METHODS AND MATERIALS
CHAPTER III

METHODS AND MATERIALS

In this chapter the selection of subjects, research design, selection of variables, criterion measures, tester reliability, instrument reliability, orientation of the subjects, administration of tests, construction of training programmes and statistical techniques adopted for the analysis of data have been described.

3.1. SELECTION OF SUBJECTS

Sixty middle aged teaching faculty from the Coimbatore District Engineering Colleges were randomly selected and served as the subjects for the purpose of this study. The selected subjects were in the age group of 30 to 50 years.

3.2. EXPERIMENTAL DESIGN

The study was formulated as a random group design consisting of specific yogic exercises and combination of specific yogic exercises with autogenic training groups. The subjects (N=60) were at random divided into three equal groups of twenty middle aged men each. The groups were assigned the names as follows:

1. Experimental group I- specific yogic exercises group
2. Experimental group II-combination of specific yogic exercises with autogenic training group
3. Control group

All the groups were subjected to pre-test prior to the experimental treatment. The experimental groups participated in their respective duration of twenty four weeks, six days in a week throughout the study. The various tests administered were: prior to training (pre test),
after twelfth week (second test) and twenty fourth week (post test) of the training schedule.

3. 3. SELECTION OF VARIABLES

By going through the literature and after consulting the experts in yoga and autogenic training, the investigator had chosen the variables which are specifically related to the middle aged men. The selected physiological variables are pulse rate, diastolic blood pressure, systolic blood pressure, percent body fat and vital capacity. The selected psychological variables are job anxiety, occupational stress. The selected biochemical variables are hemoglobin, high density lipoprotein, low density lipoprotein, fasting blood sugar and blood urea.

3. 4. CRITERION MEASURES

After studying the literature and consulting the experts in yoga and autogenic training, the following variables which have direct impact on the middle aged men were selected.

PHYSIOLOGICAL VARIABLES

Pulse rate was measured by manual method over a period of one minute and recorded in beats per minute.

Vital capacity was measured by using wetspirometer and each reading was recorded in millilitre.

Percent body fat was measured by using Harpenden skin fold caliper and each reading was recorded to the nearest millimeter.

Systolic blood pressure was measured by using sphygmo-manometers and recorded in mm. /hg.

Diastolic blood pressure was measured by using sphygmo-manometer and recorded in mm./hg.
PSYCHOLOGICAL VARIABLES

Level of job anxiety was measured by using standard questionnaire and recorded in points scored.

Level of occupational stress was measured by using standard questionnaire and recorded in points scored.

BIOCHEMICAL VARIABLES

High density lipoprotein was tested in the biochemical laboratory and the results were recorded in mg. %.

Low density lipoprotein was tested in the biochemical laboratory and the results were recorded in mg. %.

Fasting blood sugar was tested in the biochemical laboratory and the results were recorded in mgs./dl.

Hemoglobin was tested in the biochemical laboratory and the results were recorded in terms of gms./dl.

Blood urea was tested in the biochemical laboratory and the results were recorded in mgs./dl.

3. 5. RELIABILITY OF TEST

The reliability of data was ensured by establishing the tester reliability, subject reliability and instrument reliability.

3. 6. TESTER RELIABILITY

To ensure that the investigator was well versed in the technique of conducting the tests, the investigator had a number of training sessions in the testing procedures. All the measurements were taken by the investigator with the assistance of persons well acquainted with the tests and their procedures. In selected physiological, psychological and biochemical variables, the qualified lab technician administered the test.
The tester's competency was obtained by test, re-test process whereby the consistency of results were obtained. As very high correlation was obtained, the tester competency in taking measurement and test reliability were accepted.

3.7. SUBJECT RELIABILITY

The above test, re-test co-efficient of correlation also established that the subject reliability was highly significant.

3.8. INSTRUMENT RELIABILITY

Physiological measuring instruments used were available in the various research laboratories in India and abroad. Questionnaires measuring the Psychological attitude used were available in the Rupa psychological centre, Varanasi and Manovaigyanic parikshan Sansthan, Varanasi. Biochemical measuring instruments were used from the Thyrocare India Biochemical Laboratory, which is a highly reputed Laboratory in India.

3.9. ORIENTATION OF SUBJECTS

The investigator held a meeting with the subjects prior to the administration of tests. The purpose and significance of the study and the requirements of the testing procedures were explained to them in detail, so that there was no ambiguity in their minds, regarding the efforts required of them. All the subjects voluntarily came forward to co-operate in the testing procedures and treatment to put in their best efforts in the interest of the scientific investigation in order to enhance their own performance. The subjects were very enthusiastic and co-operative throughout the project.
3.10. DESCRIPTIONS AND ADMINISTRATION OF THE TEST

PULSE RATE
Purpose : The purpose of this test was to measure the pulse rate.

Equipments: Stop watches and comfortable chair.

Procedure : The pulse rate of all the subjects was recorded in a sitting position. Before taking the resting pulse rate, the subject was asked to sit in a chair and relax for some time. To record the pulse rate, the finger tips were placed on the radial artery at the wrist in such a manner that palpitation was counted and recorded for one full minute.

Scoring : Pulse rate was measured by manual method over a period of one minute and recorded in beats per minute.

VITAL CAPACITY
Purpose : The purpose of this test is to measure the vital capacity of the subject.

Equipments: Wet spirometer, table and a comfortable chair.

Procedure : To take vital capacity a wet spirometer was placed on a level surface table and adjusted for datum i.e., zero and the meter was rechecked. The subject was instructed to stand erect with ease in relaxed manner. Subject had to exhale to the maximum with both nostrils. Then he would inhale deeply through the nostrils to hold the inhaled O₂ in the lungs. The hose connected to the wet spirometer was held intact in the mouth of the subjects having the lips fully closed and subject had to take care to see that both nostrils were closed so as to exhale through mouth as much as possible. The meter would indicate the reading for vital capacity.
Scoring: The reading indicated in the wetspirometer for each subject was recorded to the nearest millilitre.

**PERCENT BODY FAT**

High percentage of fat in relation to the total body weight is determined which may lead to obesity. While the standard varies from one source to another, it is generally believed that the normal percent body fat for middle aged men should not exceed 20 mm.

The smaller the fat contents of the body, the larger the so called "Fat free" or lean body weight. A substantial amount of evidence is available to indicate that the relative degree of fat-free body weight is not only valuable from a health point of view, over weight and obesity are clearly associated with hypertension and heart diseases, but it is also an important factor contributing to higher levels of physical performance in activities where the total body weight must be moved.

**Purpose**: To measure the body fat at three different skin fold sites.

**Equipments**: Skinfold Caliper, pen, pad and white papers.

**Procedure**: The thickness of the skin and subcutaneous fat was grasped between the thumb and index finger and measurement was taken to the nearest millimeter. To eliminate error, the reading was made within a period of 3 or 4 seconds, when especially all compression has taken place and measurement stabilized. If this precaution was not taken, the skin fold would have gradually decreased because the tissues will be squeezed out from the jaws of the caliper. The measurements were taken in the manner as given below:

1) Chest picked up a skinfold just below the shoulder blade, followed the natural old running parallel with the chest.
2) Suprailiac picked up a skinfold halfway between the lower rib and hip bone in a vertical line from the armpit.

3) Thigh

Scoring: All the measurements were taken on the right side of the body with the subject standing and the measurements were taken to the nearest millimeter and recorded against each individual. Three skin fold were used for estimating body density, fat using Durnin and Rahman formula. After estimating body density, fat percentage was calculated by using Durnin and Rehaman Formula.

**DIASTOLIC BLOOD PRESSURE**

**Purpose:** The purpose of this test was to measure the diastolic blood pressure.

**Equipments:** Sphygmomanometer, stethoscope and a comfortable chair.

**Procedure:** To take diastolic blood pressure, the subject was asked to sit on the chair comfortably. While taking diastolic blood pressure, the subject’s right arm was completely made bare to make certain that clothing does not press the blood vessels. The instrument was kept at the level of the heart. The diastolic blood pressure measurement was taken with the subject in the sitting position. Her forearm was kept straight and in relaxed position and the cuff was wrapped round the arm evenly with the lower edge approximately one inch above the anticubital space. The cuff was inflated until the artery collapsed fully to the required extent that no pulse beat was heard.

Scoring: When the pressure was further released gradually, the sound of the pulse was reduced in intensity and quality. This recording was the diastolic blood pressure in millimeters of mercury (mm./hg)
SYSTOLIC BLOOD PRESSURE

Purpose : The purpose of this test was to measure the systolic blood pressure.

Equipments: Sphygmomanometer, stethoscope and comfortable chair.

Procedure : To take systolic blood pressure, the subject was asked to sit on the chair comfortably. While taking systolic blood pressure, the subject’s right arm was completely made bare to make certain that clothing does not press the blood vessels. The instrument was kept at the level of the heart. The systolic blood pressure measurement was taken with the subject in the sitting position. Her forearm was kept straight and in relaxed position the cuff was wrapped round the arm evenly with the lower edge approximately one inch above the anticubital space. The stethoscope receiver was placed firmly over the brachial artery in anticubital space. The cuff was inflated until the artery collapsed fully to the required extent that no pulse beat was heard.

Scoring : When no pulse was heard, the pressure was slowly released till the first sound of the pulse was heard. This was the systolic blood pressure. Recording was in millimeters of mercury (mm. /hg)

JOB ANXIETY

Purpose : To measure the job anxiety level of the middle aged men.

Equipments: Standard questionnaire, questionnaire key, pen, pad and white papers.

Procedure : The subject was seated on the chair. A questionnaire and a pencil were distributed. Proper instructions were given for filling up the questionnaire. Mutual discussions were absolutely eliminated and the subjects read the questions one by one and ticked the answers of their
choice. After filling up the questionnaire they were collected from the subjects and were arranged properly. Points gained were noted for each question and summing up of points was carried out. The level of job anxiety was calculated by using the key.

Scoring : Among the eighty questions in the questionnaire, 63 were true keys and 17 were having false key. The answers were evaluated for the subject by referring the key. Thus, level of job anxiety was recorded V12 scoring 0-12 very Low, 13-36 Low, 37 - 60 moderate, 61 - 71 high level and 72 - 80 very high level of job anxiety.

If the employee gives affirmative response by marking “Yes” to the true key, it indicated his tendency for job anxiety. “Yes” is given 1 score and “No” is given 0 score. Similarly, if the respondent marks negative response by marking “No” to the false key, items it confirms the manifestation of job anxiety. In the false key marked “Yes” is given 0 score and “No” is given 1 score. The maximum possible score is 80 and the minimum being 0, with increasing scores as indicative of higher degree of job anxiety.

OCCUPATIONAL STRESS

Purpose : To measure the occupational stress level of the middle aged men.

Equipments : Standard questionnaire, questionnaire key, pen, pad and white paper.

Procedure : The subjects were seated on the chair comfortably. Questionnaire and pencils were distributed. Proper instructions were given for filling up the questionnaire. Mutual discussions were absolutely eliminated and the subjects read the questions one by one and ticked the answers of their choice. After filling up, the questionnaire were
collected from the subjects and were arranged properly. Points gained were noted for each question and summing up of points was carried out. The level of occupational stress was calculated by using the key.

Scoring : Questionnaire answers were evaluated for the subject by referring to the key. Thus the level of occupational stress was recorded. V12 scoring 46 to 22 low level of occupational stress, scoring 123 to 155 moderate level of occupational stress and 156 to 230 scoring high level of occupational stress. Questionnaire consisted of 46 questions. Among the 46 questions 19 questions are false key items, subject marked: strongly disagree - 5 score, disagree - 4 score, undecided - 3 score, agree - 2 score, strongly agree - 1 score. Remaining 27 questions are true key items. For true key items, subject marked: strongly disagree - 1 score, disagree - 2 score, undecided - 3 scores, agree - 4 score, strongly agree - 5 score.

HIGH DENSITY LIPOPROTEIN

Purpose : The purpose of this test was to measure the level of high density lipoprotein in the blood sample.

Equipments: Needle, syringe, elastic band, sample test, tube, chair, table, wet cotton and alcohol.

Procedure : The subject was asked to sit on the chair comfortably. The elastic band was wrapped around the upper arm, to stop the flow of blood, so that easy collection of the blood was possible. The area where the blood has to be collected was cleaned with alcohol using a wet cotton wool. The syringe with the needle was collected slowly. When enough blood samples were collected the needle with the syringe was taken back from the vein. Elastic band was then removed from the upper arm. A cotton ball was placed over the needle to stop more blood flowing out. The needle was dismantled from the syringe and the blood sample
secured was slowly drained into the respective blood sample test tubes. The collected blood samples were labeled correctly and sent to the clinical laboratory to test the density level of the lipoprotein in the blood sample. The results were recorded in mg.%.

Scoring : Laboratory results reveal the amount of high density lipoprotein in the blood sample of each subject which was recorded in mg.%.

LOW DENSITY LIPOPROTEIN

Purpose : The purpose of this test was to measure the level of low density lipoprotein in the blood sample.

Equipments : Needle, syringe, elastic band, sample test, tube, chair, table, wet cotton and alcohol.

Procedure : The subject was asked to sit on the chair comfortably. The elastic band was wrapped around the upper arm to stop the flow of blood, so that easy collection of the blood was possible. The area where the blood has to be collected was cleaned with alcohol using a wet cotton wool. The syringe with the needle was collected slowly. When enough blood samples were collected the needle with the syringe was taken back from the vein. Elastic band was then removed from the upper arm. A cotton ball was placed over the needle to stop more blood flowing out. The needle was dismantled from the syringe and the blood sample secured was slowly drained into the respective blood sample test tubes. The collected blood samples were labeled correctly and sent to the clinical laboratory to test the density level of the lipoprotein in the blood sample. The results were recorded in mg.%.
Scoring : Laboratory results reveal the amount of high density lipoprotein in the blood sample of each subject which was recorded in mg.\%.

FASTING BLOOD SUGAR

Purpose : The purpose of this test was to measure the level of fasting blood sugar in the blood sample.

Equipments: Needle, syringe, elastic band, sample test, tube, chair, table, cotton and alcohol.

Procedure : The subject was asked to sit on the chair comfortably. The elastic band was wrapped around the upper arm, to stop the flow of blood so that easy collection of the blood was possible. The area where the blood has to be collected was cleaned with alcohol using a wet cotton wool. The syringe with the needle was injected into the vein gradually and the blood sample was collected. The needle with the syringe was taken back from the vein. Elastic band was then removed from the upper arm. A cotton ball was placed over the needle to stop more blood flowing out. The needle was dismantled from the syringe and the blood sample secured was slowly drained into the respective blood sample test tubes. The collected blood samples were labeled correctly and sent to the clinical laboratory to test the level of the glucose in the blood sample. The results were recorded in mgs./dl.

Scoring : Laboratory results reveal the amount of fasting blood sugar in the blood sample of each subject which was recorded in mgs./dl.
HEMOGLOBIN

Purpose : The purpose of this test was to measure the level of hemoglobin count in the blood samples.

Equipments : Needle, syringe, elastic band, sample test tube, chair, table, wet cotton and alcohol.

Procedure : The subject was asked to sit on the chair comfortably. The elastic band was wrapped around the upper arm, to stop the flow of blood so that easy collection of the blood was possible. The area where the blood had to be collected was cleaned with alcohol using a wet cotton wool. The syringe with the needle was ingested into the vein gradually and the blood was collected slowly. When enough blood samples were collected the needle with the syringe was taken back from the vein. A cotton ball was placed over the needle to stop more blood flowing out. The needle was dismantled from the syringe and the blood sample secured was slowly drained into the respective blood sample test tubes. The collected blood samples were labeled correctly and sent to the clinical laboratory to test the amount of hemoglobin present in the blood sample. The results were recorded in gms./dl.

Scoring : Laboratory results reveal the amount of hemoglobin count in the blood sample of each subject which was recorded in gms./dl.

BLOOD UREA

Purpose : The purpose of the test was to measure the level of blood urea in the blood sample.

Equipments : Needle, syringe, elastic band, sample test tube, chair, table, wet cotton and alcohol.
Procedure: The subject was asked to sit on the chair comfortably. The elastic band was wrapped around the upper arm, to stop the flow of blood so that easy collection of the blood was possible. The area where the blood has to be collected was cleaned with alcohol using a wet cotton wool. They syringe with slowly. When enough blood samples were collected, the needle with the syringe was taken back from the vein. Elastic band was then removed from the upper arm. A cotton ball was kept over the needle sits to stop more blood flowing out. The needle was dismantled from the syringe and the blood sample secured was slowly drained into the respective blood sample test tubes. The collected blood samples were labeled correctly and sent to the clinical laboratory to test the amount of level of the serum urea in the blood sample. The results were recorded in mgs./dl.

Scoring: Laboratory results reveal the amount of serum urea in the blood sample of each subject which was recorded in mgs./dl.
PULSE RATE AND BLOOD PRESSURE TEST

VITAL CAPACITY TEST
Aarogvam Awareness Camp

- Fasting Blood Testing
- Complete Lipid Profile
- Blood Pressure
- Aarogya - Metabolic Profile
- Aarogya - Complete Profile

FASTING BLOOD SUGAR TEST

LDL AND HDL TEST
3.11. CONSTRUCTION OF COMBINATION OF SPECIFIC YOGIC EXERCISES WITH AUTOGENIC TRAINING AND SPECIFIC YOGIC EXERCISES PROGRAMME

Training programme which included yama class, sihilikarana vyayama, surya namaskar, asanas, breathing practice, pranayama, meditation and specific autogenic training was designed systematically and scientifically. The training programme is a comprehensive and thorough one which would improve the selected physiological, psychological and biochemical problems of the middle aged men.

3.12. PILOT STUDY

In addition to the literature available, a pilot study was conducted to collect the following training details by sending a questionnaire to a number of experts in yoga and autogenic training from various states in India.

1. The volume of various specific yogic exercises and combination of specific yogic exercises with autogenic training programme.

2. The volume of technical and tactical training.

3. The means and methods to be followed.

Based on the literature available and the opinion of the experts, the following training details were determined for the specific training programme:

Duration of training period : Twenty four weeks
Number of days per week : Six days
Number of sessions per day : One

Duration of session: Morning- Preparation phase I Duration: 30 minutes
Preparation phase II Duration: 40 minutes
The exercises, frequency, density, density in percentage and the volume of training for combination of specific yogic exercises with autogenic training and specific yogic exercises, technical and tactics, means and methods to be followed and plans were summarized in tables 3.1 to 3.4.

3.13. LOAD PROGRESSION

The principle of progression of load was adopted. The load dynamics was arranged in such a way that the volume increases initially and intensity increased in the end.

3.14. TRAINING MEANS AND METHODS

The following means and methods were adopted for improving selected physiological, psychological and biochemical variables during the training programme.
<table>
<thead>
<tr>
<th>EXERCISES</th>
<th>DEVELOPMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yama</td>
<td>Control the emotional problem. To reduce the stress and anxiety.</td>
</tr>
<tr>
<td>Sihilikarana</td>
<td>Fitness of the body and warming up. To reduce the cholesterol and</td>
</tr>
<tr>
<td>Vyayama</td>
<td>sugar level in the blood.</td>
</tr>
<tr>
<td>Surya Namaskar</td>
<td>Fitness of the body and warming up. To reduce the cholesterol and</td>
</tr>
<tr>
<td></td>
<td>sugar level in the blood. Increase the hemoglobin level in the</td>
</tr>
<tr>
<td></td>
<td>blood.</td>
</tr>
<tr>
<td>Asanas</td>
<td>To reduce the cholesterol and sugar level in the blood.</td>
</tr>
<tr>
<td>Pranayama</td>
<td>Increase the vital capacity. Reduce the urea level in the blood.</td>
</tr>
<tr>
<td></td>
<td>Reduce the cholesterol and sugar level in the blood. Maintain the</td>
</tr>
<tr>
<td></td>
<td>blood pressure level.</td>
</tr>
<tr>
<td>Autogenic Training</td>
<td>To reduce the stress and anxiety. Maintain the blood pressure and</td>
</tr>
<tr>
<td></td>
<td>pulse rate level.</td>
</tr>
<tr>
<td>Relaxation</td>
<td>Rest to the body and mind.</td>
</tr>
<tr>
<td>EXERCISES</td>
<td>DEVELOPMENTS</td>
</tr>
<tr>
<td>-----------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Yama</td>
<td>Control the emotional problem. To reduce the stress and anxiety level.</td>
</tr>
<tr>
<td>Sihilikarana</td>
<td>Fitness of the body and warming up. To reduce the cholesterol and sugar level in the blood.</td>
</tr>
<tr>
<td>Vayyama</td>
<td>Fitness of the body and warming up. To reduce the cholesterol and sugar level in the blood. Increase the hemoglobin level in the blood</td>
</tr>
<tr>
<td>Surya Namaskar</td>
<td>Fitness of the body and warming up. To reduce the cholesterol and sugar level in the blood.</td>
</tr>
<tr>
<td>Asanas</td>
<td>To reduce the cholesterol and sugar level in the blood.</td>
</tr>
<tr>
<td>Breathing</td>
<td>Increase the vital capacity. Reduce the urea level in the blood.</td>
</tr>
<tr>
<td>Practice</td>
<td></td>
</tr>
<tr>
<td>Pranayama</td>
<td>Increase the vital capacity and reduce the urea level in the blood. Reduce the cholesterol and sugar level in the blood and maintain the blood pressure level.</td>
</tr>
<tr>
<td>Meditation</td>
<td>To reduce the stress and anxiety - Maintain the blood pressure and pulse rate level.</td>
</tr>
<tr>
<td>Relaxation</td>
<td>Rest to the body and mind.</td>
</tr>
</tbody>
</table>
### TABLE 3.3
LOADING PATTERN IN THE COMBINATION OF SPECIFIC YOGIC EXERCISES WITH AUTOGENIC TRAINING GROUP - TRAINING SCHEDULE

<table>
<thead>
<tr>
<th>Exercises</th>
<th>PREPARATORY-I</th>
<th></th>
<th>Density in Percentage</th>
<th></th>
<th>Density in Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Density</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yama</td>
<td>One time</td>
<td>3 min.</td>
<td>10.00 %</td>
<td>One time</td>
<td>2 min.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sihilikarana Vyayama</td>
<td>Two times</td>
<td>4 min.</td>
<td>13.33 %</td>
<td>Four times</td>
<td>5 min.</td>
</tr>
<tr>
<td></td>
<td>alternate</td>
<td></td>
<td></td>
<td>alternate</td>
<td></td>
</tr>
<tr>
<td>Surya Namaskar</td>
<td>One time</td>
<td>4 min.</td>
<td>13.33 %</td>
<td>Two times</td>
<td>5 min.</td>
</tr>
<tr>
<td>Asanas</td>
<td>Two times</td>
<td>4 min.</td>
<td>13.33 %</td>
<td>Four times</td>
<td>5 min.</td>
</tr>
<tr>
<td>Pranayama</td>
<td>Four times</td>
<td>4 min.</td>
<td>13.33 %</td>
<td>Six times</td>
<td>7 min.</td>
</tr>
<tr>
<td>Autogenic Training</td>
<td>Two times</td>
<td>5 min.</td>
<td>16.66 %</td>
<td>Four times</td>
<td>10 min.</td>
</tr>
<tr>
<td>Relaxation</td>
<td>One time</td>
<td>6 min.</td>
<td>20.00 %</td>
<td>One time</td>
<td>6 min.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exercises</td>
<td>PREPARATORY-I</td>
<td></td>
<td></td>
<td>PREPARATORY-II</td>
<td></td>
</tr>
<tr>
<td>---------------------------</td>
<td>---------------</td>
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<td>----------------</td>
<td>----------</td>
</tr>
<tr>
<td></td>
<td>Frequency</td>
<td>Density</td>
<td>Density in percentage</td>
<td>Frequency</td>
<td>Density</td>
</tr>
<tr>
<td>Yama</td>
<td>One time</td>
<td>3 min.</td>
<td>10 %</td>
<td>One time</td>
<td>2 min.</td>
</tr>
<tr>
<td>Sihilikarana Vyayama</td>
<td>Two times</td>
<td>4 min.</td>
<td>13.33 %</td>
<td>Four times</td>
<td>5 min.</td>
</tr>
<tr>
<td></td>
<td>alternate</td>
<td></td>
<td></td>
<td>alternate</td>
<td></td>
</tr>
<tr>
<td>Surya Namaskar</td>
<td>One time</td>
<td>4 min.</td>
<td>13.33 %</td>
<td>Two times</td>
<td>5 min.</td>
</tr>
<tr>
<td>Asanas</td>
<td>Two times</td>
<td>4 min.</td>
<td>13.33 %</td>
<td>Four times</td>
<td>5 min.</td>
</tr>
<tr>
<td>Breathing Practice</td>
<td>Two times</td>
<td>2 min.</td>
<td>6.66 %</td>
<td>Four times</td>
<td>3 min.</td>
</tr>
<tr>
<td>Pranayama</td>
<td>Two times</td>
<td>2 min.</td>
<td>6.66 %</td>
<td>Four times</td>
<td>3 min.</td>
</tr>
<tr>
<td>Meditation</td>
<td>One time</td>
<td>4 min.</td>
<td>13.33 %</td>
<td>One time</td>
<td>10 min.</td>
</tr>
<tr>
<td>Relaxation</td>
<td>One time</td>
<td>7 min.</td>
<td>23.33 %</td>
<td>One time</td>
<td>7 min.</td>
</tr>
</tbody>
</table>
FIG. 1
PREPARATORY-I
PIE DIAGRAM SHOWING THE LOADING PATTERN IN COMBINATION OF SPECIFIC YOGIC EXERCISES WITH AUTOGENIC TRAINING GROUP

Yama
Surya Namaskar
Pranayama
Relaxation
Sihilikarana Vyayama
Asanas
Autogenic Training
FIG. 2
PREPARATORY - II
PIE DIAGRAM SHOWING THE LOADING PATTERN IN COMBINATION OF SPECIFIC YOGIC EXERCISES WITH AUTOGENIC TRAINING GROUP

- Yama
- Surya Namaskar
- Pranayama
- Relaxation
- Sihilikarana Vyayama
- Asanas
- Autogenic Training

15%
25%
17.50%
12.50%
5%
12.50%
FIG. 3
PREPARATORY -I
PIE DIAGRAM SHOWING THE LOADING PATTERN IN
SPECIFIC YOGIC EXERCISES GROUP

- Yama
- Surya Namaskar
- Breathing Practice
- Meditation
- Vyayama Sihilikarana
- Asanas
- Pranayama
- Relaxation
FIG. 4
PREPARATORY -II
PIE DIAGRAM SHOWING THE LOADING PATTERN IN
SPECIFIC YOGIC EXERCISES GROUP

- Yama
- Surya Namaskar
- Breathing Practice
- Meditation
- Vyayama Sihilikarana
- Asanas
- Pranayama
- Relaxation

17.50%
12.50%
12.50%
25%
7.50%
7.50%
5%
3.15. STATISTICAL TECHNIQUE

The following statistical techniques were used for the analysis of data in this study.

The purpose of the study was to determine whether the specific yogic exercises and combination of specific yogic exercises with autogenic training will improve the selected physiological, psychological and biochemical variables of the middle aged men at the end of the twelfth week and twenty fourth week of the training programme.

In order to find out whether the obtained differences between the means of the selected variables in the pre test, second test and post test are statistically significant, repeated measures of Analysis of Variance (ANOVA) were applied. When the F-ratio was found to be significant, Newman Keul’s test was applied to test which of the possible comparisons among the means were significant.

Analysis of Co-Variance (ANACOVA) was applied to determine the significance of mean difference between the three groups namely combination of specific yogic exercises with autogenic training group, specific yogic exercises group and control group in the development of selected variables after twenty four weeks of training. When F-ratio was found to be significant, the Scheffe’s Post Hoc test was applied to test the significance of pairs of the adjusted final group means.