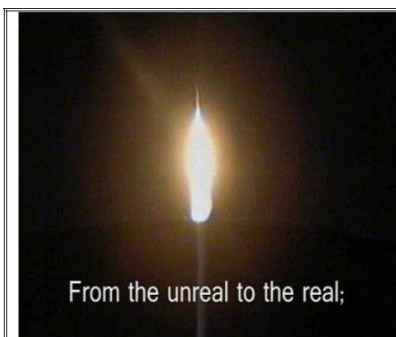


Figure: 53

Step 1 Sit in Sukhasana

Step 2 Exhale: "OMmmmmmm..."

Step 3 Inhale: "(silence)"

Step 4 Exhale: "OMmmmmmm..."

Step 5 Inhale: "(silence)"

3.12 TRAINING SCHEDULE

Training schedule followed as tables VI, VII & VIII for 12 weeks for six days a week. Modifications and properties used as per the student's capability to attain the final posture. When the subjects felt tired asked them to relax.

3.12.1 TRAINING SCHEDULE FOR EXPERIMENTAL GROUPS I- AND II

| 3.12.1.1 TABLE VI YOGIC PRACTICES FOR FIRST FOUR WEEKS (45 MINUTES OF GRAND TOTAL DURATION) | | | | | | | | | |
|--|---|---------------------------------------|----------|-------------|----------------|--------------------------------|-----------|-------------|-----------|
| | Name of the Practices | | Duration | Rest Period | Total Duration | Repetitions/ Strokes/Rounds | Breath | Grand Total | Frequency |
| 1 | Prayer | Om Sahana Vavatu | 2 min | - | 2 min | 1 time | - | 2 min | 6 |
| 2 | Loosening the Joints | Pawana Muktasana Series | 6 min | - | 6 min | 1 time | 4 | 6 min | 6 |
| 3 | Surya Namaskar with Physical Awareness | | 90 sec | 30 sec | 2 min | 2 rounds | In/ Ex | 4 min | 6 |
| 4 | | Standing: Trikonasana | 50 sec | 10 sec | 1 min | 1 time | 4 | 1 min | 6 |
| | | Veerabhadrasana II | 50 sec | 10 sec | 1 min | 1 time | 4 | 1 min | 6 |
| | | Padahasthasana | 50 sec | 10 sec | 1 min | 1 time | 4 | 1 min | 6 |
| | | Inverted: Sarvangasana | 50 sec | 10 sec | 1 min | 1 time | 4 | 1 min | 6 |
| | | Seated: Matsyasana | 50 sec | 10 sec | 1 min | 1 time | 4 | 1 min | 6 |
| | | Inverted: Halasana | 50 sec | 10 sec | 1 min | 1 time | 4 | 1 min | 6 |
| | | Backward: Dhanurasana | 25 sec | 5 sec | 30 sec | 2 times | 4 | 1 min | 6 |
| | | Ustrasana | 25 sec | 5 sec | 30 sec | 2 times | 4 | 1 min | 6 |
| | | Setu Bandhasana | 20 sec | 10 sec | 30 sec | 2 times | 4 | 1 min | 6 |
| | | Supine: Navasana | 25 sec | 5 sec | 30 sec | 2 times | 4 | 1 min | 6 |
| | | Seated: Shashanka Bhujangasana | 25 sec | 5sec | 30 sec | 2 times | 4 | 1 min | 6 |
| | | Twisting: Ardha Matsyendrasana | 50 sec | 10 sec | 1 min | 1 time | 4 | 1 min | 6 |
| | | Supine: Supta Baddha Konasana | 50 sec | 10 sec | 1 min | 1 time | 4 | 1 min | 6 |
| | | Seated: Supta Veerasana | 25 sec | 5 sec | 30 sec | 2 times | 4 | 1 min | 6 |
| | | Upavistha Konasana | 25 sec | 5 sec | 30 sec | 2 times | 4 | 1 min | 6 |
| | | Janu Sirasasana | 50 sec | 10 sec | 1 min | 1 time | 4 | 1 min | 6 |
| | | Paschimottanasana | 25 sec | 5 sec | 30 sec | 2 times | 4 | 1 min | 6 |
| Gomukhasana | 50 sec | 10 sec | 1 min | 1 time | 4 | 1 min | 6 | | |
| Relaxative: Shantiasana | 1 min | - | 1 min | 1 time | - | 1 min | 6 | | |
| 5 | | Bhastrika | 1 min | - | 1 min | 20-30 repetitions | - | 1 min | 6 |
| | | Kapalabhati | 1 min | - | 1 min | 30-50 Strokes | - | 1 min | 6 |
| | | Nadi Shodhana | 20 sec | - | 20 sec | 9 rounds | - | 3 min | 6 |
| | | Sitali | 15 sec | - | 15 sec | 4 rounds | - | 1 min | 6 |
| 6 | Meditation | Chakra Meditation | 5 min | - | 5 min | 1 time | - | 5 min | 6 |
| 7 | Prayer | Om Chanting | 2 min | - | 2 min | 1 time | - | 2 min | 6 |

3.12.1.2 TABLE VI I YOGIC PRACTICES FOR SECOND FOUR WEEKS (60 MINUTES OF GRAND TOTAL DURATION)

| SLNo | Name of the Practices | | Duration | Rest Period | Total Duration | Repetitions/ Strokes/Rounds | Breath | Grand Total | Frequency |
|--------------------------------|---|---------------------------------------|----------|-------------|----------------|--------------------------------|--------|-------------|-----------|
| 1 | Prayer | Om Sahana Vavatu | 2 min | - | 2 min | 1 time | - | 2 min | 6 |
| 2 | Loosening the Joints | Pawana Muktasana Series | 8 min | - | 8 min | 1 time | 8 | 8 min | 6 |
| 3 | Surya Namaskar with Breath Awareness | | 80 sec | 20 sec | 100 sec | 3 rounds | 8 | 5 min | 6 |
| 4 | as | Standing: Trikonasana | 50 sec | 10 sec | 1 min | 1 time | 8 | 1 min | |
| | | Veerabhadrasana II | 50 sec | 10 sec | 1 min | 1 time | 8 | 1 min | 6 |
| | | Padahasthasana | 50 sec | 10 sec | 1 min | 1 time | 8 | 1 min | 6 |
| | | Inverted: Sarvangasana | 50 sec | 10 sec | 1 min | 1 time | 8 | 1 min | 6 |
| | | Seated: Matsyasana | 50 sec | 10 sec | 1 min | 1 time | 8 | 1 min | 6 |
| | | Inverted: Halasana | 50 sec | 10 sec | 1 min | 1 time | 8 | 1 min | 6 |
| | | Backward: Dhanurasana | 25 sec | 5 sec | 30 sec | 2 times | 8 | 1 min | 6 |
| | | Ustrasana | 25 sec | 5 sec | 30 sec | 2 times | 8 | 1 min | 6 |
| | | Setu Bandhasana | 25 sec | 5 sec | 30 sec | 2 times | 8 | 1 min | 6 |
| | | Supine: Navasana | 25 sec | 5 sec | 30 sec | 2 times | 8 | 1 min | 6 |
| | | Seated: Shashanka Bhujangasana | 45 sec | 15 sec | 30 sec | 1 time | 8 | 1 min | 6 |
| | | Twisting: Ardha Matsyendrasana | 50 sec | 10 sec | 1 min | 1 time | 8 | 1 min | 6 |
| | | Supine: Supta Baddha Konasana | 50 sec | 10 sec | 1 min | 1 time | 8 | 1 min | 6 |
| | | Seated: Supta Veerasana | 25 sec | 5 sec | 30 sec | 2 times | 8 | 1 min | 6 |
| | | Upavistha Konasana | 25 sec | 5 sec | 30 sec | 2 times | 8 | 1 min | 6 |
| | | Janu Sirasasana | 50 sec | 10 sec | 1 min | 1 time | 8 | 1 min | 6 |
| | | Paschimottanasana | 25 sec | 5 sec | 30 sec | 2 times | 8 | 1 min | 6 |
| Gomukhasana | 50 sec | 10 sec | 1 min | 1 time | 8 | 1 min | 6 | | |
| Relaxative: Shantiasana | 1 min | - | 1 min | 1 time | - | 1 min | 6 | | |
| 5 | ----- | Bhastrika | 2 min | - | 2 min | 30-50 repetitions | - | 2 min | 6 |
| | | Kapalabhati | 2 min | - | 2 min | 75-100 Strokes | - | 2 min | 6 |
| | | Nadi Shodhana | 30 sec | - | 30 sec | 12 rounds | - | 6 min | 6 |
| | | Sitali | 15 sec | - | 15 sec | 8 rounds | - | 2 min | 6 |
| 6 | Meditation | Chakra Meditation | 10 min | - | 10 min | 1 time | - | 10 min | 6 |
| 7 | Prayer | Om Chanting | 2 min | - | 2 min | 1 time | - | 2 min | 6 |

| 3.12.1.3 TABLE VIII YOGIC PRACTICES FOR THIRD FOUR WEEKS (75 MINUTES OF GRAND TOTAL DURATION) | | | | | | | | | | |
|--|--|---------------------------------------|----------|-------------|----------------|----------------------------|--------|-------------|-----------|--|
| Sl.No | Name of the Practices | | Duration | Rest Period | Total Duration | Repetition/ Strokes/Rounds | Breath | Grand Total | Frequency | |
| 1 | Prayer | Om Sahana Vavatu | 2 min | - | 2 min | 1 time | - | 2 min | 6 | |
| 2 | Loosening the Joints | Pawana Muktasana Series | 10 min | - | 10 min | 1 time | 12 | 10 min | 6 | |
| 3 | Surya Namaskar with Mantra Chanting | | 60 sec | 15 sec | 75 sec | 4 rounds | In/Ex | 5 min | 6 | |
| 4 | Asana | Standing: Trikonasana | 50 sec | 10 sec | 1 min | 2 times | 12 | 2 min | 6 | |
| | | Veerabhadrasana II | 50 sec | 10 sec | 1 min | 2 times | 12 | 2 min | 6 | |
| | | Padahasthasana | 50 sec | 10 sec | 1 min | 2 times | 12 | 2 min | 6 | |
| | | Inverted: Sarvangasana | 50 sec | 10 sec | 1 min | 2 times | 12 | 2 min | 6 | |
| | | Seated: Matsyasana | 50 sec | 10 sec | 1 min | 2 times | 12 | 2 min | 6 | |
| | | Inverted: Halasana | 50 sec | 10 sec | 1 min | 2 times | 12 | 2 min | 6 | |
| | | Backward: Dhanurasana | 50 sec | 10 sec | 1 min | 1 time | 12 | 1 min | 6 | |
| | | Ustrasana | 50 sec | 10 sec | 1 min | 1 time | 12 | 1 min | 6 | |
| | | Setu Bandhasana | 50 sec | 10 sec | 1 min | 1 time | 12 | 1 min | 6 | |
| | | Supine: Navasana | 50 sec | 10 sec | 1 min | 1 time | 12 | 1 min | 6 | |
| | | | | | | | | | | |
| | | Twisting: Ardha Matsyendrasana | 50 sec | 10 sec | 1 min | 1 time | 12 | 1 min | 6 | |
| | | Supine: Supta Baddha Konasana | 50 sec | 10 sec | 1 min | 1 time | 12 | 1 min | 6 | |
| | | Seated: Supta Veerasana | 50 sec | 10sec | 1 min | 1 time | 12 | 1 min | 6 | |
| | | Upavistha Konasana | 50 sec | 10 sec | 1 min | 1 time | 12 | 1 min | 6 | |
| | | Janu Sirasasana | 50 sec | 10 sec | 1 min | 1 time | 12 | 1 min | 6 | |
| | | Paschimottanasana | 50 sec | 10 sec | 1 min | 1 time | 12 | 1 min | 6 | |
| Gomukhasana | 50 sec | 10 sec | 1 min | 1 time | 12 | 1 min | 6 | | | |
| Relaxative: Shantiasana | 1 min | - | 1 min | 1 time | - | 1 min | 6 | | | |
| 5 | Pranayama | Bhastrika | 3 min | - | 3 min | 50-75 repetitions | - | 3 min | 6 | |
| | | Kapalabhati | 3 min | - | 3 min | 100-120 Strokes | - | 3 min | 6 | |
| | | Nadi Shodhana | 30 sec | - | 30 sec | 12 rounds | - | 6 min | 6 | |
| | | Brahmari | 20 sec | - | 20 sec | 6 rounds | - | 2 min | 6 | |
| | | Sitali | 15 sec | - | 15 sec | 8 rounds | - | 2 min | 6 | |
| 6 | Meditation | Chakra Meditation | 15 min | - | 15 min | 1 time | - | 15 min | 6 | |
| 7 | Prayer | Om Chanting | 2 min | - | 2 min | 1 time | - | 2 min | 6 | |

3.12.1.4 DIET RECOMMENDATIONS FOR EXPERIMENTAL GROUP I

TABLE IX

| SL.NO | TIME | MEAL TYPES | FOOD ITEMS |
|-------|---------------|---------------|--|
| 1 | 6.00-7.00am | Early Morning | Honey Lemon/Ash Guard Juice/Soy Milk/Plantain Stem Juice/ Amla Juice/Barley Kanji/Bitter Guard Juice |
| 2 | 8.00-9.00am | Break Fast | Green Gram Sprout/ Papaya/Wheat Rava Kanji/Rice Flakes/ Chana Sprout/ Guava Fruit/ Ground Nut Sprout with Palm Sugar or Jaggery/Idly-Sambar/Dosa-Sambar/Chutney |
| 3 | 10.30-11.00am | Brunch | Fruits Juices: Papaya/Orange/Pomegranate/ Grapes/Sweet Lime/Pine Apple Tender Coconut Water |
| 4 | 12.30-1.00pm | Lunch | Unpolished Rice/ Hand Bounding Rice/ Boiled Vegetables/Dhal/ Spinach/ Sambar/Rasam/ Butter Milk Vegetables: Bottle Guard, Ash Guard, Ridge Guard, Snake Guard, Carrot, Beans. Peas, Beetroot, Drumstick, Etc. |
| 5 | 3.00-4.00pm | Snacks | Soups : Carrot, Tomato, Cabbage, Ash Guard & Green Gram/Butter Milk/Chukku Coffee/ |
| 6 | 7.00-8.00 | Dinner | Wheat Rava Upma/ Fruits/ Steam Cooked Vegetables/ Ragi Kanji/ Ragi Roti/Ragi Semia/ Chapatti |

3.12.1.5 DIET PREPARATION METHODS

3.12.1.5.1 HONEY LEMON

| INGREDIENTS | PREPARATION METHODS |
|--|---|
| Honey 1 tbs lemon juice, Lemon 2 tbs and Hot Water 1 cup | Put honey and lemon juice into a tea cup or mug. Add hot water and stir. Add more lemon juice, honey, or hot water to taste. |

3.12.1.5.2 CHUKKU COFFEE

| INGREDIENTS |
|---|
| Dry ginger powder-1 teaspoon, Coriander Seeds - 2 tsp, Black pepper corn-1/2 teaspoon, Tulsi leaves (Holy basil) -5 or 6, Panamchakkara (karupetti) or Jaggery-1 tablespoon, Water-2 cups, Guava leaves-3 or 4, Cumin seeds-1/2 teaspoon and Cardamom-2 crushed. |
| PREPARATION METHODS |
| Heat water and jaggery pieces together in the sauce pan. When it starts melting, add the powdered dry ginger, crushed black pepper, crushed cardamom and cumin seeds. When boiling, add Coriander Seeds powder and let it continue to boil for a minute. At this stage, add tulsi leaves and guava leaves and turn off the flame and close the pan with lid. Keep it for five minutes and strain the coffee into glasses and serve. |

3.12.1.5.3 BOTTLE GOURD JUICE

| INGREDIENTS |
|--|
| Bottle Gourd – 1 medium (for approx 2 glass), Ginger – 1 inch piece. Fresh Mint or Cilantro Leaves: 15-20, Black Pepper – 1-2 pinch, Black salt – to taste (optional), Cumin Powder – 1 tsp, Lemon Juice – 2-3 tsp and Water as required. |
| PREPARATION METHODS |
| Step 1: Wash, dice and blend bottle gourd, ginger, mint leaves with a cup of water in a blender for 2-3 minutes. Step 2: Add another cup of water, lemon juice, black salt, pepper powder and cumin powder and blend it for another two to three minutes. Step 3: Strain into individual glasses and serve. |

3.12.1.5.4 BITTER GOURD JUICE

INGREDIENTS

Bitter Gourd, Salt, Turmeric and Lemon

PREPARATION METHODS

Step 1: Wash the bitter gourd and peel its top skin and cut the stem into pieces and immerse in buttermilk to avoid color change.

Step 2: Grind the pieces along with curd and salt. Add more water and strain in a double cloth filter. Pour in a serving glass and garnish with little coriander leaves.

3.12.1.5.5 BANANA STEM JUICE

INGREDIENTS

Banana Stem- 1/2 no, Sour curd - 2tbsp, Salt & water - As needed, Pepper powder - 2 pinches and Coriander leaves - To garnish

PREPARATION METHODS

Step 1: Wash the bitter gourd and peel its top skin.

Step 2: Cut into fine pieces and apply salt properly by rubbing it with turmeric. Keep it for some time, and then extract the bitter juice out of it.

Step 3: Once the water strained out of the bitter gourd, and then crushes the pieces in the mixer properly.

Step 4: Just have the full juice with the fiber after adding a little bit of fresh lemon juice for taste and tangy flavor.

3.12.1.5.6 SOY MILK

INGREDIENTS

1/2 cup white soybeans, 2-3 cups water for soaking and 4 cups water for blending

PREPARATION METHODS

Step 1: Soak soybeans in 2-3 cups of water overnight.

Step 2: Discard water and rinse soybeans and remove skins.

Step 3: Add soybeans and 4 cups water to blender. Blend until smooth.

Strain the blended mixture using butter muslin or a nut milk bag. A tight-weave cloth is preferable, as twisting the top tightly enables to continue squeezing out more milk. Heat the strained milk in a heavy-bottom pan to 180°F (82°C). Hold this temperature for 20 minutes, stirring frequently to prevent sticking. Prepare soy tofu, milk, curd etc.

3.12.1.5.7 AMLA JUICE**INGREDIENTS**

Amla-3, Honey 2tea spoon or Black salt a pinch to taste

PREPARATION METHODS

Step 1: Take out the seeds from amla and cut into small pieces.

Step 2: Grind these pieces in the grinder with little water and make a paste. Mix this paste in 1 cup water and sieve it.

Step 3: Add 2 tea spoon honey or a pinch of black salt into the juice and drink it fresh.

3.12.1.5.8 BARLEY KANJI**INGREDIENTS**

Barley ¼ cup, 1 Water 3 cups, Jiggery or salt and Lemon juice

PREPARATION METHODS

Step 1: Wash and soak barley at least for 4 hrs.

Step 2: Cook it in an open pan with additional 1 cup of water, till the barley turns very soft and about to get mushy and Cool barley water completely. Strain and add rock sugar, lemon juice and relish.

3.12.1.5.9 SPROUT PREPARATION**INGREDIENTS**

Any grains like green gram/ horse gram etc and Cloth and Water as required

PREPARATION METHODS

Step 1: Soak the grain in the morning. In the night drain the water from the soaked grains.

Step 2: Wet a clean cloth and squeeze excess water and keep the soaked grains in the cloth. Tighten the cloth and keep it for overnight. Next day the small sprout will be grown up.

3.12.1.5.10 SOUP PREPARATION

INGREDIENTS

1/2 cup chopped carrots , 1/4 cup chopped beans, 1/2 cup peas, 1 1/2 cup tomato puree, 1 tsp garlic paste, 1 tsp ginger paste, 2 tsp chopped coriander leaves, 3-4 tsp butter, 3 glasses of water, salt and pepper to taste and for garnishing cheese granted

PREPARATION METHODS

Step 1: Melt butter, fry ginger and garlic paste, add tomato puree, carrots, French beans, peas and water.

Step 2: Pressure cook for 5-6 minutes.

Step 3: Add coriander leaves and boil for 2-3 minutes.

Step 4: Garnish with cheese

3.12.1.5.11 FRUIT SALAD

INGREDIENTS

1 pound fresh strawberries, quartered, 4 kiwis, peeled and diced, 2 mangoes, diced 2 bananas, sliced, 12 ounces fresh grapes, 2 tablespoons honey and 1 lime, juiced

PREPARATION METHODS

Step 1: Place sliced fruits in a large salad bowl.

Step 2: In a small bowl mix honey and lime juice. Pour syrup over the fruit and mix

3.12.1.5.12 VEGETABLE SALAD

INGREDIENTS

Carrot - 1, Big onion – 1/2, Tomato - 1/2 no (use deseeded), Cucumber - 1/4 , Capsicum- 2 tbsp (finely chopped), Cabbage - 1 leaf (chopped or grated) Coriander leaves – few, Salt - as needed, Pepper powder - 1/2 tsp (adjust) Lemon juice - few drops and Olive oil or cooking oil – 1/2 tsp

PREPARATION METHODS

Step 1: Wash and chop all the vegetables into small cubes. Deseed tomato and cucumber.

Step 2: Add salt, lemon juice and pepper powder.

Step 3: Mix well. Lastly add 1/2 tsp of oil mix and serve.

3.13 TEST ADMINISTRATION OF VARIABLES

3.13.1 PHYSIOLOGICAL VARIABLES

3.13.1.1 BLOOD PRESSURE

Purpose : To measure the systolic and diastolic blood pressure

Equipment : Mercury Column sphygmomanometer, stethoscope, and table are used recording the blood pressure.

Procedure : The blood pressures for all the subjects are checked in the morning. The subjects are given adequate time to relax in a chair in a comfortable position so that the normal pressure is restored. The cuff is wrapped around the subject's upper arm at a point about midway between the elbow and shoulder. The stethoscope is placed over an artery distal to the cuff. This placement is preferred because the brachial artery comes close to the surface near the antecubital space and so is easily accessible. The cuff is inflated so that the pressure inside the inflated bladder is increased to a point greater than the anticipated systolic pressure. This pressure compresses the artery against the underlying bone, causing an occlusion that shuts off the flow of blood in the vessel. The operator then slowly releases the pressure in the cuff and watches the pressure gauge or mercury column when the systolic pressure first exceeds the cuff pressure, the operator begins to hear some crashing, snapping sounds in the stethoscope that are caused by the first jets of blood pushing through the occlusion. These sounds called korotkoff sounds continue as the cuff pressure diminishes, becoming less loud as the blood flow through occlusion becomes smoother. Korotkoff sounds disappear or become muffled when the cuff pressure drops below the patient's diastolic pressure. To read the blood pressure, the operator notes both the gauge pressure at the onset of korotkoff sounds (systolic) and when the sounds become muffled altogether (diastolic). These pressures are usually recorded in the ratio of systolic over diastolic.

Scoring :

- Lower than 90/60 mm/Hg is considered low blood pressure
- 120/80 mm/Hg is considered normal blood pressure
- Higher than 140/90 mm/Hg is considered high blood pressure
- Between 140/90 – 160/100 mm/Hg is stage 1 hypertension
- Above 160/100 mm/Hg is stage 2 hypertension
- Above 180/110 mm/Hg is severe or stage 3 hypertension

3.13.1.2 PULSE RATE

- Purpose** : To measure the Pulse Rate
- Equipment** : Panasonic Portable Automatic Arm Blood Pressure Monitor
- Procedure** : the subject was asked to be seated on the chair and pulse is recorded from the brachial artery from arm through apparatus.
- Scoring** : Normal Score is 60-100 pulses per minute. Lower range is better.

3.13.1.3 BODY MASS INDEX

Body mass Index is a mathematical calculation that compares weight to height. To find BMI, do the following calculations: The BMI is equal to the body weight in kilogram divided by body height in meter squared (kg/m^2).

3.13.1.3.1 HEIGHT

- Purpose** : To measure the erect body length from the sole of the feet to the tip of the head.
- Equipment** : A standardized Stature Meter 2M
- Procedure** : The subjects were asked to stand bare foot on the platform, with heels, buttocks, back and head touching the upright on the stature meter. The feet were placed parallel to each other and head was held in the Frankfurt horizontal plane. That is, tragion and right orbital lying in the same plane. The shoulders were held comfortably and arms hung to maximum with palms touching the thighs. The sliding caliper of the stature meter was lowered slowly so that it touched the vertex of the head in the mid sagittal plane. The measurement was recorded to $1/10^{\text{th}}$ of a centimeter.
- Scoring:** Height measured in meter.

3.13.1.3.2 WEIGHT

- Purpose** : To measure the total body weight
- Equipment** : A standardized weighing machine.
- Procedure** : the subjects were asked to stand bare foot at the center on the platform exerting equal pressure on both the feet without any movement thereafter. The subject was allowed weight less as possible clothing. Weight was recorded to the fraction of $1/10^{\text{th}}$ of a kilogram.

Scoring : BMI values less than 18.5 –underweight
 BMI of 18.5 to 24.9 – healthy and normal.

BMI of 25.0 to 29.9 – overweight.

BMI of 30.0 to 40.0 – Obese

BMI of greater than 40.0 – extremely obese.

3.13.2 HORMONAL VARIABLES

3.13.2.1 ESTRODIAL

Purpose : To measure the estradiol hormone level of the subjects

Equipment : Venipuncture is the collection of blood from a vein in the laboratory.

Procedure : Blood is drawn from a vein located on the inside of the elbow or the back of the hand. The site is cleaned with germ-killing medicine. An elastic band is put around the upper arm to apply pressure to the area. This makes the vein swell with blood. A needle is inserted into the vein. The blood collects into an airtight vial or tube attached to the needle. The elastic band is removed from the arm. The needle is taken out and the spot is covered with a bandage to stop bleeding.

Scoring : Before menopause, estradiol levels are widely variable throughout the menstrual cycle:

- Mid-follicular phase: 27-123 pg/mL
- Periovulatory: 96-436 pg/mL
- Mid-luteal phase: 49-294 pg/mL
- Postmenopausal: 0-40 pg/mL
- Following menopause: Under 10 pg/mL

3.13.2.2 FOLLICLE STIMULATING HORMONE

Purpose : To measure the Follicle Stimulating Hormone level of the subjects.

Equipment : Venipuncture is the collection of blood from a vein in the laboratory.

Procedure : Blood is drawn from a vein located on the inside of the elbow or the back of the hand. The site is cleaned with germ-killing medicine. An elastic band is put around the upper arm to apply pressure to the area. This makes the vein swell with blood. A needle is inserted into the vein. The blood collects into an airtight vial or tube attached to the needle. The elastic band is removed from the arm. The needle is taken out and the spot is covered with a bandage to stop bleeding.

Scoring : Female:

Before puberty: 0 - 4.0 mIU/ml

During puberty: 0.3 - 10.0 mIU/ml

Women who are still menstruating: 4.7 - 21.5 mIU/ml

After menopause: 25.8 - 134.8 mIU/ml

3.13.2.3 CORTISOL

Purpose : To measure the cortisol hormone level of the subjects

Equipment : Venipuncture is the collection of blood from a vein in the laboratory.

Procedure : Blood is drawn from a vein located on the inside of the elbow or the back of the hand. The site is cleaned with germ-killing medicine. An elastic band is put around the upper arm to apply pressure to the area. This makes the vein swell with blood. A needle is inserted into the vein. The blood collects into an airtight vial or tube attached to the needle. The elastic band is removed from the arm. The needle is taken out and the spot is covered with a bandage to stop bleeding.

Scoring : Adult/Child

Morning : 5-23 micrograms per deciliter (mcg/dL)

Afternoon : 3-16 mcg/dL

3.13.3 PSYCHOLOGICAL VARIABLES

3.13.3.1 ANXIETY

Purpose :-The purpose of this test was to measure the Anxiety level of the subjects

Equipment : - Taylor's Manifest Anxiety Scale developed by Taylor. (1953)

Procedure :-The questionnaire administered in group setting and the subjects were seated comfortably. The researcher would be explained about the questionnaire and made them to fill up the questionnaire.

The following instructions would be given to the subjects. Questionnaire has 50 statements, each statement describe some personal experience. Each statement would be evaluated on either true or false. The researcher would be requested them to read each statement carefully and decide to what extent each statement would be true asked them to put tick mark at the appropriate option

Scoring :-Scoring procedure for the positive statement:

If the answer is true for the positive statements, it gets „0“ mark.

If the answer is false for the positive statements, it gets „1“ mark.

Scoring procedure for the negative statement, marks are rewarded in the reverse. If the answer is true for the negative statements, it gets „1“ mark.

If the answer is false for the negative statements, it gets „0“ mark.

The maximum possible score is 50. Giving a score from 0 to 50 with the higher the score representing a higher level of anxiety

Norms :-Anxiety level

0-8 Normal anxiety

9-18 significantly anxious

19-30 highly anxious

31 and above Anxiety level is very high and uncontrollable.

3.13.3.2 ADJUSTMENT

Purpose :-The purpose of this test is to measure the Adjustment level of the subjects

Equipment : - Dyadic Adjustment Scale (DAS) developed by Spanier, G. B. (1979)

Procedure :-The questionnaire administered in group setting and the subjects were seated comfortably. The researcher would be explained about the questionnaire and made them to fill up the questionnaire.

The following instructions would be given to the subjects. Questionnaire has 32 statements, each statement describe some personal experience. Each statement would be evaluated on few some different options. The researcher would be requested them to read each statement carefully and decide to what extent each statement would be true asked them to put tick mark at the appropriate option

Scoring

Questions 1- 15

5=Always Agree

4=Almost Always Agree

3=Occasionally Disagree

2=Frequently Disagree

1=Almost Always Disagree

0=Always Disagree

Questions 16-22

0 = All the time

1 = Most of the time

2 = More often than not

3 = Occasionally

4 = Rarely

5 = Never

Question -23

0 = Never

1 = Rarely

2 = Occasionally

3 = Almost Every Day

4 = Every Day

Question -24

0 = None of them

1 = Very few of them

2 = Some of them

3 = Most of them

4 = All of them

Question 25-28

0 = Never

1 = Less than once a month

2 = Once or twice a month

3 = Once or twice a week

4 = Once a day

5 = More often

Questions 29 and 30

YES --0 NO ---1

Question 31

| | |
|-------------------------|---|
| Extremely Unhappy ----- | 0 |
| Fairly Unhappy----- | 1 |
| A little Unhappy----- | 2 |
| Happy----- | 3 |
| Very Happy----- | 4 |
| Extremely Happy ----- | 5 |
| Perfect----- | 6 |

Question 32

| | | |
|-----------|---------|---|
| Statement | 1 ----- | 5 |
| Statement | 2----- | 4 |
| Statement | 3----- | 3 |
| Statement | 4----- | 2 |
| Statement | 5----- | 1 |
| Statement | 6----- | 0 |

Affectional expression subscale = items 4, 6, 29,

30 Cohesion subscale = items 24, 25, 26, 27, 28

Consensus subscale = items 1, 2, 3, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15

Satisfaction subscale = items 16, 17, 18, 19, 20, 21, 22, 23, 31, 32

The maximum possible score is 152. Giving a score from 0 to 152 with the higher the score representing a higher level of adjustment

Norms :-Adjustment level

Higher the score higher the adjustment and vice versa

3.13.3.3 SELF-CONFIDENCE

Purpose :-To assess the self confidence level of the subjects

Equipment : - Rekha Agnihortry self-confidence questionnaire developed by Rekha Agnihotri (1987) consisting of 56 question.

Procedure :-The subjects would be asked to fill the questionnaire with two response alternatives viz., „true“ or „false“. The questionnaire translated from English to Tamil so that subjects can understand.

Scoring :- The questionnaire contains 56 statements. For each item, a score of one is assigned for a response indicative of lack self-confidence. Hence, lower the score, higher would be the level self-confidence and vice versa

Description :-The inventory could be scored by hand. A score of one is awarded for a response indicative of lack of self-confidence, that is for making cross(X) to wrong response to item numbers, 2,7,23,31,40,41,43,45,53,54,55, and for making cross (X) to right response to the rest of the items. The lower of the score the higher would be the level of confidence and vice versa

3.14 COLLECTION OF DATA

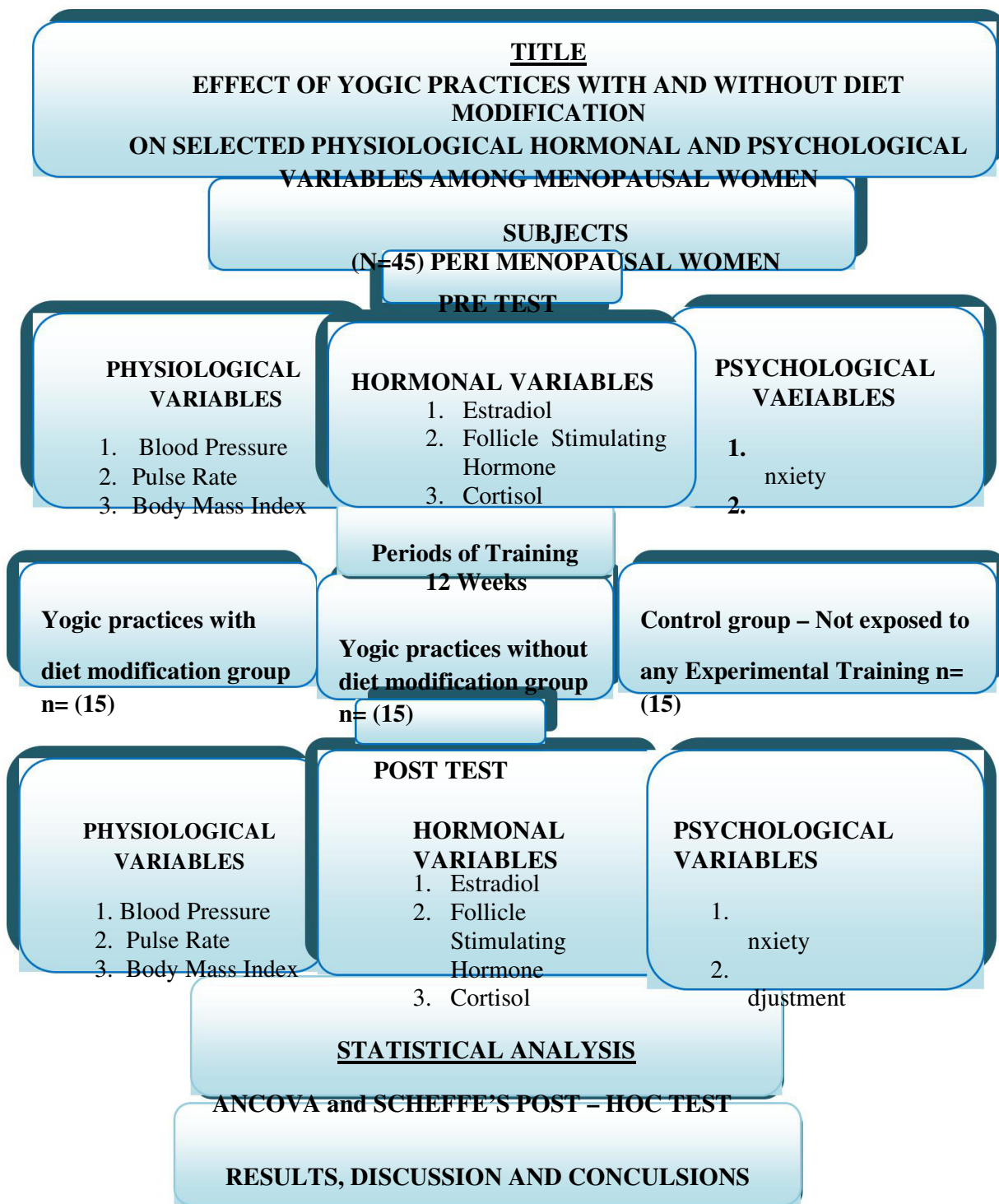
To achieve this purpose, only three groups consisting 15 subjects were selected Experimental Group I treated Yogic Practices with Diet Modification and Experimental Group II treated with Yogic Practices without Diet Modification for twelve weeks. Group III as Control Group not given any treatment but kept in active rest. After the treatment period all the subjects were selected criterion variables at different stages such as pre and post test

3.15 STATISTICAL TECHNIQUES

The following statistical techniques were used to find out the effects of yogic practices with and without diet modification on selected physiological, hormonal and psychological variables among menopausal women. The normality of the data collected was tested through F test. The data and the regression were plotted and found to be in the slanting straight line and thus tested for normality of data and found the data are normal. Analysis of Co-variance (ANCOVA) statistical technique was used to test the adjusted posttest mean differences among the experimental groups. If the adjusted post – test result was significant, the Scheffe’s post hoc test was used to determine the significance of the paired mean differences.

The investigator has analyzed scientific results obtained by application of various methodologies discussed above and the results are analyzed and presented in form of detailed discussion graphs and various tables in the next chapter.

FLOW CHART FOR METHODOLOGY



PHOTOS TAKEN DURING TESTS AND TRAINING









