

CHAPTER III

METHODOLOGY

In this chapter the methodology engineered in the selection of subjects, selection of variables, experimental design, pilot study, criterion measures, reliability of the data, reliability of instruments, tester's reliability, subject reliability, training program, test administration and statistical treatment have been presented.

3.1 SELECTION OF SUBJECTS

The purpose of the study was to find out the effects of varied yogic practices on selected physiological, hematological and psychological variables among women patients of hypothyroidism.

Forty five women volunteers from Chennai city, with the age group of 35 to 50 years old was randomly selected by means of a local newspaper advertisement that offered women with hypothyroidism a three-month free yoga program. They were assigned into three equal groups by random selection. Each group consisted of fifteen subjects. Group one acted as experimental Group A (Yogic Practices based on Chakra Model). Group two acted as experimental Group B (Yogic Practices based on T. Krishnamacharya's Approach). Group three acted as control group and they participated in active rest in the random group experimental study.

After explanation of the requirement of the experimental procedures, testing as well as practice schedule was 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 they gave their informed consent in written form too. Further criteria included that they were not currently practicing yoga.

3.2 SELECTION OF VARIABLES

The researcher reviewed various scientific literatures, books, journals, internet sources, research papers and also discussed with experts in yoga and in modern medicine, which revealed the importance of resting heart rate, systolic blood pressure, diastolic blood pressures, body mass index, thyroid stimulating hormone, high density lipoprotein, low density lipoprotein, self esteem, stress and anxiety in hypothyroid patients. Taking in to the consideration of feasibility, criteria, availability of instruments and the relevance of the variable of the present study, the following dependent and independent variables were selected for this study.

3.2.1 Dependent variables

Table I

| Dependent variables | |
|----------------------------|-----------------------------|
| Physiological variables | Resting heart rate |
| | Systolic Blood Pressure |
| | Diastolic Blood Pressure |
| | Body Mass Index |
| Hematological Variables | Thyroid Stimulating Hormone |
| | High Density Lipoprotein |
| | Low Density Lipoprotein |
| | Triglycerides |
| Psychological variables | Self Esteem |
| | Stress |
| | Anxiety |

3.2.2 Independent variables

- (i) Group A – Yogic Practices based on Chakra Model
- (ii) Group B – Yogic Practices based on T. Krishnamacharya's Approach
- (iii) Control Group

3.3 EXPERIMENTAL DESIGN

Pre test and post test randomized group design was applied to this research. Forty five women volunteers from Chennai city, with the age group of 35 to 50 years old were randomly selected by means of a local newspaper advertisement that offered women with hypothyroidism a three-month free yoga program. They were assigned into three equal groups by random selection. Each group consisted of fifteen subjects. Pre test was conducted for all the forty five subjects on selected physiological, hematological and psychological variables. The initial test scores formed as pre test scores of the subjects. Experimental Group A underwent Yogic Practices based on Chakra Model, Experimental Group B underwent Yogic Practices based on T. Krishnamacharya's Approach, and the control group were asked to maintain their routine activities during the training period. The duration of the experimental period was 12 weeks. After the experimental treatment, all the forty five subjects were measured on the selected physiological, hematological, and psychological variables.

This final test scores formed as post test scores of the subjects. The pre test and post test scores were subjected to statistical analysis using Analysis of Covariance (ANCOVA) to find out the significance among the mean differences, whenever the 'F' ratio for adjusted test was found to be significant; Scheffe's Post hoc test was used. In all cases 0.05 level of significance was fixed to test hypotheses.

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 to ensure the suitability, frequencies, and duration of yoga practice. 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 thus conducted to assess the initial capacity of the entire subject in order to fix the intensity and volume of the 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 (progression over load and specificity) were followed while giving the training program.

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 AND SELECTION OF TESTS

The present study was undertaken primarily to assess the “effects of varied yogic practices on selected physiological, hematological and psychological variables among women patients of hypothyroidism.”

The following tests were administered to measure the selected physiological, hematological and psychological variables. The tests were administered to the subjects before and after of the training program.

Table: II

TEST SELECTION

| Variables | | Test / Instruments | Unit of Measurements |
|--------------------------------|-----------------------------|---|---------------------------------|
| Physiological Variables | Resting Heart Rate | Digital pulse measuring apparatus | Pulse per Minute |
| | Blood Pressure | Sphygmomanometer and stethoscope | mmHg |
| | Body Mass Index | Stadiometer & weighing machine | Kg/ m ² |
| Hematological Variables | Thyroid Stimulating Hormone | Blood Tests | uIU/ml |
| | High Density Lipoprotein | Blood Tests | Milligram per deciliter (mg/dL) |
| | Low Density Lipoprotein | | |
| | Triglycerides | | |
| Psychological Variables | Self Esteem | Rosenberg Self-esteem Questionnaire Scale | Numeric Values |
| | Stress | Perceived Stress Scale | |
| | Anxiety | Taylor's Manifest Anxiety Scale | |

3.6 RELIABILITY OF DATA

The reliability of data was established by using test-retest method. To achieve this purpose, ten subjects were randomly selected and the test was administered twice after a day's gap. Care was taken to keep all testing conditions uniformly during testing and retesting. The scores recorded for the ten subjects during the test and retests were correlated using Intra Class Correlation for the different variables. The co-efficient of correlation is presented in Table – III.

TABLE – III
INTRA CLASS CORRELATION CO-EFFICIENT OF
TEST – RETEST SCORES

| Criterion Variables | Correlation Co-efficient 'r' |
|-----------------------------|---------------------------------|
| Resting Heart Rate | 0.87* |
| Blood Pressure | 0.94* |
| Body Mass Index | 0.91* |
| Thyroid Stimulating Hormone | 0.89* |
| High Density Lipoprotein | 0.94* |
| Low Density Lipoprotein | 0.91* |
| Triglycerides | 0.90* |

***Significance at .05 level of confidence**

For psychological variables such as self-esteem, stress and anxiety the authors of the questionnaire have determined reliability and the same was adapted for this study also.

3.7 RELIABILITY OF INSTRUMENT

Instruments such as stop watch, sphygmomanometer, stadiometer, stethoscope, weighing machine and also questionnaire, scale were used to assess the dependent variables. All the instruments were in good working conditions. Their calibration were tested and found to be accurate enough to serve the purpose of the study.

3.8 TESTERS RELIABILITY

Tester's reliability was established by test-retest procedures. For this purpose two subjects were selected at random on the chosen variables, which were recorded twice under identical conditions on different occasions by the researcher.

3.9 SUBJECT RELIABILITY

Prior to the test administration, yogic practices and the test procedure were explained in detail to subjects to ensure proper understanding and secure effective cooperation so as to derive reliable data from the tests. Yoga demonstration was done by the investigator before the subjects prior to the training. The yogic practices were conducted under the personal supervision of the investigator.

3.10 TRAINING PROGRAM

During the training period, the experimental groups underwent their respective yogic practices in addition to their daily routine activities as per the schedule. Experimental groups namely Yogic Practices based on Chakra Model and Yogic Practices based on T. Krishnamacharya's Approach underwent their respective experimental training six days per week for twelve weeks.

The duration of experimental training were assigned for 60 minutes (6 to 7 am for Experimental Group A and 7 to 8 am for Experimental Group B). All the subjects involved in this study were carefully monitored throughout the training program.

3.11 DESCRIPTION OF YOGIC PRACTICES FOR GROUP A (YOGIC PRACTICES BASED ON CHAKRA MODEL)

In consultation with the experts in the field of yoga, the following yogic practices were included in the experimental training program for Group A.

3.11.1 Sithilikarana Vyayama

a) Base Position

Sit with legs outstretched, feet together, palms on the floor to the sides, just behind the back. The back, neck and head should be straight. Straighten the elbows. Lean back slightly. Close the eyes.

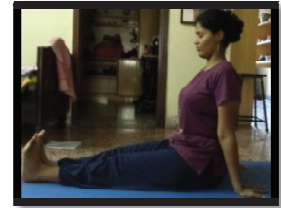


Figure 3

b) Padanguli Naman

Sit in the base position. Move only the toes of both feet slowly backward and forward, keeping the feet upright and the ankles relaxed and motionless.

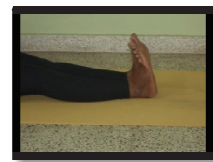


Figure 4

c) Goolf Naman

Remain in the base position. Slowly move both feet backward and forward, bending them from the ankle joints.

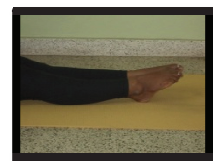


Figure 5

d) Goolf Ghoornan

From the base position, bend the right knee and bring the foot towards the groin. Turn the knee out to the side and place the foot on the left thigh. Hold the right ankle with the right hand to support the ankle. Hold the toes of the right foot with the left hand. With the aid of the left hand, slowly rotate the right foot clockwise and anticlockwise



Figure 6

e) Full butterfly

Seated in the base position. Bend the knees and bring the soles of the feet together, keeping the heels as close to the perineum as possible. Clasp the feet with both hands. Gently move the knees up and down towards the floor.



Figure 7

f) Skandha chakra

Seated in comfortable posture, place the fingers of the right and hand on the respective shoulders. Fully rotate both elbows in a large circle.

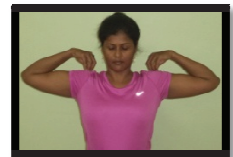


Figure 8

g) Greeva Sanchalana

Seated in a comfortable pose, slowly move the head forward and try to touch the chin to the chest. Move the head as far back as comfortable. Move the head right and try to touch the right ear to the right shoulder without turning the head. Move the head left and try to touch the left ear to the left shoulder. Then gently turn the head to the right so that the chin is in line with the shoulder.

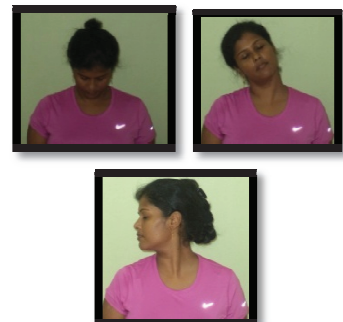


Figure 9

3.11.2 Sukhasana

Sit in base position. Bend the right leg and place the foot under the left thigh and left foot under the right thigh with hands on the knees in chin or gyana mudra.



Figure 10

3.11.3 Vajrasana

Sit on the heels with legs folded. Palms resting on the thighs, back straight.



Figure 11

3.11.4 Shashankasana

Sit in vajrasana. On inhale, raise the arms above the head, arms straight. On exhale, bend the trunk forward from the hips, hands and forehead should rest on the floor. On inhale, come up. Exhale, back to vajrasana.

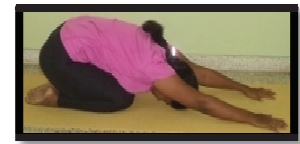


Figure 12

3.11.5 Marjari-Asana

From vajrasana go to shashankasana on exhale. Inhale move forward, arch the back, elbows straight with head up. Exhale; curve the spine while lowering the head by contracting the abdomen. Repeat as required.



Figure 13

3.11.6 Vyaghrasana

From vajrasana move into marjari-asana. Stretch the right leg on inhale, bend the knee and point the toes towards the head. Hold the breath for a few seconds. On exhale, curve the spine, swing the leg, knee to touch the forehead, come back to marjari asana. Repeat the same with other leg.



Figure 14

3.11.7 Shashank Bhujangasana

From shashankasana, on inhale, slide the body forward, arch the back and balance the body with the weight on palms. On exhale, come back to shashankasana.

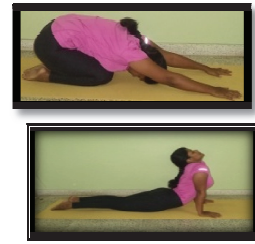


Figure 15

3.11.8 Simhagarjanasana

Sit in vajrasana knees 45 cm apart, eyes open, palms on the floor between the knees, fingers pointing towards the body. Lean forward, head gently tilted back. Gaze at the eyebrow centre. At the end of inhalation, open the mouth, extend the tongue out, exhale produce “aaah” from throat then close the mouth.

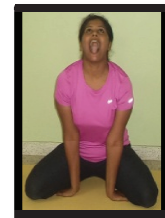


Figure 16

3.11.9 Ushtrasana

From vajrasana, on inhale, come up on the knees, arms up. On exhale, place hands on the hips. On inhale, Arch back, slowly reaching for the right heel with the right hand and the left heel with the left hand. Remain in the final position. On exhale, return to the starting position

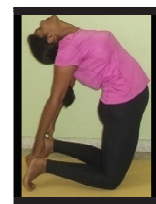


Figure 17

3.11.10 Supta Vajrasana

Sit in vajrasana with eyes closed. Slowly bend back and lie on the floor, taking the support of both the elbows. Place the hands on the thighs. Try to keep the knees in contact with the floor. Stay in the final pose for some time. Return to the starting position in the reverse order

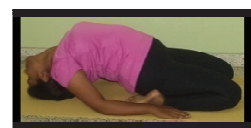


Figure 18

3.11.11 Tadasana

Stand with feet together, arms by the sides, weight equally on both feet. Raise the arms over the head, fingers interlocked, palms facing up. Place the hands on top of the head. Fix the eyes throughout the practice at a point on the wall above the head. Inhale, stretch the arms and raise the heels. Exhale come down, arms back to position.



Figure 19

3.11.12 Tiryaka Tadasana

From Tadasana, on exhale, bend to the left side. Inhale, slowly come to the upright position. Repeat on the right side, exhale arms down



Figure 20

3.11.13 Kati Chakrasana

Stand with the feet apart. On inhale, raise the arms to shoulder level. Exhale twists the body to the left, right hand to the left shoulder, left arm around the back. Untwist on inhale. Repeat on the other side.



Figure 21

3.11.14 Triyaka Kati Chakrasana

Stand, feet shoulder width apart, fingers interlocked. Inhale, raise the arms overhead with palms turned out. Exhale and bend forward to form a right angle with back straight. Holding the breath, slowly swing the trunk to the right and left then back to the centre. On inhale, return to the upright position.



Figure 22

3.11.15 Druta Utkatasana

Stand with feet together. Place the palm together. On inhale raise arms above the head. Exhale, slowly squat. On inhale, come up. Exhale arms down.



Figure 23

3.11.16 Samakonasana

Stand with feet together. Raise the arms up, bend the wrists, fingers pointing forward. On exhale, bend forward halfway, back is horizontal. On inhale, come up. Exhale arms down.



Figure 24

3.11.17 Dwikonasana

Stand with feet apart; interlock the fingers at the back, inhale in this position. Exhale, bend forward halfway, raising the arms behind. On inhale, come up. Exhale arms down.

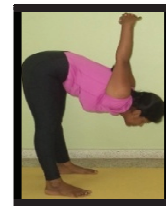
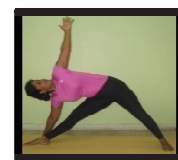


Figure 25

3.11.18 Trikonasana

Variation 1: Stand with the feet apart. Turn the right foot out. On inhale, raise arm up to shoulder level. On exhale, bend laterally to the right with right knee bent. Place the right hand on the right foot. Look up at the left hand in the final position. Return to the upright position on inhale. Repeat on the other side.



Variation 2: The above can be done without bending the right knee and left hand bent, placed on the hip

Variation 3: The above can be done with the hip twist on exhale, left hand to right foot and look up at the right palm.

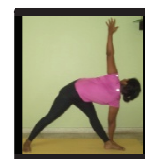


Figure 26

3.11.19 Utthita Lolasana

Stand with feet wide apart. Raise the arms over the head, fingers pointing forward. Exhale bend forward, swing loosely from the hip behind the feet. Come up half way and repeat this



Figure 27

3.11.20 Surya Namaskara

3.11.20.1 Pranamasana - Position 1

Stand with feet together, eyes closed. Palms together in namaskara mudra.



Figure 28

3.11.20.2 Hasta Utthanasana – Position 2

From the previous pose, inhale, raise the arms above the head, palms shoulder width apart. Bend slightly backward

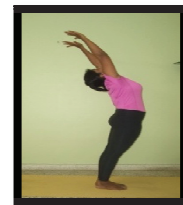


Figure 29

3.11.20.3 Padahasthasana – Position 3

From the previous pose, exhale, bend forward, palms on either side of the feet, forehead to touch the knees.

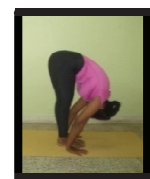


Figure 30

3.11.20.4 Ashwa Sanchalanasana - Position 4

From the previous pose, inhale, take a long stride with the right leg, by bending the left knee, look up and gaze to the eyebrow centre.

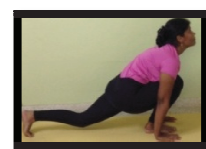


Figure 31

3.11.20.5 Parvatasana – Position 5

From the previous pose, exhale, bend forward, take the other foot back, hip up. Try to keep the heels on the floor in the final pose and bring the head towards the knees.

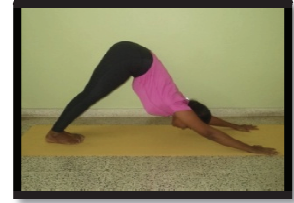


Figure 32

3.11.20.6 Ashtanga Namaskara – Position 6

From the previous pose, lower the knees, chest and chin to the floor, in hold.

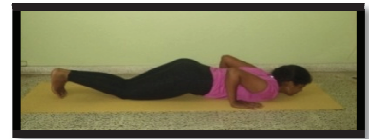


Figure 33

3.11.20.7 Bhujangasana – Position 7

From the previous pose, on inhale, slide forward, stretch the body and look upwards. From this pose go back to parvatasana, ashwasanchalanasana, padahastasana, hasta utthanasana, pranamasana in reverse order.

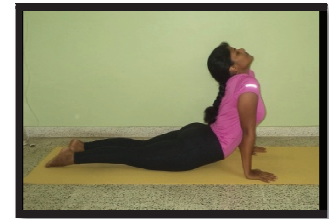


Figure 34

3.11.21 Yogamudrasana

Sit in padmasana with eyes closed. Hold one wrist behind the back with the other hand. Inhale deeply. While exhaling, bend forward, forehead to the floor. Inhale, come up. Repeat with the other leg.

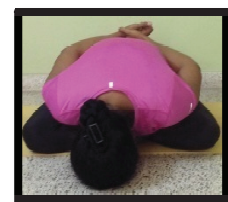


Figure 35

3.11.22 Matsyasana

Sit in padmasana, with the support of the arms and elbows bend backward, chest up, crown of the head to the floor. Hold the big toes and rest the elbows on the floor. Stay in this pose for a few minutes. Repeat with the other leg.



Figure 36

3.11.23 Tiryaka Bhujangasana

Inhale; go to bhujangasana with feet apart, toes inward. Exhale, twist from the hip and look at the right heel over the left shoulder. Come back to the center and repeat the twist on the other side.



Figure 37

3.11.24 Sarpasana

Lie in prone position, chin down, feet together. Interlock the fingers behind. Inhale, raise the chest up, push the hands back and raise the arms up. Return to the starting position, turning the head to one side.

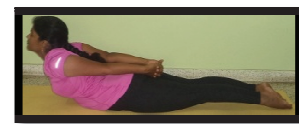


Figure 38

3.11.25 Ardha Shalabhasana

Lie in supine position, chin down, feet together, hands above the head. Inhale, raise only the left leg. Repeat the same with the right leg.

Variation:

Lie in supine position, chin down, feet together, hands above the head. Simultaneously, raise the left leg, the head and right arm. Repeat the same with the right leg and left arm.

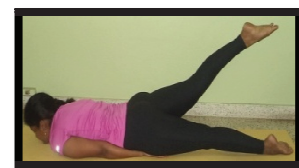


Figure 39

3.11.26 Shalabhasana

Lie in supine position, chin down, feet together, hands under the thighs, palms downwards. Inhale, raise the legs.

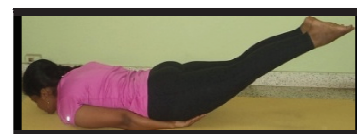


Figure 40

3.11.27 Saral Dhanurasana

Lie in supine position, feet together, arms beside the body. Bend the knees; clasp the ankles with the hands. Inhale; raise only the chest up, thighs on the ground. Exhale, come back.



Figure 41

3.11.28 Dhanurasana

From saral dhanurasana, while inhaling raise the chest and thighs up from the ground. Exhale, come back.

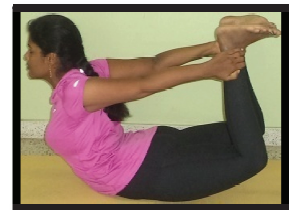


Figure 42

3.11.29 Kandharasana

Lie in supine position, feet shoulder width apart, knees bent, clasp the ankle with the hands. Inhale, press the feet down and raise the hip and chest up. Exhale, bring the hips down.



Figure 43

3.11.30 Sethu Asana

Sit in the base position with feet together. Place the palms on the floor on either side of the body, fingers pointing backwards, elbows straight. Inhale, raise the hip and chest upwards. Head hanging back. On exhale, come back to the starting position.

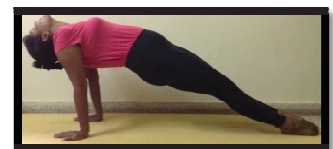


Figure 44

3.11.31 Paschimottasana

Sit in the base position and inhale. On exhale, bend forward, hold the toes with fingers, and try to touch the knees with the forehead. Stay in this position and breathe. Inhale; come back to the starting position.



Figure 45

3.11.32 Janu Sirshasana

Sit in the base position. Fold the left leg, place the foot near the perineum, hands on the right knee. On exhale, bend forward. Inhale, come up to starting position.



Figure 46

3.11.33 Meru Wakrasana

Sit in the base position. Turn the trunk to the right, place the right hand close to the left buttock, left hand close to the right hand. Bend the left knee, place the foot outside the right knee. Inhale, hold the breath, and twist the head and trunk. Exhale, come to the center. Repeat the same on the other side.



Figure 47

3.11.34 Bhu Namanasana

Sit in the base position. Place the hands side of the right hip. Inhale, hold the breath, twist the trunk to the right. On exhale, bend the torso, bring forehead to the floor. Inhale, come up. Exhale, come to the center. Repeat on the other side.



Figure 48

3.11.35 Ardha Matsyendrasana

Sit in the base position. Bend the right leg, place it outside of the left knee. Bend the left leg; bring the foot around the right buttock. Pass the left arm between the chest and right knee; place it outside of the right leg. Hold the right ankle with the left hand, sit straight. On exhale, twist to the right. Return to the starting position on inhale. Repeat it on the other side.



Figure 49

3.11.36 Moordhasana

Stand erect with feet a meter apart, inhale here. On exhale, bend forward and place the hands in front of the feet.



Figure 50

3.11.37 Vipareeta Karani

Lie in supine position with feet together, arms by the sides of the body, inhale here. While holding the breath in, raise both the legs, move it over the body towards the head, raising the buttocks up by supporting it with the hands, keeping elbows closer. Normal breathing in the final pose. While retaining the breath in, lower the body down by releasing hands support.

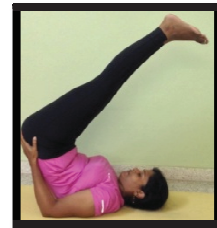


Figure 51

3.11.38 Sarvangasana

Lie in supine position with feet together, arms by the sides of the body, inhale here. While holding the breath in, raise both the legs, move it over the body towards the head, raising the buttocks up by supporting it with the hands, keeping elbows closer. The trunk and legs should be vertical, chin pressing against the chest. Normal breathing in the final pose. While retaining the breath in, lower the body down slowly by releasing hands support.

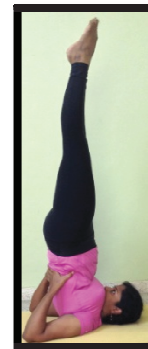


Figure 52

3.11.39 Halasana

Lie in supine position with feet together, arms by the sides of the body, inhale here. While holding the breath in, raise both the legs, move it over the body towards the head, raising the buttocks up



Figure 53

by supporting it with the hands, keeping elbows closer. Lower the legs over the head, toes touching the floor behind the head. Normal breathing in the final pose. While retaining the breath in, lower the body down slowly by releasing hands support.

3.11.40 Pranayama:

3.11.40.1 Abdominal (Or Diaphragmatic) Breathing

Lie in shavasana and relax the whole body. Place the right hand on the abdomen and the left hand over the chest. Observe the natural breath, feel the abdomen expanding and contracting. Try not to expand the chest or move the shoulders. Continue breathing slowly and deeply. Inhale while expanding the abdomen, without expanding the rib cage. On exhalation, abdomen moves downward. On inhalation, the diaphragm pushed down and on exhalation the diaphragm pushed towards the chest. Continue for a few minutes.

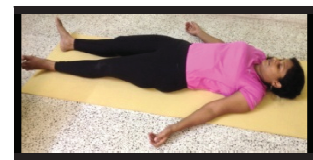


Figure 54

3.11.40.2 Yogic Breathing

Sit in the meditation posture or lie in shavasana. Inhale deeply, allowing the abdomen to expand fully. Feel the air reaching into the bottom of the lungs. At the end of the abdominal expansion, start to expand the chest outward and upward. When the ribs are fully expanded, inhale a little more until expansion is felt in the upper portion of the lungs and then air filling the upper lobes of the lungs. On exhale relax the upper chest, then allow the chest to contract downward and then inward, and allow the diaphragm to push upward

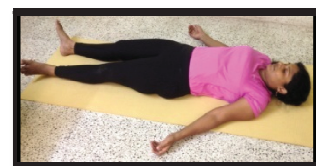


Figure 55

toward the chest by pulling the abdominal wall towards the spine. Hold the breath for a few seconds at the end of exhalation. This completes one round of yogic breathing

3.11.40.3 Nadi Shodhana Pranayama

Technique 1: Preparatory practice

Sit in any comfortable mediation posture. Keep the head and spine upright, eyes closed. Practice yogic breathing for some time. Adopt nasagra mudra with the right hand and place the left hand on the knee in chin mudra. Close the right nostril with the thumb. Inhale and exhale through the left nostril 5 times. After 5 breaths, press the left nostril, then inhale and exhale through the right nostril 5 times. Breathe 5 times through both the nostrils. This is one round.

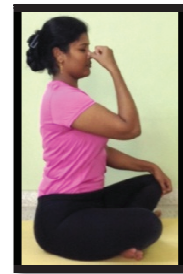


Figure 56

Technique 2: Alternate nostril breathing

In this technique the duration of inhalation/exhalation is controlled. Close the right nostril and breath in through the left nostril. Count mentally, “1, Om; 2, Om; 3, Om”, until the inhalation ends. Breathe deeply with yogic breathing. Exhale through right nostril with left closed for the count of “1, Om; 2, Om; 3, Om”. Repeat the above procedure starting with the right nostril with the same count. This is one round.

3.11.40.4 Ujjayi Pranayama (The Psychic Breath)

Sit in any comfortable position with awareness to the throat. On inhale and exhale, constrict the throat and make vibratory sound. Both inhalation and exhalation should be long, deep and controlled.

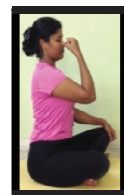


Figure 57

3.11.40.5 Bhastrika Pranayama (Bellows Breath)

Sit in any meditation asana. Right hand in nasagra mudra.

Left nostril:

Close the right nostril. Breathe in and out forcefully, without straining, through the left nostril 10 times. The pumping action should be performed by the abdomen alone. There should be a snuffing sound in the nose but no sound should come from the throat or chest. After 10 respirations, breathe in deeply through the left nostril. Fill the lungs as much as possible, expanding chest and the abdomen. Close both nostrils and hold the breath inside. Retain the breath for a few seconds. Exhale through the left nostril.

Right nostril: Repeat the same above procedure with the right nostril.

Both nostrils: Repeat the above procedure with both nostrils.

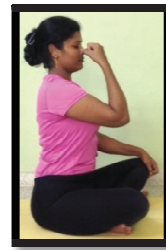


Figure 58

3.11.40.6 Bhramari pranayama

Sit in any meditation asana. Back straight. Keep the fingers in shanmuki mudra. Close the ears with the thumbs, eyes with the index fingers, nostrils with the middle fingers, and the mouth by placing the ring and little fingers above and below the lips. Release the pressure of the middle fingers and open the nostrils. Inhale slowly and deeply. At the end of inhalation close the nostrils. Exhale slowly in a controlled manner while making deep, steady humming sound like that of a honey bee.



Figure 59

3.12 DESCRIPTION OF YOGIC PRACTICES FOR GROUP B (Yogic Practices based on T. Krishnamacharya's Approach)

In consultation with the experts in the tradition of T. Krishnamacharya, the following yogic practices were included in the experimental training program for Group B. Appropriate modifications were made wherever necessary to suite to the individual.

3.12.1 Standing Samasthiti

Stand upright. Feet together. Back straight. Arms by the sides of the body. Fingers together, palms touching the sides of the thighs. Weight evenly distributed on both the feet. Shoulders relaxed. Chin down. Eyes open.



Figure 60

3.12.2 Tadasana

From samasthiti, on inhale, raise arms from the sides simultaneously raising the heels, balancing on the balls of the feet. Arms across the ears, elbows straight, palms together and chin down. On exhale, lower the arms from the sides while lowering the heels. Back to samasthiti.

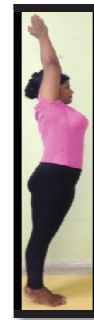


Figure 61

3.12.3 Parsva uttanasana

From samasthiti, take a long stride forward with the left leg, body to face front. Back foot slightly turned outward. On inhale, raise the arms. On exhale, bend forward and place the palms by the sides of the front foot. On inhale, come up, arms must lead the trunk. On exhale lower the arms from the front. Back to samasthiti. Repeat the same on the other side also.



Figure 62

3.12.4 Uttanasana

From samasthiti, on inhale, raise arms from the front, arms straight and across the ears. Palms facing each other. On exhale, bend forward and place the palms by the sides of the feet. Weight only on the legs. On inhale, come up, arms must lead the trunk. On exhale, lower the arms from the front. Back to samasthiti.



Figure 63

3.12.5 Prasarita padauttanasana

From samasthiti, take a long stride sideways, feet facing front. On inhale, raise arms from the front, palms facing each other. On exhale, bend forward and place palms on the ground in line between the feet. Weight only in the legs. Crown of the head touching the floor in between the feet and hands. On inhale come up. Arms must lead the trunk. On exhale, lower the arms from the front, join feet together. Back to samasthiti.

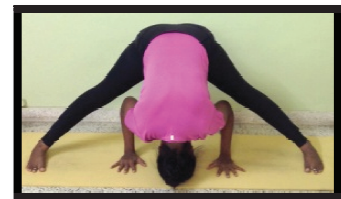


Figure 64

3.12.6 Ardha uttanasana

From samasthiti, on inhale raise the arms from the front straight across the ears, palms facing each other. On exhale, bend forward halfway, palms facing each other with chin down. On inhale, come up, arms leading trunk. On exhale, lower the arms from the front. Back to samasthiti.

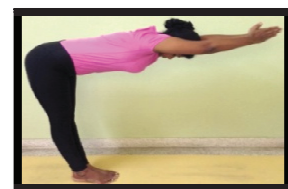


Figure 65

3.12.7 Utkatasana

From samasthiti, on inhale, raise arms from front, arms straight, across the ears, elbows straight and palms together. On exhale, squat with back straight, knees together. On inhale, come up, arms leading the movement. On exhale, lower the arms from the front. Back to samasthiti.



Figure 66

3.12.8 Veerabhadrasana

From samasthiti, take a long stride forward with the left leg. Back foot slightly turned outward. On inhale, raise the arms from the front while bending the front knee and maintaining. Arms straight, across the ears, palms together. On exhale, lower the arms from the front while straightening front leg. Bring the front leg back to samasthiti. Repeat the same on the other side also.



Figure 67

3.12.9 Uttitha trikonasana – parivritti

From samasthiti, take long stride sideways, feet parallel. On inhale, raise arms from sides up to the shoulder level. On exhale, twist and place the right palm on the floor, outside the left foot, left palm extended upwards. Turn the head and look up. Weight on the feet only. Right palm on the floor facing forward. On inhale, turn head down and come up. On exhale, lower the arms from the sides. Bring feet together and back to samasthiti. Repeat the same on the other side.



Figure 68

3.12.10 Uttitha trikonasana- lateral

From samasthiti, take long stride sideways, feet parallel. On inhale, raise the arms from the sides up to the shoulder level. On exhale, bend laterally to the left side and place the left palm on the floor, outside the left foot. Right arm extended up, turn the head and look up. Left palm on the floor, facing forward. On inhale, turn head down and come up. Exhale lower the arms from the sides, bring the feet together, back to samasthiti. Repeat the same on the other side.



Figure 69

3.12.11 Uttitha parsvakonasana parivritti (modified)

From samasthiti, take a long stride sideways, left foot turned outwards. On inhale, raise the arms from the sides upto the shoulder level. On exhale, bend left knee and twist the trunk to the left side and place the right palm on the floor outside the left foot. Left arm extended over the left ear. Eyes looking at the left hand. Right palm on the floor, parallel to the left foot. On inhale, turn head down and untwist and come up, straightening left knee. On exhale, lower the arms from the sides, back to samasthiti. Repeat the same on the other side.



Figure 70

3.12.12 Surya namaskar:

From samstithi, on inhale raise the arms from the front. On exhale, bend forward and place the palms by the sides of the feet. On inhale, take the left leg back and bend the right knee. Palms placed by the sides of the right foot. On exhale, take the right leg back while raising the hip up, head down towards the knee on the floor. While holding the breath, lower the knees, chest and chin to the floor.

On inhale, raise the chest and head up. Exhale, raise the hip up and go back to adhomuka svanasana. On inhale, bring the left leg forward and bend the right knee. Palms placed by the sides of the left foot. On exhale, come back to uttanasana. On inhale, raise to upright position, arms extended up, across the ears. On exhale, lower the arms from the front. Back to samastithi. Repeat the same with the right leg.



Figure 71

3.12.13 Lying – supine – samastithi

Lie down on the back, legs together and straight, palms on the floor, along the body, elbows straight, chin down and eye closed.

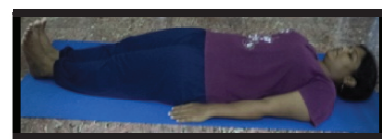


Figure 72

3.12.14 Savasana:

Lie down on the back, eyes closed. Feet slightly apart and relaxed. Arms slightly away from the body, palms turned upwards, entire body relaxed. Chin down and mind remains alert.

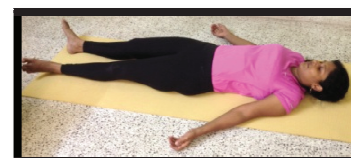


Figure 73

3.12.15 Tadaka mudra:

Lie in samasthiti, on inhale, raise arms and place on the floor above the head, lock the fingers and turn them out and straight, arms across the ears. On exhale contract the abdomen and relax the abdomen then inhale. On exhale, lower the arms, release the fingers and place the palms on the floor.



Figure 74

3.12.16 Apanasana:

Lie in samasthiti. On exhale, bend knees and place feet on the floor. Lift feet off the floor and place palms on the knees. Inhale in this position. On exhale, contract the abdomen and bring the knee close to the chest. Hips still on the floor. Arms must not pull the legs. On inhale, move the knees away from the chest. Exhale in this position. Place feet and hands on the floor along the body. On inhale, extend the legs.

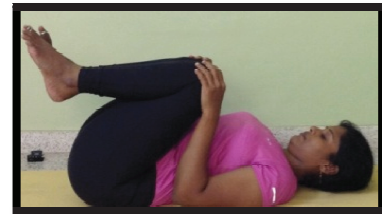


Figure 75

3.12.17 Urdhva prasarita padasana:

Lie in samasthiti, on inhale, raise the arms and palms on the floor above the head. Palms turned up and straight arms down. On exhale, while lowering the arms lift straight legs to vertical position. Legs together, hips on the floor, arms along the sides of the body and palms on the floor. On inhale, while raising the arms above the head lower the legs straight on the floor. On exhale, lower the arms to the floor to the sides of the body.

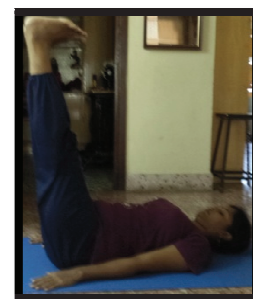


Figure 76

3.12.18 Supta baddakonasana:

Lie in samasthiti, on exhale, bend knees and place the feet close to the buttocks. Open the knees and place soles of the feet against each other. Lock fingers and turn them out. Knees on the floor. On inhale, raise the arms and place them on the floor above the head, arms straight and across the ears. On exhale, lower the arms bring knees together, unlock fingers. On inhale, extend the legs, back to samasthiti.

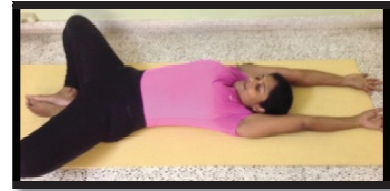


Figure 77

3.12.19 Dwipadapitham:

Lie in samasthiti, on exhale, bend knees, place the feet close to the buttocks and hold ankles, knees together, palms wrapped around the ankles. On inhale, raise the hips up. On exhale, lower the hips to the floor. On inhale, release the ankle and extend the legs. Back to samasthiti.



Figure 78

3.12.20 Jatharaparivritti Ekapada:

Lie in samasthiti, on inhale, move arms from the sides till the shoulder level. On exhale, turn head to right side. In hale in this position. On exhale, raise straight right leg to vertical position, and hips on the floor. Inhale in this position, on exhale, twist and lower the right leg to the left side on the floor and hold the toe with the left hand. Release the foot while inhaling and bring the right leg in



Figure 79

vertical position. Exhale in this position. On inhale, lower the right leg straight to the floor. Exhale in this position. On inhale, turn head back to original position. On exhale, lower the arms from the sides along the body. This has to be done on the both sides.

3.12.21 Jatharaparivritti parivritti: both legs

Lie in samasthiti, on inhale, move arms till the shoulder level, palms down. On exhale, turn head to right side. In hale here, on exhale, lift legs to vertical position, and hips on the floor. Inhale in this position, on exhale, lower the legs straight to the left side on the floor and hold the toe with the left hand. On inhale, release the toes, lift straight legs to vertical position. Exhale in this position. On inhale, lower straight legs to the floor. Exhale in this position. On inhale, turn head back to original position. On exhale, lower the arms from the sides along the body. This has to be done on the both sides.

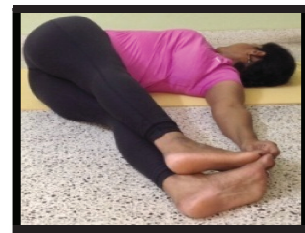


Figure 80

3.12.22 Jatharaparivritti modified

Lie in supine samasthiti, fold the legs, feet on the floor, closer to the body. On inhale, sweep arms to the shoulder level. On exhale, turn the neck to the right side, inhale in this position. On exhale, twist the body, legs going left, neck to the right. Inhale, bring knees to the center, and exhale in this position. On inhale, untwist the neck. Exhale, bring arms by the sides. On inhale, stretch out the legs.



Figure 81

3.12.23 Viparita karani:

Lie down in samasthiti, on exhale, lift straight legs and hips, move the legs beyond the head and support the lower back with the palms. Palms pointing up. On inhale, lift legs up. Legs and trunk are at an angle. On exhale, lower straight legs towards the head and lower the palms on the floor. On inhale, lower the hips and legs to the floor.



Figure 82

3.12.24 Salamba Sarvangasana:

Lie in samasthiti, on exhale, lift straight legs and hips, move the legs beyond the head and support the lower back with the palms. Palms pointing up. On inhale, lift legs vertically. Legs and trunk are straight aligned and toes facing up. On exhale, lower straight legs towards the head and lower the arms to the floor. On inhale, lower the hips and straight legs to the floor.

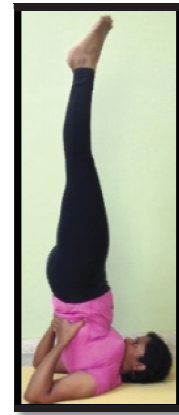


Figure 83

3.12.25 Prone – samasthiti:

Lie down on the stomach. Forehead on the floor, legs together and straight. Toe turned out, straight arms along the body, palms turned up and eyes closed.



Figure 84

3.12.26 Bhujangasana

Lie in prone samasthiti. On inhale, lift chest and head up, palms on the floor and turned upwards. On exhale, bring the head and chest down.



Figure 85

3.12.27 Ardha salabhasana

Lie in prone samasthiti. On inhale, sweep right arm over the head while raising chest, head and right leg up. Legs and arms are straight. Right arm across the ears, head up and right knee off the floor. On exhale, sweep the right arm back to the floor along the body while lowering the head, chest and right leg to the floor. Shoulders relaxed. Repeat the same on the other side.

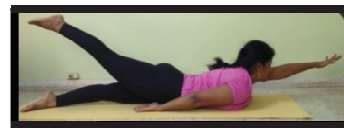


Figure 86

3.12.28 Salabhasana

Lie in prone samasthiti. On inhale, raise chest, head and both the legs up. Legs straight, knees off the floor, palms turned outward on the floor. On exhale, lower the head, chest and both the legs to the floor. Relax the shoulders.



Figure 87

3.12.29 Dhanurasana

Lie in prone samasthiti. On inhale, bend knees and hold the ankles, forehead on the floor, feet and knees together and arms straight. Exhale in this position. On

inhale, pull the feet back and raise the chest while lifting the head up. Knees off the floor. On exhale, lower the head, chest and knees to the floor. Inhale in this position. On exhale, release the ankle. Place hands on the floor along the body and straighten the legs.



Figure 88

3.12.30 Kneeling sequence

3.12.30.1 Vajrasana

Kneel down and sit on the closed heels. Heels together. Knees together. Back straight. Palms on the knees, toes turned out and eyes closed.



Figure 89

3.12.30.2 Vajrasana forward bend

From vajrasana, on inhale, while raising the arms from the front, stand on the knees, straight arms across the ears and palms facing each other. On exhale, bend forward and place palms on the floor, buttocks away from the heels. Head and elbows off the floor. On inhale, stand on the knees, arms across the ears. Exhale sit down in vajrasana.

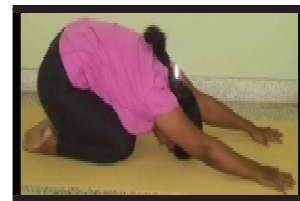


Figure 90

3.12.30.3 Cakravakasana

From Vajrasana, go to Vajrasana forward bend. On inhale, move forward and arch the back, lift the head up. On exhale, go back to Vajrasana forward bend and to vajrasana.

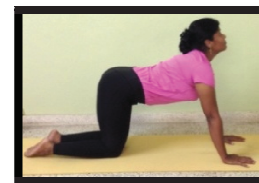


Figure 91

3.12.30.4 Urdhvamuka svanasana

From Vajrasana, go to Vajrasana forward bend to cakravakasana. From cakravakasana, on inhale, move forward, extend the legs, raise the head up. Balance on the toes and hands. Go back to cakravakasana, to Vajrasana forward bend to Vajrasana.

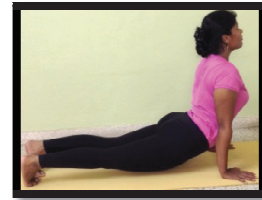


Figure 92

3.12.30.5 Adhomuka svanasana

From Vajrasana, go to Vajrasana forward bend to Cakravakasana to urdhvamuka svanasana. On exhale, raise the hip up while lowering the head to the floor. On inhale, come back to cakravakasana to Vajrasana forward bend to Vajrasana.



Figure 93

3.12.31 Seated samasthiti.

Sit with legs extended forward, legs together and straight. Back straight. Palms on the floor, shoulders relaxed. Eyes closed and chin down.

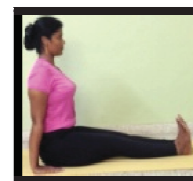


Figure 94

3.12.32 Sukhasana

From seated samasthiti, on exhale, cross legs and place palms on the knees. Arms relaxed and back erect. On inhale, extend the legs forward.



Figure 95

3.12.33 Baddhakonasana

From seated samasthiti, on exhale bend knees and place soles of the feet against each other. Hold arch of the foot with the hands. Knees on the floor, heels touching the groin. Shoulders relaxed and back straight. On inhale, release the hands from the feet and extend the legs forward.



Figure 96

3.12.34 Janusirsana

From seated samasthiti, bend right leg and place the sole against the left thigh, body facing left leg. Right knee on the floor, right heel touching the left thigh. On inhale, raise arms from the front. On exhale, bend forward and hold left heel and arms relaxed. On inhale, raise arms and come up, arms must lead the trunk. On exhale, lower the arms from the front. Extend right leg forward and place palms on the floor. Back to samasthiti. Repeat it on the other side



Figure 97

3.12.35 Paschimatanasana

From seated samasthiti, on inhale, raise arms from the front above the head. Straight arms across the ears and palms facing each other. On exhale, bend forward and hold the toes, arms relaxed. On inhale, raise arms and come up, arm must lead the trunk. On exhale, lower the arms from the front and palms on the floor.

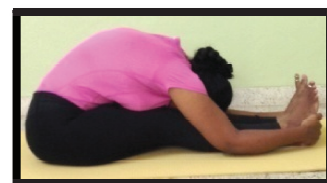


Figure 98

3.12.36 Upavistakonasana

From seated samasthiti, spread legs, place palms on the floor, inbetween the legs. On inhale, raise arms from the front above the head. Straight arms across the ears and palms facing each other. On exhale, bend forward, palms on the floor and arms relaxed. On inhale, raise arms and come up. On exhale lower the arms from the front, bring the legs together. Back to samasthiti.



Figure 99

3.12.37 Poorvathanasana

From Seated samasthiti, place the palms behind the back, palms on the floor and fingers facing forward. On inhale, raise trunk off the floor. Weight is evenly distributed arms and legs. Drop head back. Arms straight. Legs and feet together. Heels and toes on the floor and eyes closed. On exhale, lower trunk to the floor. Legs straight. Back to samasthiti. Palms on the lap.



Figure 100

3.12.38 Cathuspadapeedam

From seated samasthiti, on exhale, bend knees, lean back, feet on the floor. Knees and feet together, place palms behind the back fingers facing forward. On inhale, raise trunk off the floor. Weight evenly distributed between the palms and feet. Drop head back. Eyes closed. Feet firmly on the floor. On exhale, lower the trunk back to the floor. Knees bent. Feet and knees together. Palms on the floor and fingers facing forward. On inhale, extend the legs, back straight, palms on the lap.



Figure 101

3.12.39 Mahamudra

From seated samasthiti, bend right leg and press the groin with heel, place palms on the lap, body facing left leg. Right knee on the floor. The bent leg makes wider angle with the straight leg. On inhale, raise arms from the front above the head, straight arms across the ears and palms facing each other. On exhale, bend forward and place right palm over left foot and left palm over the right hand. Back relaxed and arms relaxed. On inhale, arch the back and retain chin. On exhale, relax the back. On inhale, raise arms and come up. Arms must lead the trunk. On exhale, lower arms from the front and palm on the lap. Extend the right leg forward and place palms on the floor. Repeat the same on the other side.

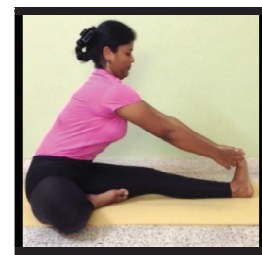


Figure 102

3.12.40 Pranayama

3.12.40.1 Ujjayi

Sit in a comfortable posture, back straight with chin down. Inhale and exhale through the nostrils, deliberately contract the larynx slightly and focus on the throat. Make a hissing sound. Repeat the cycles.



Figure 103

3.12.40.2 Nadi shodana

Sit in a comfortable posture, back straight, chin down. Mrigi mudra on the right hand. Inhale through partially closed left nostril, exhale through partially closed right nostril. Inhale again through partially closed right nostril. Exhale through left nostril. This is one cycle. Repeat the cycles.



Figure 104

3.12.40.3 Sheetal modified

Sit in a comfortable posture, chin down, back straight. Roll the tongue from side to side like a tube and inhale through the tube, raising the head up simultaneously. After inhalation, take the tongue as far back as possible and place it on the upper palate (jihva bandha). Now lower the head, releasing jihva bandha. Exhale through nostrils in chin down position.



Figure 105

3.12.40.4 Sitkari

Sit in a comfortable posture, chin down, back straight. Open up the lips and teeth a little, tongue is placed between the upper and lower set of teeth. Inhale with hissing sound taking the tongue in and raising the head simultaneously. Lower the head to chin down position and then exhale.



Figure 106

3.12.40.5 Bhastrika

Sit in a comfortable posture, chin down, back straight. Partially close one nostril using mirgi mudra, draw in air quickly through open nostril and breathe out forcibly and quickly through the blocked one by opening it partially.



Figure 107

3.13 DESCRIPTION OF THE TRAINING SCHEDULE

Experimental Group A was exposed to Yogic Practices based on Chakra Model, experimental group B was exposed Yogic Practices based on T. Krishnamacharya's Approach, and the control group was not exposed to any experimental training other than their regular daily activities.

All the subjects assembled at the stipulated time for the practice on each day. The practice was started with the prayer followed by a demonstration and instruction for the practice by the investigator. The subjects were followed the instructions and practiced. The class was ended with a relaxation techniques and pranayama. Healthy practice of diet regulation and appropriate lifestyle modifications were discussed in between the practices.

The experimental training programs are show in **Figures 108 – 113.**

3.14 TRAINING SCHEDULE

| YOGIC PRACTICES FOR EXPERIMENTAL GROUP A - 1 TO 4 WEEKS (60 MINUTES) | | | | | | | |
|--|---|---------------|-------------------------|------------------------------|--------------|--------------------------|---|
| Sl. No | NAME OF THE PRACTICES | Freq (weekly) | No. of repetition | Duration for Each Repetition | Rest (Secs) | Total Duration (Minutes) | |
| 1 | Prayer | 6 | | Omkar chanting | | 3 | |
| 2 | Loosening Exercises (All Joint movements) | 6 | 1 | 4 Mins | 1 | 5 | |
| 3 | Tadasana | 6 | 2 | 45 Secs | 15 | 2 | |
| | Tiryaka Tadasana | 6 | 2 | 45 Secs | 15 | 2 | |
| | Kati Chakrasana | 6 | 2 | 45 Secs | 15 | 2 | |
| | Druta Utkatasana | 6 | 2 | 45 Secs | 15 | 2 | |
| | Surya Namaskar | 6 | 3 | 2 Mins | 20 | 7 | |
| 4 | Lying supine | 6 | | Watch Breath | | 2 | |
| | Lying | Supine | Rest | 4 | 15 Secs | 2 | |
| | | | Padothanasana | 4 | 15 Secs | 2 | |
| | | | Padachakrasana | 4 | 15 Secs | 2 | |
| | | | Pada Sanchlanasana | 4 | 15 Secs | 2 | |
| | | | Supta Pawanmuktasana | 4 | 15 Secs | 2 | |
| | Prone | Supine | Bhujangasana | 4 | 15 Secs | 15 | 2 |
| | | | Aradha Shalabhasana | 4 | 15 Secs | 15 | 2 |
| | | | Shalabhasana | 4 | 15 Secs | 15 | 2 |
| | | | Rest | 4 | Watch Breath | 2 | |
| Marjari asana | | | 2 | 15 Secs | 15 | 1 | |
| 5 | Vajrasana Series | Lying supine | Vyaghrasana | 2 | 15 Secs | 1 | |
| | | | Vajrasana | 2 | 15 Secs | 1 | |
| | | | Shahankasana | 2 | 15 Secs | 1 | |
| | | | Abdominal Breathing | 15 | 20 Secs | 5 | |
| 6 | Pranayama | Lying supine | Thoracic and Clavicular | 10 | 30 Secs | 5 | |
| | | | Yoga Nidra | 1 | 5 Mins | 5 | |
| 7 | Relaxation | 6 | 1 | 5 Mins | - | 5 | |

Figure 108

YOGIC PRACTICES FOR EXPERIMENTAL GROUP A - 5 TO 8 WEEKS (60 MINUTES)

| Sl.No | NAME OF THE PRACTICES | | Freq (weekly) | No. of repetition | Duration for Each Repetition | Rest (Seconds) | Total Duration (Minutes) |
|----------|-----------------------|-------------------------------------|---------------|-------------------|------------------------------|----------------|--------------------------|
| 1 | | Prayer | 6 | | Omkar Chanting | | 3 3 |
| 2 | | Loosening Exercise (Neck Movements) | 6 | 1 | 2 Min | - | 2 2 |
| 3 | Standing | Suryanamaskar | 6 | 6 | 1 Min | 10 | 7 7 |
| | Lying supine | Rest | 6 | | Watch Breath | | 1 1 |
| | | Kandharasana | 6 | 2 | 15 Secs | 15 | 1 1 |
| | | Viparithakarani | 6 | 1 | 3 Mins | - | 3 3 |
| | | Poorwa Halasana | 6 | 2 | 15 Secs | 15 | 1 1 |
| | | Matsyasana | 6 | 1 | 2 Mins | - | 2 2 |
| | | Suptha Pavanamuktahasana | 6 | 4 | 20 Secs | 10 | 2 2 |
| | | Tiryaka Bhujangasana | 6 | 2 | 15 Secs | 15 | 1 1 |
| | Prone | Shalabasana | 6 | 2 | 15 Secs | 15 | 1 1 |
| 5 | | Simharajnasana | 6 | 1 | 2 Mins | - | 2 2 |
| | | Supta Vajrasana | 6 | 1 | 2 Mins | - | 2 2 |
| | | Marjari - Asana | 6 | 4 | 20 Secs | 10 | 2 2 |
| | | Ustrasana | 6 | 1 | 2 Mins | - | 2 2 |
| | | Sethu asana | 6 | 1 | 2 Mins | - | 2 2 |
| | | Pascimatanasana | 6 | 2 | 15 Secs | 15 | 1 1 |
| 6 | Seated | Bramari | 6 | 16 | 15 Secs | - | 4 4 |
| | | Ujjayi | 6 | 18 | 10 Secs | - | 3 3 |
| 7 | Pranayama | Alternate Nostril Breathing | 6 | 6 | 30 Secs | - | 3 3 |
| 8 | Relaxation | Yoga Nidra | 6 | 1 | 15 Mins | - | 15 15 |

Figure 109

YOGIC PRACTICES FOR EXPERIMENTAL GROUP A - 9 TO 12 WEEKS (60 MINUTES)

| Sl No | NAME OF THE PRACTICES | | Freq (weekly) | No. of repetition | Duration for Each Repetition | Rest (Secs) | Total Duration (Minutes) |
|------------|-------------------------------------|------------------------------|---------------|-------------------|------------------------------|-------------|--------------------------|
| 1 | Prayer | | 6 | | Omkar Chanting | | 3 3 3 |
| 2 | Loosening Exercise (Neck Movements) | | 6 | 1 | 2 Mins | - | 2 2 |
| 3 | Standing | Surya Namaskar with chanting | 6 | 10 | 1 Mins | 6 | 12 12 |
| 4 | Lying supine | Rest | 6 | | Lying rest | | 1 1 |
| | | Kandharasana | 6 | 2 | 15 Secs | 15 | 1 1 |
| | Supine | Suptha Pavanamuktasana | 6 | 2 | 15 Secs | 15 | 1 1 |
| | | Sarvangasana | 6 | 1 | 3 Mins | - | 3 3 |
| | | Halasana | 6 | 1 | 3 Mins | - | 3 3 |
| | Lying | Matsyasana | 6 | 1 | 3 Mins | - | 3 3 |
| | | Tiryaka Bhujangasana | 6 | 2 | 15 Secs | 15 | 1 1 |
| | Prone | Sarpasana | 6 | 2 | 15 Secs | 15 | 1 1 |
| | | Dhanurasana | 6 | 1 | 1 Mins | - | 1 1 |
| | Vajrasana series | Simharajnasana | 6 | 1 | 2 Mins | - | 2 2 |
| | | Supta Vajrasana | 6 | 1 | 2 Mins | - | 2 2 |
| Setu asana | | 6 | 1 | 1 Mins | - | 1 1 | |
| 6 | Seated | Januirsasana | 6 | 2 | 15 Secs | 15 | 1 1 |
| | | Ardha matsyendrasana | 6 | 2 | 15 Secs | 15 | 1 1 |
| | | Paschimatanasana | 6 | 2 | 15 Secs | 15 | 1 1 |
| | | Ujjayi | 6 | 16 | 15 Secs | - | 4 4 |
| 7 | Pranayama | Bhastrika | 6 | 15 | 12 Secs | - | 3 3 |
| | | Nadi Shodhana | 6 | 6 | 30 Secs | - | 3 3 |
| | | Yoga Nidra | 6 | 1 | 10 Mins | - | 10 10 |

Figure 110

YOGIC PRACTICES FOR EXPERIMENTAL GROUP B - 1 TO 4 WEEKS (60 MINUTES)

| Sl. No | NAME OF THE PRACTICES | | Freq (weekly) | No. of repetition | Duration for Each Repetition | Rest (Seconds) | Total Duration (Minutes) | |
|--------|--------------------------------|----------------------------|---------------|-------------------|------------------------------|----------------|--------------------------|---|
| 1 | Prayer | | | Chanting | | | 3 3 3 | |
| | | Tadasana | 6 | 4 | 15 Secs | 15 | 2 | |
| | | Parsvauddhanasana | 6 | 4 | 15 Secs | 15 | 2 | |
| | | Uddhanasana | 6 | 4 | 15 Secs | 15 | 2 | |
| | | Veerabhadrasana | 6 | 4 | 15 Secs | 15 | 2 | |
| | | Trikonasana (Lateral) | 6 | 4 | 15 Secs | 15 | 2 | |
| | | Prasarita Pada Uttanasana | 6 | 4 | 15 Secs | 15 | 2 | |
| | | Surya Namaskar | 6 | 3 | 1.30 Secs | 10 | 5 | |
| | | Rest | 6 | | Observe the breath | | 2 | 2 |
| | | Urdhva prasrita Padasana | 6 | 6 | 15 Secs | 15 | 3 | |
| 2 | Supine | Dwipadapeedam | 6 | 6 | 15 Secs | 15 | 3 | |
| | | Jatara Parivritti | 6 | 6 | 45 Secs | 15 | 6 | |
| | | Bhujangasana | 6 | 3 | 45 Secs | 15 | 3 | |
| | | Ardha salabasana | 6 | 3 | 45 Secs | 15 | 3 | |
| | | Vajrasana forward bend | 6 | 4 | 20 Secs | 10 | 2 | |
| | | Cakravakasana | 6 | 4 | 20 Secs | 10 | 2 | |
| 3 | Lying | Adhomuka svanasana | 6 | 4 | 20 Secs | 10 | 2 | |
| | | Janusirasana | 6 | 4 | 15 Secs | 15 | 2 | |
| | | Pascimatanasana | 6 | 4 | 15 Secs | 15 | 2 | |
| | | Viloma Ujjayi | 6 | 10 | 18 Secs | - | 3 | |
| 4 | Kneeling Sequence | Anuloma Ujjayi | 6 | 10 | 18 Secs | - | 3 | |
| | | Sitali with neck movements | 6 | 10 | 24 Secs | - | 4 | |
| 5 | Seated | | 6 | 10 | - | 4 | | |
| | | | 6 | 10 | - | 4 | | |
| 6 | Pranayama with Jalandhar bandh | | 6 | 10 | - | 10 | | |
| | | | 6 | 10 | - | 10 | | |

Figure 111

YOGIC PRACTICES FOR EXPERIMENTAL GROUP B - 5 TO 8 WEEKS (60 MINUTES)

| SL No | NAME OF THE PRACTICES | | Freq (weekly) | No. of repetition | Duration for Each Repetition | Rest (Secs) | Total Duration | |
|-------------------|--------------------------------|--|---------------|-------------------|------------------------------|-------------|----------------|---|
| 1 | Prayer | | Chanting | | | | | 3 |
| 2 | Standing | Tadasana | 6 | 2 | 15 Secs | 15 | 1 | |
| | | Veerabhadrasana | 6 | 2 | 15 Secs | 15 | 1 | |
| | | Trikonasana (Twist) | 6 | 2 | 20 Secs | 10 | 1 | |
| | | Prasarita Pada Uttanasana | 6 | 2 | 20 Secs | 10 | 1 | |
| | | Surya Namaskar with "om" chanting | 6 | 6 | 2 Mins | 10 | 13 | |
| Lying supine | Rest | Inhale free, exhale to the count of 10 | | | | | 2 | |
| 3 | Lying | Supta Padangusthasana | 6 | 4 | 20 Secs | 10 | 2 | |
| | | Viparitha karani | 6 | 1 | 3 Mins | - | 3 | |
| | Prone | Jatara Parivritti (modified) | 6 | 4 | 20 Secs | 10 | 2 | |
| | | Bhujangasana | 6 | 4 | 15 Secs | 15 | 2 | |
| | | Salabasana | 6 | 4 | 15 Secs | 15 | 2 | |
| | | Apanasana | 6 | 4 | 15 Secs | 15 | 2 | |
| | | Adhomuka svanasana | 6 | 4 | 45 Secs | 15 | 4 | |
| Kneeling sequence | Urdhvamukha svanasana | 6 | 4 | 50 Secs | 10 | 5 | | |
| 4 | Seated | Janu sirssana | 6 | 4 | 20 Secs | 10 | 2 | |
| | | Catuspadapitham | 6 | 4 | 15 Secs | 15 | 2 | |
| | | Pascimatana | 6 | 4 | 15 Secs | 15 | 2 | |
| | | Bastrika | 6 | 12 | 15 Secs | - | 3 | |
| 5 | Pranayama with Jalandhar bandh | Nadi shodana | 6 | 10 | 30 Secs | - | 5 | |
| | | Sitali with neck movements | 6 | 8 | 15 Secs | - | 2 | |
| | | | | | | | | |

Figure 112

YOGIC PRACTICES FOR EXPERIMENTAL GROUP B - 9 TO 12 WEEKS (60 MINUTES)

| Sl.No | Position | Name of Yogic Practices | Freq (weekly) | No. of repetition | Duration for Each Repetition | Rest (Secs) | Total Duration (Minutes) |
|--------------|--------------------------------|--------------------------------------|---------------|---|-------------------------------------|-------------|--------------------------|
| 1 | Seated | Prayer | 6 | | Chanting | | 3 |
| | Standing | Surya Namaskar with Ujjayi breathing | 6 | 10 | 1 Min | 6 | 11 |
| 2 | Lying supine | Rest | | Observe the breath | | | 2 |
| | Lying | Tadaka mudra | 6 | 1 | 1 Min | - | 1 |
| | | Urdhva prasrita Padasana | 6 | 6 | 20 Secs | 10 | 3 |
| | | Sarvangasana | 6 | 1 | 3 Mins | - | 3 |
| | Prone | Halasana | 6 | 1 | 3 Mins | - | 3 |
| | | Rest | | | Inhale to the count of 6, Exhale 12 | | 1 |
| | | Bhujangasana | 6 | 4 | 16 Sec | 15 | 2 |
| Shalabhasana | | 6 | 4 | 16 Sec | 15 | 2 | |
| Lying supine | Dhanurasana | 6 | 4 | 16 Sec | 15 | 2 | |
| 4 | Lying supine | Rest | | Inhale to the count of 6, Exhale 12, Hold 6 | | | 1 |
| | Kneeling sequence | Ustrasana | 6 | 1 | 2 Mins | - | 2 |
| | | Cakravakasana | 6 | 3 | 50 Secs | 10 | 3 |
| | Seated | Mahamudra | 6 | 1 (Each leg) | 3 Mins | 30 | 7 |
| | | Ardhamatsyendrasana | 6 | 1 (Each leg) | 1 Mins | 30 | 3 |
| Rest | | | | Inhale to the count of 6, Exhale chant "Om" | | 1 | |
| 5 | Pranayama with Jalandhar Bandh | Surya Bhedana | 6 | 10 | 18 Secs | - | 3 |
| | | Nadi shodana | 6 | 10 | 30 Secs | - | 5 |
| | | Bastrika | 6 | 12 | 10 Secs | - | 2 |

Figure 113

3.15 TEST ADMINISTRATION

3.15.1. RESTING HEART RATE

- Purpose** : To measure the Pulse rate.
- Equipment** : Digital pulse measuring apparatus.
- Procedure** : The subject will be seated on the chair and pulse is recorded from the brachial artery from arm through apparatus.
- Scoring** : Normal Score is 72 pulses per minute.

3.15.2 BODY MASS INDEX

3.15.2.1 Height

- Purpose** : To measures the erect body length from the sole of the foot to the tip of the head.
- Equipment** : A standardized stadiometer
- Procedure** : The subject was asked to stand bare foot on the platform, with heels, buttocks, back and head touching the upright on the stadiometer. 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 stadiometer was lowered slowly so that it touched the vertex of the head in the mid sagittal plane. The measurement was recorded to 1/10th of a centimeter. (Yobu, 1983)

3.15.2.2 Weight

Purpose : To measure the total body weight

Equipment : A standardized weighing machine.

Procedure : The subject was asked to stand bare foot at the centre on the platform exerting equal pressure on both the feet without any movement thereafter. The subject was allowed minimum possible clothing (shorts only). The weight was recorded to the fraction of $1/10^{\text{th}}$ of a kilogram. (Yobu, 1983)

BMI 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 kilograms divided by body height in meters squared ($\text{kg}/\text{m} \times \text{m}$).

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 - extremely obese

3.15.3 Blood pressure (Systolic and Diastolic)

Purpose : To measure the systolic and diastolic blood pressure.

Equipment : Mercury column sphygmomanometer, stethoscope, chart paper and a table are used for 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 patient'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 : Normal score is 120/80 mmHg

3.15.4 THYROID-STIMULATING HORMONE

Purpose : To measure the thyroid stimulating hormone

Method : The electrochemiluminescence Immunoassay “ECLIA”

is intended for use on Elecsys and cobase immunoassay analyzers.

Procedure : Sandwich principle. Total duration of assay: 18 minutes.

- 1st incubation: 50 microliter of sample, a biotinylated monoclonal TSH-specific antibody and a monoclonal TSH-specific antibody labeled with a ruthenium complex react to form a sandwich complex.
- 2nd incubation: after addition of streptavidin-coated microparticles, the complex becomes bound to the solid phase via interaction of biotin and streptavidin.
- The reaction mixture is aspirated into the measuring cell where the microparticles are magnetically captured onto the surface of the electrode. Unbound substances are then removed with ProCell/ ProCell M. Application of a voltage to the electrode then induces chemiluminescent emission which is measured by a photomultiplier.
- Results are determined via a calibration curve which is instrument-specifically generated by 2-point calibration and a master curve provided via the reagent barcode.

Scoring: Thyroid stimulating hormone is expressed in uIU/mL.

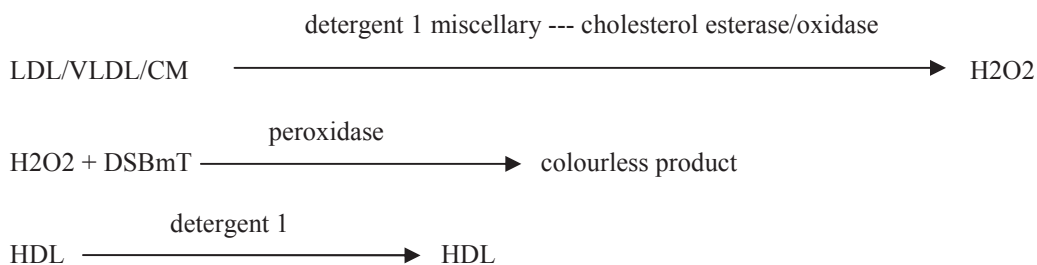
3.15.5 HIGH DENSITY LIPOPROTEIN

Purpose : To measure the High-Density Lipoprotein.

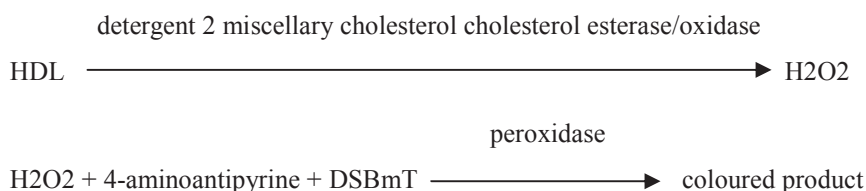
Method : AutoPure T HDL-Cholesterol assay is a homogenous method for directly measuring HDL-C levels in serum or plasma without the need for any off-line pretreatment or centrifugation steps.

Procedure : In the first reaction, non HDL unesterified cholesterol is subject to an enzyme reaction and the peroxide generated is consumed by a peroxidase reaction with DSBmT to yield a colourless product. The second reagent consists of a detergent capable of solubilizing HDL specifically. Cholesterol esterase and chromogenic coupler react with this solubilized HDL-C to develop colour. The intensity of colour formed is directly proportional to the concentration of HDL-C.

Reaction 1



Reaction 2



Scoring: Serum high-density lipoprotein cholesterol is expressed as milligram per deciliter (mg/dL).

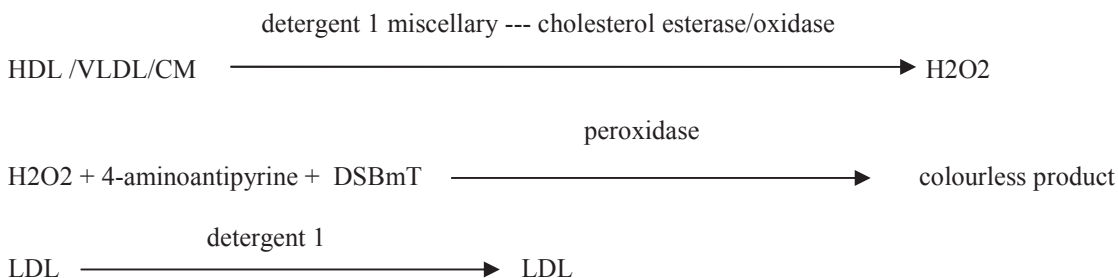
3.15.6 LOW DENSITY LIPOPROTEIN

Purpose : To measure the Low-Density Lipoprotein.

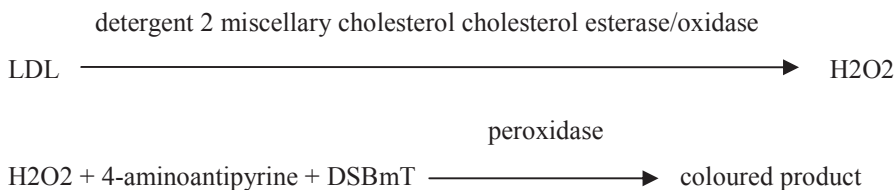
Method : AutoPure T LDL-Cholesterol assay is a homogenous method for directly measuring LDL-C levels in serum or plasma without the need for any off-line pretreatment or centrifugation steps.

Procedure : In the first reaction, non LDL unesterified cholesterol is subject to an enzyme reaction and the peroxide generated is consumed by a peroxidase in the presence of 4-AAP to yield a colourless product. The second reagent consists of a detergent capable of solubilizing LDL specifically. Cholesterol esterase and chromogenic coupler react with this solubilized LDL-C to develop colour. The intensity of colour formed is directly proportional to the concentration of LDL-C.

Reaction 1



Reaction 2



Scoring: Low-density lipoprotein cholesterol is measured in milligram per deciliter (mg/dL).

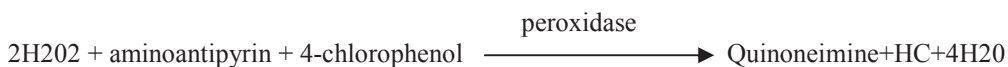
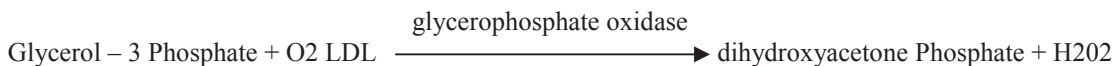
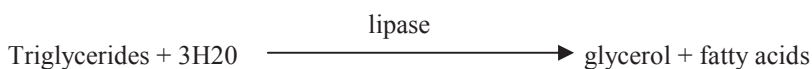
3.15.7 TRIGLYCERIDES

Purpose : To measure the triglycerides

Method : Colorimetric enzymatic test using glycerol -3-phosphate-oxidase (GPO)

Procedure : Determination of triglycerides after enzymatic splitting with lipoprotein lipase. Indicator is quinoneimine which is generated from 4-aminoantipyrin and 4-chlorophenol by hydrogen peroxide under the catalytic action of peroxidase. The reaction sequence is as follows:

Reaction 1



Scoring: Triglycerides are expressed in milligram per deciliter (mg/dL).

3.15.8 SELF ESTEEM (Rosenberg Self-Esteem Scale-Rosenberg, 1965)

Purpose : To measure self - worth and self – acceptance

Facilities and equipments : A classroom, Rosenberg self-esteem questionnaire, pencil, paper and writing pad.

Description of the questionnaire: The Rosenberg self-esteem scale was developed by Morris Rosenberg in 1965. It was developed originally to measure adolescence global feelings of self-worth or self acceptance.

It is one of the most widely used self-esteem tests among psychologists and sociologists. The scale is a ten item Likert scale with items answered on a four point rating scale that is “strongly agree”, “agree”, “disagree”, and “strongly disagree”. The items 1,3,4,7 and 10 are direct coding system. The score to each item varies from 3, 2, 1 and 0. The items 2, 5, 6, 8, and 9 are reverse coding direction. The score to each item varies from 0, 1, 2 and 3.

Administration of the test

The subject was seated in a well lit classroom and the questionnaire was distributed along with a pencil. After distributing the questionnaire, a brief introduction was given about filling up the questionnaire. Instructions: Below is a list of statements dealing with your general feelings about yourself. If you strongly agree, circle SA.

If you agree with the statement, circle A. If you disagree, circle D. If you strongly disagree, circle SD. The subject was asked to read the questionnaire carefully and encircle the appropriate item. There was no time limit. The subject was asked to answer the question as early as possible and not to omit any question.

Scoring : SA=3, A=2, D=1, SD=0. Items with an asterisk are reverse scored, that is, SA=0, A=1, D=2, SD=3. Sum the scores for the 10 items. The high score indicates the high self esteem. Scores below 15 suggest low self-esteem.

3.15.9 STRESS

Purpose : To measure stress

Facilities and equipments : A classroom, Cohen Perceived Stress Scale, pencil, paper and writing pad.

Description of the questionnaire: The Cohen Perceived Stress Scale was developed by Sheldon Cohen and colleagues. It was published in 1983. It was developed originally to measure the degree to which situations in one's life are appraised as stressful. Psychological stress has been defined as the extent to which persons perceive (appraise) that their demands exceed their ability to cope. It is one of the most widely used stress tests among psychologists and sociologists. The scale is a ten item Likert scale with items answered on a four point rating scale that is "never", "almost never", "sometimes", and "fairly often" and "very often." The score to each item varies from 4, 3, 2, 1 and 0.

Administration of the test

The subject was seated in a well lit classroom and the questionnaire was distributed along with a pencil. After distributing the questionnaire, a brief introduction was given about filling up the questionnaire. Instructions: The following questions ask about your feelings and thoughts during THE PAST MONTH. In each question, you will be asked HOW OFTEN you felt or thought a certain way. Although some of the questions are similar, there are small differences between them and you should treat each one as a separate question. The best approach is to answer fairly quickly. That is, don't try to count up the exact number of times you felt a particular way, but tell me the answer that in general seems the best.

Scoring : Higher scores indicate more perceived stress. Each item is rated on a 5-point scale ranging from never (0) to almost always (4). Positively worded items are reverse scored, and the ratings are summed. Items 4, 5, 7 and 8 are positively stated items.

3.15.10 ANXIETY

Purpose : To find out the Anxiety Level

Equipment : Questionnaire by Taylor's Manifest Anxiety Scale

Procedure : The questionnaire was administered in a group setting and the subjects were made to sit comfortably. The researcher had read out and explained the meaning of all question and were made them tick appropriate answer 'True' or 'False'.

Scoring : The questionnaire contains 50 statements

If the answer is 'True' for positive statements, it gets '0' mark.

If the answer is 'False' for positive statements, it gets '1' mark.

If the answer is 'True' for negative statements, it gets '1' mark.

If the answer if 'False' for negative statements, it gets '0' mark.

The maximum possible score is 50.

Item Numbers of Positive Statements : 1, 3, 4, 9, 12, 14, 15, 18, 20, 29, 32, 38 and 50.

Item Numbers of Negative Statements : 2, 5, 6, 7, 8, 10, 11, 13, 16, 17, 19, 21, 22, 23,

24, 25, 26, 27, 28, 30, 31, 33, 34, 35, 36, 37, 39, 40, 41,

42, 43, 44, 45, 46, 47, 48 and 49.

0 – 8 Normal anxiety

9-18 Significantly anxious

19-30 Highly anxious

31 and above Anxiety level in very high and uncontrollable

3.16 COLLECTION OF DATA:

To achieve this purpose, only three groups consisting of 15 subjects were selected. Group 'A' treated with Yogic Practices based on Chakra Model and Group 'B' treated with Yogic Practices based on T. Krishnamacharya's Approach for twelve weeks. After the treatment period all the subjects were tested on selected criterion variables at different stages such as pre and post test.

3.17 STATISTICAL TECHNIQUES

The collected data from the three groups prior to and immediately after the training program on selected criterion variables were statistically analyzed with suitable statistical techniques. Descriptive statistics such as mean and standard deviation were calculated. Normality of the data of all the selected variables was analyzed to further go for analysis of covariance.

Analysis of covariance (ANCOVA) was used to find out the significant difference between experimental groups and control group. When the F-ratio indicated that there are significant differences between means, several tests may be used to identify which means are significantly different from each other. A test used for this purpose is referred to as a Scheffe's post hoc test (David, K.Miller 2006) and also to find out the paired mean differences. In all cases 0.05 level of significance was fixed to test hypotheses.

The methodology adopted in the study is shown in **Figure- 114**.

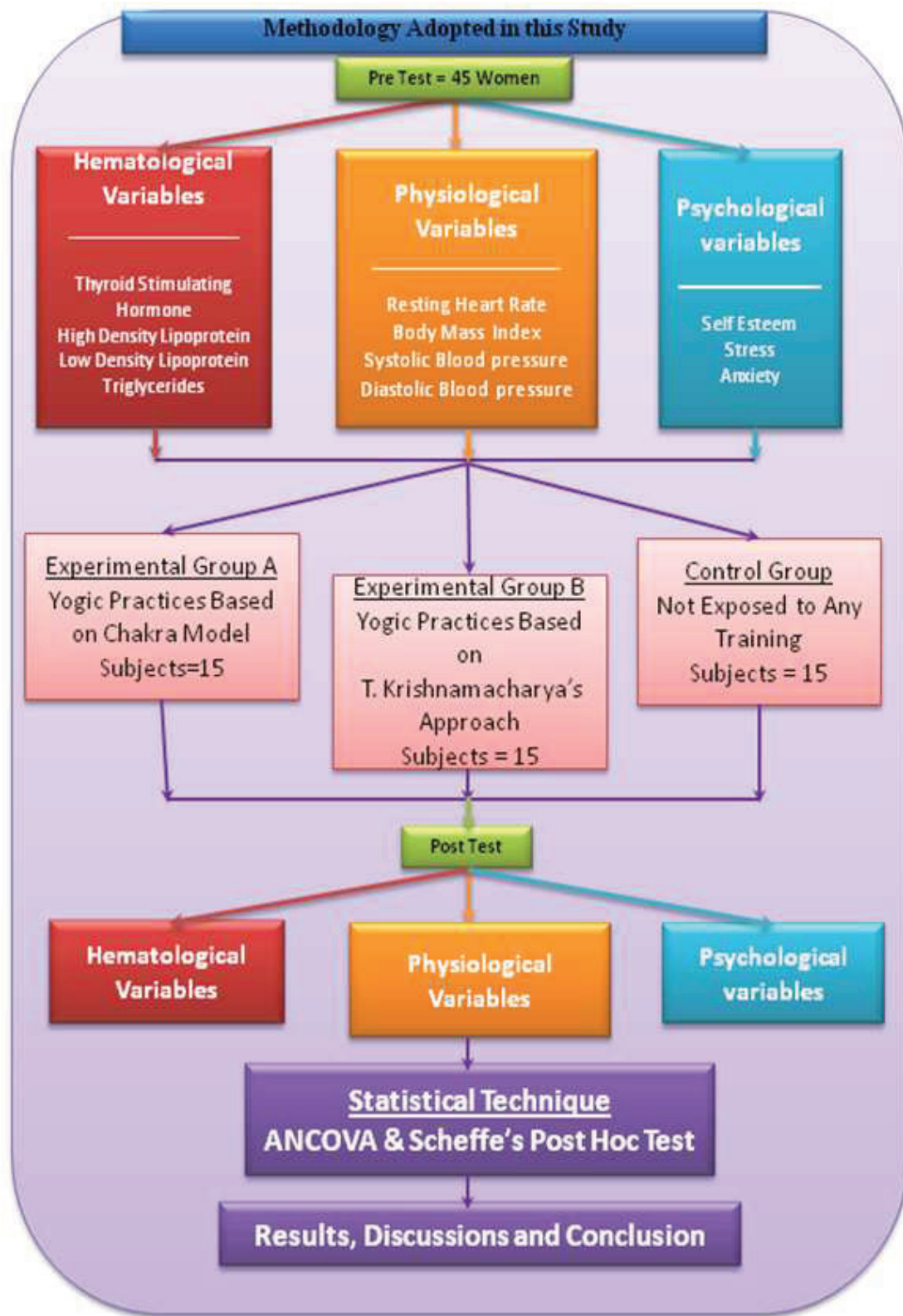


Figure 114



Figure 115 – Practice sessions of Group A



Figure 116 Practice sessions of Group B



Figure 117 Collection of data



Figure 118 – Assessing the individual for yogic practices