

Chapter-III

METHODOLOGY

In this chapter, the procedure followed towards the selection of subjects, experimental design, selection of variables, pilot study, selection test, Tester and subject reliability, reliability of the data, instrumental reliability, orientation to the subjects, training programme, training schedule, test administration, collection of blood samples, description of exercise, collection of data, statistical techniques and justification for using statistical techniques applied for analyzing the data.

3.1. Selection of Subjects

The purpose of the study was to find out the effects of varma therapy and yoga therapy on selected physiological, biochemical and psychological variables of diabetic patients. To achieve the purpose of the study, 90 male diabetic patients were selected from Chennai city, India, at random and their age ranged from 40 to 55 years. The selected subjects were divided into two experimental groups and a control group with thirty subjects in (n=30) each. Experimental Group-I underwent varma therapy programme (VTG), Group-II underwent yoga therapy programme (YTG) and Group III served as control group (CG) for the training period of 12 weeks, six days per week, an hour in the morning.

All the subjects were informed about the nature of the study and their consent was obtained to co-operate till the end of the experiment and testing period. Pilot study groups and experimental groups (namely VTG and YTG) were trained-up in which two modes of training were given independently with separate subjects in each group. A

qualified physician examined the subjects medically and declared them fit for the study. The subjects were free to withdraw their consent in case they felt any discomfort during the period of their participation, but there were no dropouts.

3.2. Selection of variables

Healthy life style is merely the product of physiological, psychological parameters and lipid profiles prerequisites possessed by an individual. The investigator had gone through the relevant literature in the area of varma therapy and yogic practice and its various aspects in association with the guide and other experts in this area. The variables were selected after considering the feasibility and availability of proper techniques and instruments.

3.2.1 Dependent Variables

Based on the above facts, the following dependent variables were selected and are presented below.

I. Physiological variables.

1. Resting Pulse rate
2. Systolic pressure
3. Diastolic pressure

II. Bio-chemical variables

1. Total Cholesterol
2. Blood glucose

III. Psychological variables.

1. Stress &
2. Self-confidence

3.3.2.Independent Variables

Yoga can be done for relaxation, but it improves flexibility as well. And almost all exercises have some effect on the shape of the body. Prolonged yoga asana practices can decrease pulse rate, respiratory rate and blood pressure, it can contribute to stabilizing the nervous system equilibrium, to normalizing gastrointestinal functions and endocrine function, to increasing the joint range of motions, endurance level, energy level, immunity to diseases and cardiovascular efficiency, to improving eye-hand coordination, reaction time, dexterity skills, depth perception, sleep, etc. As for the biochemical benefits, we can enumerate substantial decreases of glucose, sodium, cholesterol, total white blood cell and remarkable increases of vitamin C, total serum protein, hemoglobin etc. (Fonda's, 1984)

Siddha medicine is the one of the oldest medical systems originated from India. Varmam is one the main streams within siddha medicine. For example, if a patient is suffering from pain in some part of the body, siddha medicine will externally apply herb medicines, which after absorbed by the body, produce the cure. But based on varmam, certain pressure points are tuned to regulate the blood flow, which gives immediate relief to the pain. Siddha doctors in South India (notably in Kanyakumari District of TamilNadu) use this technique of combined medication to give faster and better relief to the patients. Ayurveda is one another oldest forms of medical systems from India. Among ayurvedic text, there is no separate text for varmam. But in the text

'Astangahridayam', written by Vakpatar, the author speaks about 107 varmam points in human body. Some other ayurvedic texts also contain sparse information about varmam points (Aug, 2012, <http://www.varmam.org/>).

Considering the above facts of the following variables were selected as independent variables.

1. Varma therapy and

2. Yoga therapy

3.3. Experimental Design

The experimental design used for this study was pre and post test random group design involving 90 male subjects, who were divided at random into three groups of thirty each. This study consisted of three experimental groups. Group-I underwent varma therapy programme (VTG), Group-II underwent yoga therapy programme (YTG) and Group III served as control group (CG). All the subjects were tested prior to and after the training on selected variables.

Varma kalai has two sides in it as a coin has sides. One is called varma kalai that deals with self defence and the other called the varma therapy which deals with are some of the most important structured features of human body, ligaments, nerves, bones, blood vessels, joints and nerve-centers etc. They meet combine and coordinate so as to enable the body of function biologically. The nerves and bones and muscles form part of the entire body. The bone and joints are hard structures. At many points the nerves and nerve centres are closely in interviewed. Even a slight damage to these nerve center and joints sometimes may nerve critically harmful. (eg. where the nerve is in contact with the

bone). The damage may be extensive too. They may even affect the blood vessels passing through area causing improper blood supply to that area. This leads to pain and unconsciousness. Varma Kalai uses pressure and precise strikes to vulnerable pressure points on the human body to heal, maim or even kill someone depending on what part of the body is it and how much pressure is applied based on periodic energy flows (time-dependent) streaming through the body along meridians. (Aug, 2012, <http://www.avrdt.com/Varma-Therapy.aspx>).

3.4 Pilot Study

A pilot study was conducted to assess the initial capacity of the subjects in order to fix the load. For this, 12 diabetic patients were selected at random and divided into two groups of six each, in which group I underwent varma therapy and group II underwent yoga therapy under the supervision of the investigator. Based on the response of the subjects in the pilot study, the training schedule was constructed for main study. The basic principles of sports training namely progression of load, over load and specificity were followed.

3.5 Criterion variables

As per the available literature, the following tests were used to collect relevant data on the selected criterion variables and they were presented in the Table I.

**TABLE I
TEST SELECTION.**

Variables		Test/Instrument	Unit of Measurement
Physiological	Resting Pulse rate	Radial Pulse	In beats/minute
	Blood Pressure	Sphygmomanometer	In mm.Hg.
Bio-chemical	Blood Glucose	Computerized Semi Auto Analyzer Randox	In mg/dL
	Total Cholesterol	Computerized Semi Auto Analyzer Randox	In mg/dL
Psychological	Stress	John D. and Catherine T. Macarthur questionnaire	In points
	Self-confidence	Agnihotri self-confidence inventory (ASCI)	In points

3.6. Reliability of the Data

The reliability of data was measured by ensuring instruments reliability, tester competency and subject reliability.

3.7. Reliability of the Instrument

The instruments such as Sphygmomanometer, Stethoscope, Stop Watch, and Semi auto analyzer used for biochemical variables analysis were all manufactured by standard companies and they were maintained in good condition and calibrated daily. Instrument reliability was also established by test-retest method. The blood samples were analyzed in the clinical laboratory of biochemistry.

3.8. Tester and Subject Reliability

Three months before the commencement of the pilot study, the reliability of the data was established by using 10 subjects at random. To ensure reliability, test and re-test method was executed. In between the test and retest, one-day rest was given to all the subjects. The same testing personnel by using the same equipments under identical conditions tested all the variables selected in the present investigation 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 are given in table II

TABLE II

INTRA CLASS CO-EFFICIENT OF CORRELATION ON SELECTED VARIABLES

Sl.No.	Variables	'R' value
1.	Resting Pulse rate	0.90*
2.	Blood Pressure	0.91*
3.	Total Cholesterol	0.93*
4.	Blood Glucose	0.94*
5.	Stress	0.91*
6.	Self-Confidence	0.89*

*Significant at 0.01 level. (Table value required for significance at 0.01 level of confidence is 0.77)

Since the obtained 'R' values were much higher than the required value, the data were accepted as reliable in terms of instrument, tester and the subjects.

3.9. Orientation to the Subjects

The investigator explained the purpose of the training programme and explained the involvement of the subjects. Before the commencement of the training programme, the varma therapy and yoga therapy training was taught to group I and II respectively. Two one-hour sessions was spent on each day to practice the techniques. This helped them to perform the exercise perfectly by avoiding injuries.

3.10. Training Programme

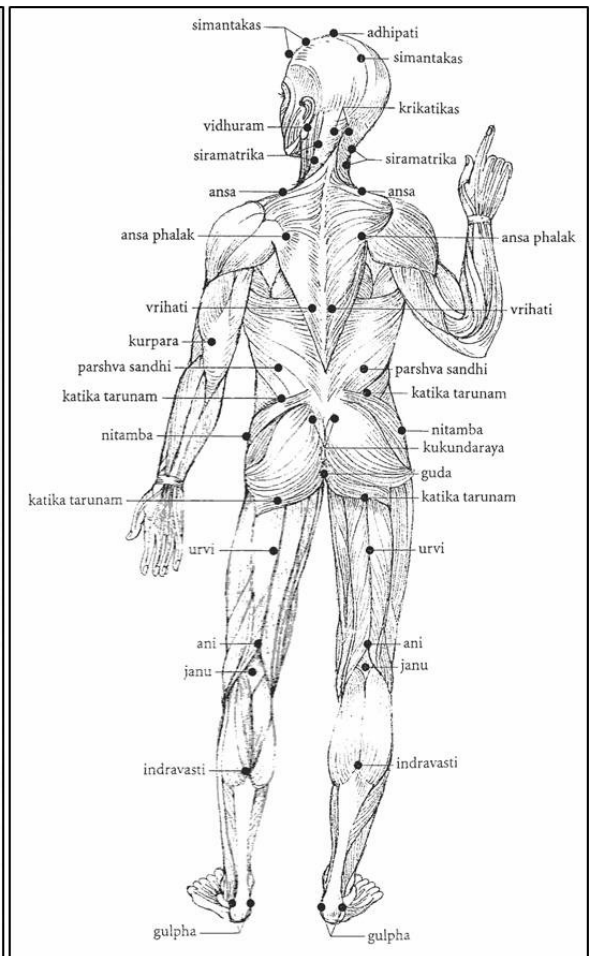
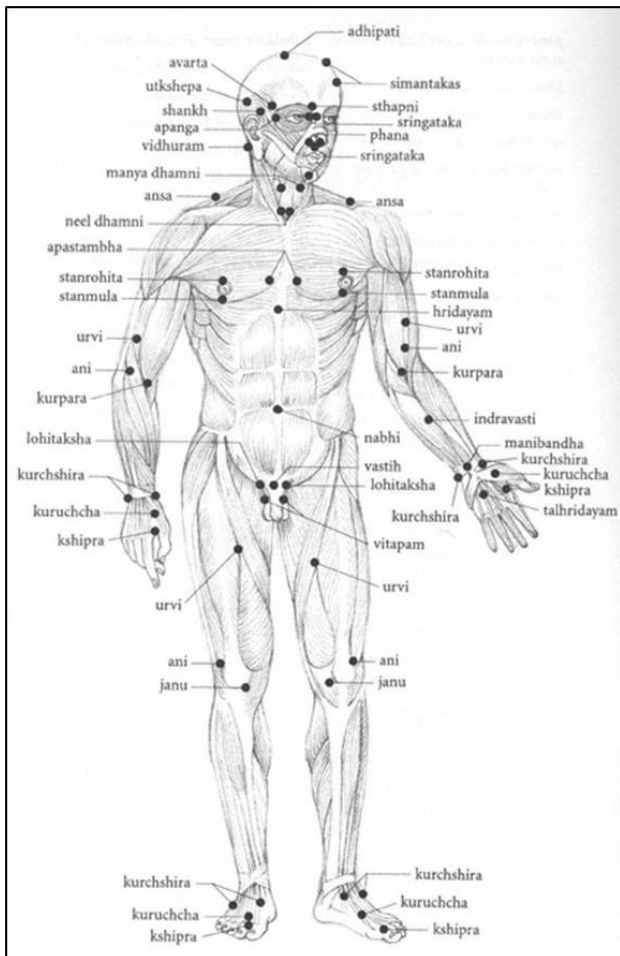
During the training period, the experimental groups underwent their respective training programmes six days per week for twelve weeks in addition to their regular activities. Experimental Group I (VTG) underwent varma therapy programme and group II (YTG) underwent yoga therapy programme only. Training volume and intensity were increased progressively on different phases. The training schedule for the two experimental groups were presented in table from III to VI. Every day the workout lasted for maximum 60 minutes approximately. Group III (CG) served as the control group and were in active rest.

The subjects underwent their training programme under strict supervision of the investigator. Prior to every training session, subjects underwent 10 minute loosening exercises. All the subjects involved in the training programmes were questioned about their statures throughout the training period. None of them reported any injuries. However, muscle soreness was reported in the early weeks, but it was subsided later.

VARMA THERAPY

Varma adi recognizes 108 marmas, 12 Padu marmas (death marmas) and 96 Thodu marmas (touch marmas). There are also counter marmas to heal trauma to the marmas (**Luijendijk, 2008**). Prana which is acting in the body is known as varmam the method of prana acting in the body is called nadigal. There are 10 major naadhies in the body these 10 naadhies are called thasa nadigal. These 10 naadhies spread all over the body and divided in to 7200 nadhiess. In some of the body these 72000 are meeting each other. These meeting points are known as Varma stanangal important varma stanangal are making 108 vital points in the human body. In these points the most important Uyir Stanangal (Life Vital centres) are divided in to Padu Varmam 12 and Thodu Varmam 96. The method of protection of these vital points is called varmakalai. Thodu Varmam Varma locations in the body to be stimulate by a touch. not deadly, but will affect the victim by disabling the body, organ movements and function. Padu Varmam. 12 varma locations that are fatal. causing immediate severe effects upon the victim. Thattu Varmam. 8 Varma locations that are used by the assans these are kept confidential until the assan pass on the knowledge to the selected discipline. Triggering varma locations by focusing or concentrating on the selected varma location. it will takes many years of practice for one to become an expert nooku varmam or meitheenda kalam. These method further divided in to Vaidhaya muraigal (expaling medical values of vital points) Tharkappu muraigal (explaining defence values of vital points). In the Human body there are 108 points of Varmam (Vital points) they are

- From head to neck - 25 points
- From neck to navel - 45 points
- From navel to arm - 9 points
- In arms - 14 points
- In legs - 15 points
- Total - 108 points



3.11. Training Schedule

The training was scheduled in the morning session for six days per weeks for twelve weeks. The training schedule of VTG and YTG is presented in the table from III to VI.

**TABLE III
VARMA PRESCRIBED FOR VARMA THERAPY GROUP
DURING THE TRAINING PERIOD**

Week	Varma Therapy	Duration	Repetition	Set	Frequency Days / week	Rest between sets
1-4	Ganapathi Muga Varmam (Ganapathi Face Varma Point)	30-60 sec	1	1	6	--
	Ellurukki Varmam (Bone-Emacating Varma Point)	1 – 3min	1	1	6	--
	Pakka-kaluthu nadukku Varmam (Lateral Mid-Neck Varma Point)	1 – 3min	1	1	6	--
	Kak-Kattai Varmam (Shoulder Pole Varma Point)	30 sec	1	1	6	--
5-8	Ganapathi Muga Varmam (Ganapathi Face Varma Point)	30-60 sec	1	2	6	5-8min
	Ellurukki Varmam (Bone-Emacating Varma Point)	1 – 3min	1	2	6	5-8min
	Pakka-kaluthu nadukku Varmam (Lateral Mid-Neck Varma Point)	1 – 3min	1	2	6	5-8min
	Kak-Kattai Varmam (Shoulder Pole Varma Point)	30 sec	1	2	6	5-8min
9-12	Ganapathi Muga Varmam (Ganapathi Face Varma Point)	30-60 sec	1	3	6	10-12min
	Ellurukki Varmam (Bone-Emacating Varma Point)	1 – 3min	1	3	6	10-12min
	Pakka-kaluthu nadukku Varmam (Lateral Mid-Neck Varma Point)	1 – 3min	1	3	6	10-12min
	Kak-Kattai Varmam (Shoulder Pole Varma Point)	30 sec	1	3	6	10-12min

TABLE IV
YOGIC PRACTICES OF 1st PHASE FROM THE 1st WEEK TO 4th WEEK

Weeks	Dr.Swami Karmanada from Bihar School of Yoga	Repetition	Sets	Frequency Days / week	Rest
1-4	Neti	1	1	6	2min
	Loosening Exercise	1	1	6	2min
	Suryanamaskara	1	2	6	2min
	Gomukhasana	1	2	6	2min
	Bhujangasana	1	2	6	2min
	Ardha Matsyendrasana	1	2	6	2min
	Sarvangasana	1	2	6	2min
	Halasana	1	2	6	2min
	Paschimottanasana	1	2	6	2min
	Matsyasana	1	2	6	2min
	Nashisodhana	1	2	6	2min
	Bhastrika	1	2	6	2min
	Savasana II	1	2	6	2min
	YogaNidra	14 min	1	6	

TABLE V
YOGIC PRACTICES OF 2st PHASE FROM THE 5th WEEK TO 8th WEEK

Weeks	Dr.Swami Karmanada from Bihar School of Yoga	Repetition	Sets	Frequency Days / week	Rest
5-8	Neti	1	1	6	3 - 5min
	Loosening Exercise	1	1	6	3 - 5min
	Suryanamaskara	1	4	6	3 - 5min
	Gomukhasana	1	4	6	3 - 5min
	Bhujangasana	1	4	6	3 - 5min
	Ardha Matsyendrasana	1	4	6	3 - 5min
	Sarvangasana	1	4	6	3 - 5min
	Halasana	1	4	6	3 - 5min
	Paschimottanasana	1	4	6	3 - 5min
	Matsyasana	1	4	6	3 - 5min
	Nashisodhana	1	4	6	3 - 5min
	Bhastrika	1	4	6	3 - 5min
	Savasana II	1	4	6	3 - 5min
	YogaNidra	14 min	1	6	

TABLE VI
YOGIC PRACTICES OF 3rd PHASE FROM THE 9th WEEK TO THE 12th WEEK

Weeks	Dr.Swami Karmanada from Bihar School of Yoga	Repetition	Sets	Frequency Days / week	Rest between sets
9-12	Neti	1	1	6	5 - 7min
	Loosening Exercise	1	1	6	5 - 7min
	Suryanamaskara	1	6	6	5 - 7min
	Gomukhasana	1	6	6	5 - 7min
	Bhujangasana	1	6	6	5 - 7min
	Ardha Matsyendrasana	1	6	6	5 - 7min
	Sarvangasana	1	6	6	5 - 7min
	Halasana	1	6	6	5 - 7min
	Paschimottanasana	1	6	6	5 - 7min
	Matsyasana	1	6	6	5 - 7min
	Nashisodhana	1	6	6	5 - 7min
	Bhastrika	1	6	6	5 - 7min
	Savasana II	1	6	6	5 - 7min
	YogaNidra	14 min	1	6	

3.12. Test administration

3.12.1. Resting pulse rate

Objective

The objective of this test was to record the number of pulse beats per minute.

Equipment

A stopwatch 1/10 of a second was used.

Procedure

The pulse rate of all the subjects was recorded in the sitting position and in the evening between 3.30 and 4.30pm. Before taking the pulse rate the subjects were asked to

relax for about 30minutes. To record the pulse rate the fingertips were placed on the radial artery at the wrist in such a manner that palpitation was clear (Clarke, 1976).

Scoring

The number of palpitation was counted for one full minute.

3.12.2. Blood pressure

Objective

To find out the systolic and diastolic blood pressure.

Equipment

Sphygmomanometer and a stethoscope.

Procedure

The rubber cuff is placed around the upper arm so it surrounds the brachial artery. Air is pumped into the cuff so that the pressure around the arm exceeds arterial pressure. Since the pressure applied around the arm is greater than arterial pressure, the brachial artery is squeezed shut and the blood flow is stopped. If a stethoscope is placed over the brachial artery (just below the cuff, no sound is heard since there is no blood flow. However when, the air control valve is slowly opened to release air, the pressure in the cuff begins to decline and soon the pressure around the arm reaches a point that is equal to or just slightly below arterial pressure. At this point blood begins to spurt through the artery and a sharp sound can be heard through the stethoscope. The pressure (ie) height of mercury column at which the first tapping sound is heard, represents systolic blood pressure. As the cuff pressure continues to decline, a series of increasingly louder

sounds can be heard when the pressure in the cuff is equal to or slightly below diastolic blood pressure. The sound heard through the stethoscope is ceased. Therefore, diastolic blood pressure represents the height of the mercury column when the sound becomes abruptly muffled (**Prentice, 1994**).

3.12.3. Collection of Blood Sample

Subjects were asked to report at the laboratory after an overnight fasting and 10.0 ml of venous blood samples were collected in heparins test tubes. Thus the pre-samples were collected in two days prior to training and after the twelve-week-training programme on total cholesterol and blood glucose.

3.12.4. Computerized Semi- Auto Analyzer RANDOX - IMOLA

Purpose

To assess the total cholesterol and blood glucose.

Equipment

Semi- Auto Analyzer RANDOX - IMOLA

Procedure

The blood was allowed to collect 15-20min and the serum was separated by centrifuging 3000-4000RPM for 10minutes all chosen biochemical variables were estimated by using serum in semi auto analyzer.

Score

Total cholesterol and Blood glucose, was measured on mg/dl level.

3.12.5. Administration of the Questionnaire

3.12.6. Stress Questionnaire

Purpose:

To measure the stress level.

Scale:

John D. And Catherine T. MacArthur's Perceived Stress Scale

Procedure:

The perceived stress scale was used to measure the stress. The stress questionnaire was administered to all the subjects. Each subject was asked to answer all the 10 items of the tests and was instructed to express the choice most honestly. The subjects were instructed to respond to each item according to how they generally feel in competitive sports situations. The scholar scrutinized the completed questionnaires in order to ensure that the subject had responded to every item and there was no question left unanswered. All the items were evaluated in a uniform manner using the following key. A score of one was awarded for a response indicative of stress that is, for marking the item numbers as 0=4, 1=3, 2=2, etc. Scores obtained by each subject on each statement was added up and that represented one's total score on stress. The lower the score, the lower would be the level of stress and vice versa. (The model of the perceived stress scale questionnaire were presented in **Appendix-A**)

3.12.7.SELF-CONFIDENCE

Purpose

The purpose of this test was to measure the self-confidence of the subjects.

Equipment

Self-confidence was measured with the Agnihotri self-confidence inventory (ASCI) developed by REKHA AGNIHOTRI. The ASCI questionnaire was given to all subjects to measure self-confidence. All the items were adopted for this investigation. It consists of 56 items and it is for adults and adolescents. The questionnaire is translated from English to Tamil so that subject can understand.

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 marking 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.

Scoring

Scoring was the total number of points scored by each subject as per the questionnaire answers. (The model of the perceived stress scale questionnaire were presented in **Appendix-B**)

3.13.DESCRPTION OF EXERCISES

3.13.1. Neti

Cleaning the nasal passage



Step 1: Add about half a teaspoon of salt to a neti pot full of sterile lukewarm water.

Step 2: Stand with the legs apart.

Step 3: hold the neti pot in subjects' right hand.

Step 4: Insert the nozzle of the neti pot into the right nostril.

Step 5: Keep the mouth open and breathe freely through the mouth.

Step 6: Tilt the head first slightly backwards then forwards and sideward to the left so that the water from the pot enters the right nostril and comes out through the left by gravity. Allow the flow till the pot is empty.

Step 7: Repeat the same on the left side.

3.13.2. Suryanamaskar (Sun Salutation)

The Sun Salutation is a 12-part warm-up exercise. It limbers up the body and mind in preparation for the ensuing yoga session. Each of the 12 positions brings a different vertebral movement to the spinal column and is tuned to the inhalation or

exhalation of the breath, thereby instilling a feeling of balance and harmony. The positions follow on from one another, making this Salutation graceful to perform.

1. **Prayer Pose:** Stand up straight with one feet together and one's arms by one's sides. Take a deep breath, and then exhale while bringing one's palms together at chest level.
2. **Arch Back:** Inhale and stretch one's arms up over one's head. Arch one's back, so one's hips come forwards, and stretch as far as is comfortable.
3. **Bend Over:** Exhale as one stretch forwards and bend down into the third Sun Salutation position. Bring one's hands down to the floor, and place them next to one's feet, with the palms downwards. One's hips should be kept as high as possible. If necessary, bend one's knees so that one can touch the ground. Tuck one's forehead in towards one's knees.
4. **Leg Back:** Inhale as one stretch one's right leg back as far as possible and bend one's right knee, lowering it to the floor. Stretch one's head and look upwards. One's hands should stay in the same position throughout the movement.
5. **Push up Pose:** Retain the breath. Bring one's left foot back, next to one's right foot. Keep one's spine straight and do not let one's head or hips drop.
6. **Lower chest to the floor:** Exhale, Lower one's knees to the floor and one's chest straight down between one's hands, without rocking one's body. Bring one's forehead to the floor (a beginner may need to lower the chin instead).
7. **Arch One's Chest:** Inhale as one slide one's body forwards and bring one's hips down to the floor. Arch one's chest towards and tilt one's head back. Slightly bend one's

elbows into one's body.



8. ***Inverted 'V'***: Exhale, tucking one's toes under, and raising one's hips to come into the inverted "V". Do not move one's hands or feet as one come into position.

9. ***Lunge Forwards***: Inhale as one bring one's right foot forwards and place it between one's hands, dropping one's left knee to the floor. Raise one's head and look up to the ceiling.

10. ***Forehead to knees***: Exhale as one bring one's left foot forwards and place it next to one's right foot, so that the tips of one's fingers and toes form a straight line. Raise one's hips and stretch them upwards, keeping one's hands in the same position. If one cannot straighten one's legs fully, allow one's knees to remain slightly bent, but keep one's hips up throughout. Bring one's head down as far as possible and tuck it in as close to one's knees as one can manage.

11. ***Stretch Back***: Inhale and then stand up, stretching one's arms over one's head as one straighten one's body. Stretch one's arms back, arch one's chest and hips, and keep one's

feet together.

12. Return To Start: Exhale and straighten up, lowering one's arms to one's sides. Now take a deep breath and prepare to begin another Sun Salutation sequence.

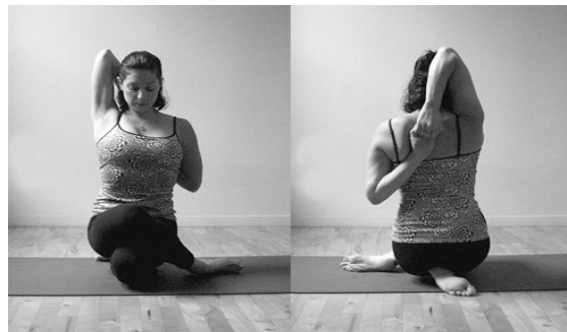
3.13.3.Gomukasana (Cow Face Pose)

Step 1: Bend the left leg underneath the right leg so that the left heel is touching the right buttock.

Step 2: Bring the right leg over the top of the bent left leg so that the right heel touches the left buttock adjust the right knee so that it is above the left knee. \

Step 3: place the left arm behind the back.

Step 4: The right arm over thr right shoulder. The back of the left hand shoud lie in contact with the spine while the palm of the right hand rests against the spine while inhaling.



Step 5: Release the right arm with inhale and bring down to exhale.

Step 6: Release the left hand

Step 7: Release the right leg

Step 8: Release the left leg.

3.13.4.BHUVANGASANA (COBRA POSE)

Lie flat on the stomach with the legs straight and the soles of the feet uppermost, place the palms of the hands flat on the floor below and slightly to one side of the shoulders, the fingers should point forwards and the arms should be bent with the elbows facing backwards, rest the forehead on the ground, close the eyes, relax the whole body, especially the lower back, breathe out slowly and deeply, then as you breathe in raise the body in the way we will describe, slowly bend your head backwards so that the chin eventually points forwards and the back of the neck is compressed, feel the stretch of the front part of the neck, now the arms must be brought into play, slowly raise the head and shoulders off the ground by progressively straightening the arms, keep the back and legs as relaxed as possible, try to keep the navel in contact with the ground, if the navel is raised too high then the bend tends to be at the knees and not the back, continue slowly to arch the back as far as flexibility will allow, in this position the back of your head should point towards the feet, arms may or may not be straight – it depends on the flexibility.



3.13.5.Ardha Matsyendrasana (Spinal Twist)

Position: Sit on one's heels. Knees and feet should be together, and the chest faces forwards.

Stage1: Gently shift one's buttocks down to the floor on the left side of one's legs. Keep one's back straight and centered over the buttocks.

Stage 2: Bring one's right knee in close to one's chest, and gently lift it over one's left leg; place the right foot flat on the floor by one's left knee.



Stage 3: Keep one's body straight and upright, turn one's body to the right and place one's right hand flat on the floor. Raise one's left arm and stretch it up above one's head.

Stage 4: Twist one's body to the right and look over one's shoulder. Carry one's left arm around one's right knee, clasping one's right ankle. Hold the pose for 30 seconds. Repeat on the other side.

3.13.6.Sarvangasana

Stage 1: Lie flat on the back on the carpet keeping the legs stretched out tightened at the knees. Place the hands by the side of the legs, palms down. Take a few deep breaths.

Stage 2: Exhale, bend the knees and move the legs towards the stomach till the thighs press it. Take the two breaths.

Stage 3: Raise the hips from the floor with an exhalation and rest the hands on them by bending the arms at the elbows. Take two breaths.

Stage 4: Exhale, raise the trunk up perpendicularly supported by the hands until the chest touches the chin.



Stage 5: Only the back of the head and the neck, the shoulders and the backs of the arms up to the elbows should rest on the floor. Place the hands in the middle of the spine. Take two breaths.

Stage 6: Exhale and stretch the legs straight with the toes pointing up.

3.13.7.HALASANA (PLOUCH POSE)

Lie flat on the floor, facing upward, the legs should be straight and together and should remain so throughout the practice, the palms can face upwards .relax the whole body and prepare for the practice, breath in deeply, then slowly raise the two legs to the vertical position ;use the abdominal muscles as much as possible and the arms; this may require a little time and practice, then fold the legs are raised over the top of the head, the buttocks and hips should also be simultaneously raised. Gently lower the

feet towards the ground behind the head, but without the slightest strain, touch the toes to the ground behind the head, the hands placed behind the hips as shown in the following picture.



3.13.8.Paschimottanasana (posterior stretching posture)

Position: Sitting, legs together and extended.

Stage 1: Bend one's index fingers to form a hook and hold the great toes with them and bend the elbows. Exhale while bending forward bringing one's head between the hands

Stage 2: Bending the elbows and the trunk further, try to touch the knees with one's forehead without raising the knees.



Stage 3: Inhale now, as one raise one's head slowly bringing it between the hands.

Stage 4: Raise the trunk and the head leaving the toes and straightening the spine, with one's hands on the sides and back to the position.

3.13.9.Matsyasana (Fish Posture)

Stage1: Sit in Padmasana.

Stage 2: Lie flat on the back with the legs on the floor.



Stage 3: Exhale, arch the back by lifting the neck and the chest, take the head back and rest the crown on the floor. Drag the head further back by holding the crossed legs with the hands and increase the back arch.

Stage 4: Now take the hands from the legs, bend the arms, hold the elbow with the hands and rest the forearms on the floor behind.

3.13.10.Nadi Shodhana

Purpose

The purpose of pranayama is to purify the nerves and thereby to strengthen the nervous system.

Procedure

Sit in any comfortable posture. Make one's breathing normal. Close one's right nostril with one's thumb and fill in the breath through the left nostril. When the breath has been filled inside close the left nostril with one's third finger and stay in this state of Antrik Kumbhaka for a few seconds. Then lift the thumb from the right nostril and exhale

slowly, keeping the left nostril closed. Repeat the process by inhaling through the left nostril and exhaling through the right nostril.

3.13.11. Bhastrika Pranayama



Purpose

A large amount of Prana Vayu is supplied to the body.

Procedure

Sit in padmasana and make the body erect. Make the mind thought-free and relaxed. Now close the right nostril with one's right thumb, inhale and exhale with full force. First do this slowly, then increase one's speed. In the end, inhale fully, close the left nostril with one's third finger, and perform all the three Bandhas. Increase the Kumbkaha according to one's capacity. Now open the Bandhas slowly, lift the thumb from the right nostril and exhale through it slowly. Relax for a moment. Repeat this process by closing the left nostril.

3.13.12 Savasana II

Lie down flat on the ground and close one's eyes. Separate one's feet by a distance of 3 feet. Now start relaxing the body parts from head to toe, one by one ,i.e., toes, soles, ankles, calf muscles, knee joints, thighs, waist , stomach , chest, fingers,

palms, wrist, elbows, shoulders, neck, chin, cheeks, mouth, nose, eyes, ears, forehead, finally top of the head. Slowly open the eyes and relax. Don't get up immediately.

3.13.13. Yoga Nidra

1. Lie down straight on your back in Shavasana. Close one's eyes and relax. Take a few deep breaths in and out. Remember to take slow and relaxed breaths, and not ujjayi breaths.
2. Start by gently taking your attention to one's right foot. Keep one's attention there for a few seconds, while relaxing one's foot. Then gently move one's attention up to the right knee, right thigh and hip (again for a couple of seconds). Become aware of one's whole right leg. Repeat this process for the left leg.
3. Similarly, take one's attention to all parts of the body: genital area, stomach, navel region, chest, right shoulder and right arm, followed by the left shoulder and left arm, throat, face and the top of the head.
4. Take a deep breath in, observe the sensations in one's body, and relax in this still state for a few minutes.
5. Now, slowly becoming aware of one's body and surroundings, turn to one's right side and keep lying down for a few more minutes.
6. Taking one's own time, one may then slowly sit up, and whenever one feels comfortable, slowly and gradually open one's eyes.

3.14. Collection of Data

The data on selected dependent variables for pre-tests and post-tests were collected two days before and after the training programme respectively. On the first day resting pulse rate, blood pressure and stress were tested whereas self-confidence, blood glucose and total cholesterol were tested on the second day.

3.15. Statistical Techniques

The data collected from the four groups before and after the experimental period were statistically examined for significant improvement by using analysis of covariance. The data collected from the three groups before and after the experimental period were statistically examined for significant improvement by using Analysis of Co-variance. (Clarke and Clarke, 1972) Whenever the 'F' ratio was found to be significant, Scheffe's test was used as post-hoc test to determine which of the paired means differed significantly. In all cases the criterion for statistical significance was set at 0.05 level of confidence ($P < 0.05$).

3.15.1 Justifications for Using ANCOVA

Analysis of covariance (ANCOVA) was used to determine how each dependent variable is influenced by independent variables while controlling for a covariate (Clarke and Clarke, 1972). Analysis of covariance adjusts the mean of each dependent variable to what they would be if all groups started out equally on the covariate. Analysis of covariance gives results preferable to those of a direct comparison of gain scores i.e., post-test minus pre-test for the two groups, because gains are limited in size by the difference between the test's ceiling and the magnitude of the pre-test score (Tuckman, 1999). In this study, pre-test scores of the selected variables have been shown to correlate with the post test scores and thus they were considered as appropriate covariates.

YOGA THERAPY PROGRAMME



VARMA THERAPY PROGRAMME



FLOW CHART SHOWING THE METHODOLOGY

