CHAPTER – III

METHODOLOGY

In this chapter, procedures and methods applied in Selection of Subjects, Selection of Variables, Selection of Tests, Justification of Dependent Variables, Justification of Independent Variables, Competency of the Tester, Reliability of the Instruments, Reliability of the Data, Orientation to the subjects, Pilot Study, Administration of the Training Programme, Collection of the Data, Tests Administration, Experimental Design and Statistical Techniques are presented.

3.1. SELECTION OF SUBJECTS

For the purpose of the study, sixty (N=60) women College students studying in Euphrasia Training College for women, Kattor, Kerala, India during the year 2014-2015 were randomly selected as subjects. The subjects were assigned at random into four groups of fifteen each (n=15). Group-I underwent Yoga Practice, Group-II underwent Power yoga Practice, Group-III underwent Pilates Exercise and Group-IV acted as Control. All subjects were fully informed regarding the nature of the experimental methodology and the subjects have given their consent to participate in this investigation. Their age ranged from 21 to 26 years.

The purpose, nature and importance of experiment, the procedure to be employed in the collection of data and the role of the subjects during experimentation and testing periods were explained. Four days were given to them, to think and accept their willingness. The subjects were free to withdraw their consent in case they feel any difficulty during experiment and testing period. However there were no dropouts in the study and all the volunteered subjects cooperated well throughout the period of experimentation. A written consent was also obtained from the subjects.

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FIGURE: 1
RESEARCH FLOW CHART

SUBJECT
SIXTY (N=60) COLLEGE WOMEN

PRE

Physical variables

Physiological variables

Bio-Chemical Variables

Haematological Variables

Psychological Variables

Group-I
Yoga Practices
(n=15)

Group-II
Power Yoga Practices
(n=15)

Group-III
Pilates Exercise
(n=15)

Group-IV
Control
(n=15)

POST - TEST

Statistical Analysis
Dependant ‘t’ test and Analysis of Covariance (ANCOVA).

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3.2 SELECTION OF VARIABLES

The researcher reviewed various scientific literatures, journals, internet sources and research papers which revealed the importance of physical, physiological, bio-chemical, haematological and psychological variables for optimum performance of College women students. Taking into consideration of feasibility, criteria availability of instruments and the relevance of this variable of the present study, the following dependent and independent variables were selected for the present study.

3.2.1. DEPENDENT VARIABLES

Physical Fitness Variables

- Flexibility
- Muscular Endurance

Physiological Variables

- Resting Pulse Rate
- Vital Capacity

Bio-Chemical Variables

- Total Cholesterol (TC)
- Triglycerides (TGL)

Haematological Variables

- Blood Sugar
- Blood Urea

Psychomotor variables

- Self-confidence
- Anxiety
3.2.2. INDEPENDENT VARIABLES

- Yoga Practices
- Power Yoga Practices
- Pilates Exercises

3.3. SELECTION OF TESTS

As per the available literature, the following variables and their corresponding standardized tests were used to collect relevant data on the selected dependent variables as given below in Table-I.

**TABLE – I**

**TESTS SELECTION**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Criterion Variables</th>
<th>Test Items</th>
<th>Unit of Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Flexibility</td>
<td>Sit and Reach Test</td>
<td>In Centimeters</td>
</tr>
<tr>
<td>2.</td>
<td>Muscular Endurance</td>
<td>Bent Knee Sit-ups</td>
<td>In Numbers</td>
</tr>
<tr>
<td>3.</td>
<td>Resting Pulse Rate</td>
<td>Radial Pulse Test</td>
<td>In Counts/Seconds</td>
</tr>
<tr>
<td>4.</td>
<td>Vital Capacity</td>
<td>Wet Spirometer</td>
<td>In ml/kg/min</td>
</tr>
<tr>
<td>5.</td>
<td>Total Cholesterol (TC)</td>
<td>Blood samples test (Calorimetric Method)</td>
<td>In mg/dL</td>
</tr>
<tr>
<td>6.</td>
<td>Triglycerides (TGL)</td>
<td>Blood samples test</td>
<td>In mg/dL</td>
</tr>
<tr>
<td>7.</td>
<td>Blood Sugar</td>
<td>Folin – wu Method</td>
<td>In mg/dL</td>
</tr>
<tr>
<td>8.</td>
<td>Blood Urea</td>
<td>Diacetyl Monoxime Method</td>
<td>In mg/dL</td>
</tr>
<tr>
<td>9.</td>
<td>Self-confidence</td>
<td>Self Confidence Inventory (ASCI) developed by Rekha Agnihotry</td>
<td>In Points</td>
</tr>
<tr>
<td>10.</td>
<td>Anxiety</td>
<td>Sports Competition Anxiety Test (SCAT)</td>
<td>In Points</td>
</tr>
</tbody>
</table>
3.4. JUSTIFICATION OF DEPENDENT VARIABLES

The methods of yoga, power yoga and Pilates were designed to achieve specific training goals. Knowledge of the various intensities of yoga, power yoga and Pilates were most important for physical educationists, sports scientists, yogis and players. Particularly the effects of yoga practice, power yoga practice and Pilates exercise on selected, physical, physiological, Bio-chemical, haematological and psychological variables on College women students had not been scientifically analyzed. Hence, the investigator was motivated to select yoga practice, power yoga practice and Pilates exercise as an experimental variable.

3.5. JUSTIFICATION OF INDEPENDENT VARIABLES

3.5.1. Physical Variables

In the present days, people are leading very unhealthy lifestyles. Inadequate sleeping, eating disorder, increasing rate of obesity, lack of regular exercise and other health diseases which shooting stress levels are some of the facts that define the contemporary world's lifestyle. It can be said that in the present era, human beings are so engrossed in earning money, that they have virtually stopped paying attention to their physical and mental fitness.

Physical fitness should be an important part of all people’s life no matter what age or gender. A healthy life style is something that will not only help us to live longer but will help the years we live to be more enjoyable. Everyone needs good nutrition and physical activity to give their bodies the best possible chance of health and longevity. Exercise is an essential component of fitness during which endorphins are released which help teens deal with stress. Thus, being fit can be a way for teens to let off stress. Physical activity is a healthy outlet for problems like anger and stress that tend to plague teenagers during the difficult transition into adulthood. Among various physical fitness variables flexibility and muscular endurance were selected for this study.
3.5.2. Physiological Variables

Sports physiology is one of the most important areas of research in physical education and sports. Muscle soreness and muscle damage are closely associated with aerobic training. When physical training is done, the physiological changes occur in almost every system of the human body. These changes depend on frequency, duration and intensity. Sports Physiology tells about the complete story of various internal functions of the body during rest and play. The physiological variables such as Resting Pulse Rate and Vital Capacity were chosen for this study.

3.5.3. Bio-Chemical Variables

Bio-chemical factors include neutral fat, known as triglycerides, the phospholipids, cholesterol and a few others of lesser importance. Chemically, the basic lipid moiety of the triglycerides and the phospholipids is fatty acid, which is simply long chain hydrocarbon organic acid (Guyton, 1991). An odorless, tasteless, white fatty, alcohol cholesterol is found in all cell membranes. It is vital to cell survival and growth. Cholesterol is also a key precursor or intermediate compound in the production of numerous biologically important substances collectively called steroids. These include various essential hormones and bile acids, the major excretory product of cholesterol metabolism, which is also important in the digestion and absorption of dietary lipids (Leon, 1987). For this study Total Cholesterol (TC) and Triglycerides (TGL), were selected.

3.5.4. Haematological Variables

Haematology, also spelled haematology is the study of blood, the blood-forming organs, and blood diseases. Hematology includes the study of etiology, diagnosis, treatment, prognosis, and prevention of blood diseases that affect the production of blood and its components such as blood cells, hemoglobin, blood proteins, and the mechanism of coagulation.
An important risk factor for cardiovascular disease and diabetes is glucose tolerance. High blood glucose and high insulin levels can also have a deleterious effect on hypertension and blood lipids. Initially, improvements in glucose metabolism were associated with decreases in body fat and increases in aerobic capacity, thus suggesting that aerobic exercise would provide the better catalyst for improvements in glucose metabolism. Among various haematological variables, Blood Sugar and Blood Urea were selected.

3.5.5. Psychological Variables

Sports Psychology as the Science of applying psychology to sports is a study of behavioral science in sports setting. Sports psychology is gradually and steadily gaining momentum in the field of training of high level sportspersons. Today, sport is no more a recreation. It is not just a game of nerves as well. With the winning margin of competitive sport narrowing down to fraction of seconds, modern day sport warrants an essential supply of psychological support to come to term with reality. For this study psychological variables such as Self-confidence and Anxiety were chosen for this study.

3.6. COMPETENCY OF THE TESTER

All the measurements in this study were taken by the investigator with the assistance of Director of Physical Education working in various degree colleges in Kattor, Kerala, India. To ensure that the assistants of the investigator were well versed with the technique of conducting tests, they were exposed a number of practice sessions in the correct testing procedure. The tester’s reliability was established by test and re-test methods.

3.7. RELIABILITY OF THE INSTRUMENTS

The stopwatches and measuring tape used in this study were availed from the Department of Physical Education, Euphrasia Training College for women, Kattor,
Kerala, in India. The wet spirometer, Sphygmomanometers, and laboratory Equipments used in this study were availed from Raja Medical Laboratory in Irinjalakuda, Kerala, India. These instruments had been purchased from reliable companies and were considered accurate enough for the purpose of the study.

3.8. RELIABILITY OF THE DATA

Tests were administered and measurements were taken by the investigator and with the help of qualified medical laboratory assistants. A pilot study was conducted with ten subjects to test the reliability by test-retest method. The intra class co-efficient of correlation was used to find out the reliability of the data and the results are presented in Table II.

Table – II

INTRA CLASS CO-EFFICIENT OF CORRELATION
ON SELECTED DEPENDENT VARIABLES

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Criterion variables</th>
<th>Coefficient of Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Flexibility</td>
<td>0.89*</td>
</tr>
<tr>
<td>2</td>
<td>Muscular Endurance</td>
<td>0.89*</td>
</tr>
<tr>
<td>3</td>
<td>Resting Pulse Rate</td>
<td>0.91*</td>
</tr>
<tr>
<td>4</td>
<td>Vital Capacity</td>
<td>0.93*</td>
</tr>
<tr>
<td>5</td>
<td>Total Cholesterol (TC)</td>
<td>0.88*</td>
</tr>
<tr>
<td>6</td>
<td>Triglycerides (TGL)</td>
<td>0.95*</td>
</tr>
<tr>
<td>7</td>
<td>Blood Sugar</td>
<td>0.93*</td>
</tr>
<tr>
<td>8</td>
<td>Blood Urea</td>
<td>0.99*</td>
</tr>
<tr>
<td>9</td>
<td>Self-confidence</td>
<td>0.90*</td>
</tr>
<tr>
<td>10</td>
<td>Anxiety</td>
<td>0.92*</td>
</tr>
</tbody>
</table>

* Significant at 0.01 level of confidence.

(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 help of testing personnel were of paramount importance, as the investigator alone could not supervise all the groups. Two Directors of Physical Education from various degree colleges in Kattor, Kerala, India India volunteered to act as testing personnel.

The investigator explained the purpose, nature and importance of experimentation to them. The warming up procedures, yoga practice, power yoga practice and Pilates exercises and warm down process were imparted to the testing personnel by apt instructions and demonstrations, So that they had a thorough understanding of every aspect of the yoga practice, power yoga practice and Pilates exercises program.

Wherever possible, a recorder was used to assist the researcher to record the data. This enabled the investigator to concentrate on technique, and remember the previous measurement when repeated measurements were made. A recorder was also trained in recording techniques. The recorder was able to verify the accuracy of site location and ensure the correct sequence of measurement sites.

3.10. EXPERIMENTAL DESIGN

The experimental design used for this study was pre and post test random group design involving sixty subjects, who were divided at random into four groups of fifteen each. The study consisted of two Experimental groups and one Control group. Group-I underwent yoga practice, Group-II underwent power yoga practices, Group-III
underwent Pilates exercise and Group IV acted as Control. All the subjects were tested prior to and after the training on selected variables.

3.11. STATISTICAL TECHNIQUES

The data collected from the three groups before and after the experimental period were statistically analyzed for significant improvement by dependent ‘t’ test.

Sixty subjects were divided at random and assigned into four groups of fifteen each. No attempt was made to equate the groups in any manner. Hence, to make adjustments for difference in the initial means and test the adjusted post test means for significant differences, the analysis of covariance (ANCOVA) was used. Since four groups were involved, whenever the ‘F’ ratio was found to be significant for adjusted post means, Scheffe’s test was followed as a post hoc test to determine which of the paired means difference was significant. In all the cases 0.05 level was fixed as level of significance to test the hypotheses.

3.12. PILOT STUDY

A pilot study was conducted to assess the initial capacity of the subjects in order to fix the load. For this, fifteen boys were selected at random from the selected subjects and divided into three groups of five each, in which group- I underwent yoga practice, group-II underwent power yoga practice and group- III performed Pilates exercise under the watchful eyes of the experts and the researcher.

Based on the response of the subjects in the pilot study, the training schedule, yoga practice, power yoga practice and Pilates exercise packages were constructed. However the individual differences were considered while constructing the training programme. The basic principles of training i.e. progression, intensity and specificity were also followed.
3.13. ADMINISTRATION OF THE TRAINING PROGRAMME

The control group was not exposed to any specific training. However, they were participating in their regular Physical activities. The experimental group-I, group-II and group-III were subjected to twelve weeks of yoga practices, power yoga practice and Pilates exercise respectively. Then training was given for three days per week (alternative days). Every training session lasted for 40 to 60 minutes. The training programme was scheduled in the morning between 6.00 am and 7.00 am.

The subjects underwent their respective programme under strict supervision prior to and during every session. Subjects underwent a 10 minute warm-up and cooling-down exercises which included jogging, stretching, striding and push-ups. All the subjects involved in the training were questioned about their health condition throughout the training period. None of them reported any injuries. However, muscle soreness was reported in the early weeks, but it subsided later.

Attendance was calculated for the training groups by dividing the total member of training sessions by the number of sessions attended. It was 97% for group-I (yoga practice), 96% for group-II (power yoga practice), and 95% group-III (Pilates exercise).

The training programmes offered to the experimental groups are presented in Tables III, IV & V:
<table>
<thead>
<tr>
<th>Sl No</th>
<th>Name of Yoga</th>
<th>1 to 4 weeks</th>
<th>5 to 8 weeks</th>
<th>9 to 12 weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Duration</td>
<td>Rest</td>
<td>Duration</td>
</tr>
<tr>
<td>1.</td>
<td>Loosening</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Padmasana</td>
<td>30 Sec</td>
<td>60 Sec</td>
<td>45 Sec</td>
</tr>
<tr>
<td>3.</td>
<td>Vajrasana</td>
<td>30 Sec</td>
<td>60 Sec</td>
<td>45 Sec</td>
</tr>
<tr>
<td>4.</td>
<td>Halasana</td>
<td>30 Sec</td>
<td>60 Sec</td>
<td>45 Sec</td>
</tr>
<tr>
<td>5.</td>
<td>Dhanurasana</td>
<td>30 Sec</td>
<td>60 Sec</td>
<td>45 Sec</td>
</tr>
<tr>
<td>6.</td>
<td>Bhujangasana</td>
<td>30 Sec</td>
<td>60 Sec</td>
<td>45 Sec</td>
</tr>
<tr>
<td>7.</td>
<td>Chakrasana</td>
<td>30 Sec</td>
<td>60 Sec</td>
<td>45 Sec</td>
</tr>
<tr>
<td>8.</td>
<td>Matsyasana</td>
<td>30 Sec</td>
<td>60 Sec</td>
<td>45 Sec</td>
</tr>
<tr>
<td>9.</td>
<td>Tadasana</td>
<td>30 Sec</td>
<td>60 Sec</td>
<td>45 Sec</td>
</tr>
<tr>
<td>10.</td>
<td>Shalabhasana</td>
<td>30 Sec</td>
<td>60 Sec</td>
<td>45 Sec</td>
</tr>
<tr>
<td>11.</td>
<td>Savasana</td>
<td>30 Sec</td>
<td>60 Sec</td>
<td>45 Sec</td>
</tr>
<tr>
<td>12.</td>
<td>Relaxation</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table-III**

TRAINING PROGRAM FOR YOGA PRACTICE

- **10 Minutes**
<table>
<thead>
<tr>
<th>Sl No</th>
<th>Name of Yoga</th>
<th>1 to 4 weeks</th>
<th></th>
<th>5 to 8 weeks</th>
<th></th>
<th>9 to 12 weeks</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Duration</td>
<td>Rest</td>
<td>Duration</td>
<td>Rest</td>
<td>Duration</td>
<td>Rest</td>
</tr>
<tr>
<td>1.</td>
<td>Loosing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10 Minutes</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Chair Poses Calf Raises</td>
<td>6 Rep</td>
<td>60 Sec</td>
<td>9 Rep</td>
<td>45 Sec</td>
<td>12 Rep</td>
<td>30 Sec</td>
</tr>
<tr>
<td>3.</td>
<td>Half Squat</td>
<td>6 Rep</td>
<td>60 Sec</td>
<td>9 Rep</td>
<td>45 Sec</td>
<td>12 Rep</td>
<td>30 Sec</td>
</tr>
<tr>
<td>4.</td>
<td>Boat Pose</td>
<td>6 Rep</td>
<td>60 Sec</td>
<td>9 Rep</td>
<td>45 Sec</td>
<td>12 Rep</td>
<td>30 Sec</td>
</tr>
<tr>
<td>5.</td>
<td>Shoulder Stand</td>
<td>6 Rep</td>
<td>60 Sec</td>
<td>9 Rep</td>
<td>45 Sec</td>
<td>12 Rep</td>
<td>30 Sec</td>
</tr>
<tr>
<td>6.</td>
<td>Side Plank Hip Lifts</td>
<td>6 Rep</td>
<td>60 Sec</td>
<td>9 Rep</td>
<td>45 Sec</td>
<td>12 Rep</td>
<td>30 Sec</td>
</tr>
<tr>
<td>7.</td>
<td>Dolphin Plank</td>
<td>6 Rep</td>
<td>60 Sec</td>
<td>9 Rep</td>
<td>45 Sec</td>
<td>12 Rep</td>
<td>30 Sec</td>
</tr>
<tr>
<td>8.</td>
<td>Hindu Push Ups</td>
<td>6 Rep</td>
<td>60 Sec</td>
<td>9 Rep</td>
<td>45 Sec</td>
<td>12 Rep</td>
<td>30 Sec</td>
</tr>
<tr>
<td>9.</td>
<td>One Legged Bridge</td>
<td>6 Rep</td>
<td>60 Sec</td>
<td>9 Rep</td>
<td>45 Sec</td>
<td>12 Rep</td>
<td>30 Sec</td>
</tr>
<tr>
<td>10.</td>
<td>Warrior 1 Pulses</td>
<td>6 Rep</td>
<td>60 Sec</td>
<td>9 Rep</td>
<td>45 Sec</td>
<td>12 Rep</td>
<td>30 Sec</td>
</tr>
<tr>
<td>11.</td>
<td>Locust Pose</td>
<td>6 Rep</td>
<td>60 Sec</td>
<td>9 Rep</td>
<td>45 Sec</td>
<td>12 Rep</td>
<td>30 Sec</td>
</tr>
<tr>
<td>12.</td>
<td>Relaxation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10 Minutes</td>
<td></td>
</tr>
<tr>
<td>Sl No</td>
<td>Name of Yoga</td>
<td>1 to 4 weeks</td>
<td>5 to 8 weeks</td>
<td>9 to 12 weeks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Duration</td>
<td>Rest</td>
<td>Duration</td>
<td>Rest</td>
<td>Duration</td>
<td>Rest</td>
</tr>
<tr>
<td>1.</td>
<td>Warm up</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Roll-up</td>
<td>6 Rep</td>
<td>60 Sec</td>
<td>9 Rep</td>
<td>45 Sec</td>
<td>12 Rep</td>
<td>30 Sec</td>
</tr>
<tr>
<td>3.</td>
<td>Single Leg Stretch</td>
<td>6 Rep</td>
<td>60 Sec</td>
<td>9 Rep</td>
<td>45 Sec</td>
<td>12 Rep</td>
<td>30 Sec</td>
</tr>
<tr>
<td>4.</td>
<td>Double Leg Stretch</td>
<td>6 Rep</td>
<td>60 Sec</td>
<td>9 Rep</td>
<td>45 Sec</td>
<td>12 Rep</td>
<td>30 Sec</td>
</tr>
<tr>
<td>5.</td>
<td>Rolling Like a ball</td>
<td>6 Rep</td>
<td>60 Sec</td>
<td>9 Rep</td>
<td>45 Sec</td>
<td>12 Rep</td>
<td>30 Sec</td>
</tr>
<tr>
<td>6.</td>
<td>Criss Cross</td>
<td>6 Rep</td>
<td>60 Sec</td>
<td>9 Rep</td>
<td>45 Sec</td>
<td>12 Rep</td>
<td>30 Sec</td>
</tr>
<tr>
<td>7.</td>
<td>Spine Stretch Forward</td>
<td>6 Rep</td>
<td>60 Sec</td>
<td>9 Rep</td>
<td>45 Sec</td>
<td>12 Rep</td>
<td>30 Sec</td>
</tr>
<tr>
<td>8.</td>
<td>The Saw</td>
<td>6 Rep</td>
<td>60 Sec</td>
<td>9 Rep</td>
<td>45 Sec</td>
<td>12 Rep</td>
<td>30 Sec</td>
</tr>
<tr>
<td>9.</td>
<td>Flight</td>
<td>6 Rep</td>
<td>60 Sec</td>
<td>9 Rep</td>
<td>45 Sec</td>
<td>12 Rep</td>
<td>30 Sec</td>
</tr>
<tr>
<td>10.</td>
<td>Rest Position</td>
<td>6 Rep</td>
<td>60 Sec</td>
<td>9 Rep</td>
<td>45 Sec</td>
<td>12 Rep</td>
<td>30 Sec</td>
</tr>
<tr>
<td>11.</td>
<td>Beats on Belly Transition</td>
<td>6 Rep</td>
<td>60 Sec</td>
<td>9 Rep</td>
<td>45 Sec</td>
<td>12 Rep</td>
<td>30 Sec</td>
</tr>
<tr>
<td>12.</td>
<td>Relaxation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table-V**

**TRAINING PROGRAM FOR PILATES EXERCISE**

<table>
<thead>
<tr>
<th>Duration</th>
<th>Rest</th>
<th>Duration</th>
<th>Rest</th>
<th>Duration</th>
<th>Rest</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 Minutes</td>
<td></td>
<td>10 Minutes</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3.14. DESCRIPTION OF YOGIC PRACTICES

The selected yogic practices are given as experimental treatment and the duration of time for each asana and the order of doing are given below. The yogic practices are Padmasana, Vajrasana, Halasana, Dhanurasana, Bhujangasana, Chakrasana, Matsyasana, Tadasana, Shalabhasana, and Savasana.

3.14.1. PADMASANA

![Image of Padmasana](image)

**Figure-2**

**Padmasana**

- Sit with the legs extended forward.
- Fold one leg and place its foot on the top of the opposite thigh.
- The sole of the foot must be upward and the heel should touch the pelvic bone.
- Fold the other leg and place its foot on top of the other thigh (*Saraswati, 1993*).
3.14.2. VAJRASANA

![Figure-3](image)

**Vajrasana**

- Stand on the knees with the feet stretched backward and big toes crossed.
- The knees should be together, heels apart.
- Lower the buttocks onto the insides of the feet, the heels at the sides of the hips.
- Place the hands on the knees, palms downward *(Saraswati, 1993).*

3.14.3. HALASANA

![Figure-4](image)

**Halasana**
• Lie flat on the back with the arms straight and beside the body, palms facing downward.

• Keeping the legs straight, slowly raise them to the vertical position above the body. Only use the stomach muscles to raise the legs. do not use the arms. Simultaneously bend the trunk upward, hips first.

• Slowly lower the legs over the head and touch the floor with the toes of both feet. Keep the legs straight, bend the arms and place the hands on the back as in sarvangasana. Relax the body.

• Remain in the final pose for a comfortable period of time. Then either return to the starting position or perform the following additions to the basic pose:
  1. the feet away from the head until the body is completely stretched and a tight chin lock occurs.
  2. the feet towards the head until the back is fully tensed. Keep the legs straight and directly above the head. Grasp the feet with the fingers. Maintain these poses for a comfortable length of time, and then return to the final pose of basic halasana (Saraswati, 1993).

3.14.4. DHANURASANA

Figure-5
Dhanurasana
Lie flat on the stomach and inhale fully. Bend the knees and hold the ankles with the hands. Tense the leg muscles and arch the back. Simultaneously raise the head, chest and thighs as high as possible. Keep the arms straight.

Hold forth as long as is comfortable. Practice up to 5 times (Saraswati, 1993).

3.14.5. BHUJANGASANA

![Bhujangasana](image)

Figure-6
Bhujangasana

Lie on the stomach with the legs straight and the feet extended. Place the palms flat on the floor under the shoulders. Rest the forehead on the ground and relax the body. Slowly raise the head and the shoulders off the ground, bending the head as far back as it will go. Try to raise the shoulders without using the arms, only utilizing the back muscles. Now bring the arms into action and slowly bend the back as much as possible without strain until the arms are straight. Keep the navel as near to the ground as possible. Hold as long as comfortable. Practice up to 5 times.
**Breath**

Inhale while raising the body from the ground. Breathe normally in the final pose. If the final pose is held for a short time, retain the breath inside (Saraswati, 1993).

3.14.6. CHAKRASANA

![Figure-7 Chakrasana](image)

Lie on the back with knees bent and the heels touching the buttocks. The feet should be about one foot apart. Place the palms on the ground beside the temples, with fingers pointing towards the shoulders.

Slowly raise the trunk. Let the head rotate slightly and allow the crown to support the weight of the upper body. The legs will form right angles at the knees. Straighten the arms and legs, lift the head off the ground and raise the body so that it is fully arched. One can straighten the knees almost completely by moving the trunk upward.
Slowly lower oneself back to the ground and then the supine position (Saraswati, 1993).

3.14.7. MATSYASANA

![Matsyasana](image)

**Figure-8**

**Matsyasana**

Sit in padmasana. Bend backward, supporting the body with the arms and elbows, until the crown of the head touches the ground. Hold the big toes and rest the elbows on the floor.

Arch the back as much as possible. Remain in the final pose up to 5 minutes. Do not strain (Saraswati, 1993).

3.14.8. TADASANA

![Tadasana](image)

**Figure-9**

**Tadasana**
Stand erect with the feet 4 to 6 inches apart. Raise the arms overhead with the palms facing upward, fingers interlocked and look up at the hands. Lift the heels and feel as though one is being drawn upwards.

Completely stretch the body. Slowly return the heels to the ground (Saraswati, 1993).

3.14.9. SHALABHASANA

![Figure-10 Shalabhasana](image)

Lie on the stomach with the hands under the thighs, palms facing downward. Stretch the legs and tense the arms. Raise the legs and abdomen as high as possible without bending the legs. Practice up to 5 times.

**Breath**

Inhale deeply in the lying-down position. Retain the breath inside while raising the legs and abdomen. Exhale while returning to the starting position (Saraswati, 1993).
3.14.10. SAVASANA

![Figure-11 Savasana](image)

- Lie flat on the back with the arms beside and in line with the body, palms facing upward.
- Move the feet slightly apart to a comfortable position and close the eyes.
- Relax the whole body. Do not move any part even if discomfort occurs.
- Let the breath become rhythmic and natural.
- Become aware of the inhalation and exhalation.
- Count the number of respirations: I in, I out, and so on.
- Continue to count for a few minutes. If the mind starts to wander bring it back to the counting. If one can keep the mind on the breath for a few minutes, the mind and body will relax (Saraswati, 1993).

3.15. DESCRIPTION OF POWER YOGIC PRACTICES

According to the exercises prescribed by Mohan Raj and Pushparajan (2015) the following power yoga were given. They are Chair Poses Calf Raises, Half Squat, Boat Pose, Shoulder Stand, Side Plank Hip Lifts, Dolphin Plank, Hindu Push Ups, One Legged Bridges, Warrior 1 Pulses and Locust Pose.
3.15.1. Chair Poses Calf Raises

![Image of a person performing Chair Poses Calf Raises]

**Figure-12**

**Chair Poses Calf Raises**

1. Begin in Tadasana with feet together. Spread the weight evenly through the feet.

2. Lift the arms to shoulder height directly in front of the body. Draw the shoulders back, opening the chest.

3. Now lift the arms overhead as high as one can without letting the lower ribs pop out.

4. Bend the knees, coming as close as one can to a right angle while keeping the weight in heels.

**Finish:** Take a couple more breaths, if one can, and, on an inhalation, press down to rise up. Straighten the legs and lower the arms, returning to Tadasana. Pause and feel the effects of this powerful pose.
3.15.2. Half Squat

![Figure-13 Half Squat](image)

From Chair pose, stay on the toes as one’s use of leg muscles to bend knees and lower down in a controlled manner until buttocks make light contact with heels, then straighten back up. Make sure to keep torso upright as descend and ascend. Do 20 of these half-squats.

3.15.3. Boat Pose (Naukasana)

![Figure-14 Boat Pose (Naukasana)](image)

- Lie on back with feet together and arms beside body.
- Take a deep breath in and as exhaling, lift the chest and feet off the ground, stretching arms towards feet.
• Eyes, fingers and toes should be in a line.
• Feel the tension in navel area as the abdominal muscles contract.
• Keep breathing deeply and easily while maintaining the pose.
• As exhaling, come back to the ground slowly and relax.

3.15.4. Shoulder Stand (Sarvangasana)

Figure-15

Shoulder Stand (Sarvangasana)

Lie flat on the back with the feet together, the arms by the sides and palms flat on the ground. Using the arms as levers raises the legs and back to a vertical position. Bend the elbows and use the arms as props to steady the back by presenting it with the palms.

The trunk and legs should extend straight up, forming a right angle with the neck, the chest pressing against the chin (Saraswati, 1993).
3.15.5. Side Plank Hip Lifts

![Figure-16](image)

**Side Plank Hip Lifts**

Starting from Plank Pose shift weight to one arm, and rotate body to the side. Engage core and lift hips upwards, extend free arm overhead. Use muscles to lift and drop hips a few inches, do 30 hip lifts on each side.

3.15.6. Dolphin Plank

![Figure-17](image)

**Dolphin Plank**

Begin with knees and forearms on the ground. Then extend the legs behind, bringing knees off the ground and resting on toes and forearms. Engage core so that
body makes a straight line do not let back curve down, or butt stick up and keep head in a neutral position. Hold for 1 minute.

3.15.7. **Hindu Push Ups**

![Figure-18 Hindu Push Ups](image)

Start in Downward Dog and move through to plank. Lower down from plank to Four-Limbed Staff Pose, where elbows are bent at 90 degrees, glued to sides, and chest is an inch from the ground. From there, push upwards into upwards Dog. From Upwards Dog, roll over toes and move hips back into Downward Dog. One cycle of Downward Dog to Four-Limbed Staff Pose to Upward Dog is one Hindu push up. Do 30.

3.15.8. **One Legged Bridges**

![Figure-19 One Legged Bridges](image)
Lay on back with knees bent, feet hip-width apart. Push pelvis up, allowing shoulders to rotate underneath so arms are resting on shoulder blades, not neck. Lift one leg towards the ceiling and find balance. Lower hips to the ground, the push them up as far as you can. Do 30 one-legged gluten bridges on each leg.

3.15.9. Warrior 1 Pulses

![Figure-20  Warrior 1 Pulses](image)

Step one foot forward and sink into a high lunge, making sure that front knee does not protrude over toes. Use glutens and quads to pulse up and down a few inches in Warrior 1, do this 30 times on each side.

3.15.10. Locust Pose

![Figure-21  Locust Pose](image)
Similar to the bodyweight exercise “Superman”, lay on stomach with arms by sides. Engage core muscles and lift legs, chest, and head off the floor. Arms should not be on the ground, but off the floor and against sides. Hold until failure.

3.16. DESCRIPTION OF PILATES EXERCISE

The selected Pilates exercises are given as experimental treatment for group-III and the exercise procedures are recommended by Thomson (2015) as given below. The yogic practices are Roll-up, Single Leg Stretch, Double Leg Stretch, Rolling like a Ball, Criss Cross, Spine Stretch Forward, The Saw, Flight, Rest Position, and Beats on Belly Transition.

3.16.1. Roll-up

![Figure-22](Roll-up)
SET UP:

Lie on back with legs out straight in Pilate’s stance, (or flexed with hands under thighs). Reach the arms above to head in line with shoulders, reach fingers long

ACTION:

❖ Head looks through arms
❖ Inhale, scoop deeply, roll up to sitting
❖ Maintain C-curve, Exhale forward, lift abdominals deeply in and up, roll shoulder blades down back, relax shoulders wide.
❖ Inhale and keep your spine curl as you bring your lower back to the mat; exhale, roll own through spine, and reach your arms over and back.

PRECISION:

❖ Keep C curve in back while reaching forward.
❖ Peel upper, middle then lower back off mat.
❖ Legs stay long and tight together.
❖ Keep ribs on mat when arms reach behind.
3.16.2. Single Leg Stretch

**Figure-23- Single Leg Stretch**

**SET UP:**

Lie on back. Chin to chest and lengthen spine and neck; one leg bent into chest, Knee, hip and ankle in line. Outside hand on the ankle and other hand on the knee, elbows wide. Extend the other leg out as low as one can, while still imprinting their spine to the mat. Shoulder blade tips lightly touch the mat; toe in line with nose.
ACTION:

- Pull your leg firmly into your body (and then further).
- Draw belly in and up.
- Lower the long leg to the ground with toes to kneecap, and touch the calf to the ground three times.
- Inhale to switch, and exhale to lower and touch

PRECISION

- Tips of shoulder blades on mat
- Keep both legs in centerline
- Both sides of body long
- Legs pull in and out with resistance
- Keep spine imprinted on the mat.

3.16.3. Double Leg Stretch

Figure-24 Double Leg Stretch
SET UP:

Chin to chest and lengthen spine and neck. Eyes on belly button; maintain shoulder tips lightly touching the mat and both knees slightly apart and into your chest. Hold shins and hug them firmly to your seat. Elbows wide, and feet softly pointed.

ACTION:

❖ Inhale as reach the arms and legs out long from the centre;

❖ 45 degrees from the mat,

❖ Pause

❖ Inhale

❖ reach long

❖ Sweep arms to the side and around to hug ankles in

❖ Exhale and hug tight.

PRECISION:

❖ Spine stays long on mat work centre line. Roll one’s shoulder blades down your back and anchor them to the ribs.

❖ Exhale completely; squeeze the toxins out of the lungs.
3.16.4. Rolling like a Ball

SET UP:

Wrap hands across and low on ankles, one hand holds the opposite wrist in a bracelet hold. Hug heels close to bottom. Curl forward; bring head to knees. Lift feet lightly off mat in Pilates point, heels together and toes slightly apart.

ACTION:

- Pull abdominals in and keep chin to chest throughout.
- Inhale to roll back.
- Exhale to roll up
- Ribs in
- Eyes down and balance.

PRECISION:

- Nose to sternum, Chin to chest at all times. Chest relaxed, back round, stay tight in a ball.
- Heels together and toes slightly apart, shoulders relaxed wide, shoulder blades rolled down.
3.16.5. Criss Cross

![Criss Cross Image]

**SET UP:**

Stack hands under the head, elbows out wide. Knees bent and feet on the floor. Curl up so that just the tips of the shoulder blades touch the mat and eyes are on the belly.

**ACTION:**

- Criss to the left.
- Cross to the right.
- Inhale through the center, exhale to the left,
- Inhale through the center, exhale to the right.

**PRECISION:**

- Keep the length in the sides and the front of the torso.
- Arms and shoulders remain wide.
- Shoulder blades remain off the mat.
3.16.6. Spine Stretch Forward

![Image of Spine Stretch Forward](image)

**Figure-27**

Spine Stretch Forward

**SET UP:**

Sit tall with legs slightly wider than hip width. Knees facing ceiling and toes to knee caps. Arms straight out in front of shoulders, palms down, Lift up out of hips, scoop deep. Roll the shoulder blades down back, and relax shoulders wide.

**ACTION:**

- Sit tall, chin to chest and lift abs deeply in and up.
- Exhale, and peel off the wall vertebra by vertebra.
- Empty your lungs and reach, reach, reach (three times).
- Inhale to roll up: your lower, middle then upper back, pressing abs to spine.
- Sit tall.

**PRECISION:**

- Keep your shoulders wide and roll your shoulder blades down.
- Deepen into sternum to initiate curl of spine Keep arms at shoulder height.
- Form a horse shoe: Keep your ribs lifted away from your hips.

3.16.7. The Saw

1

2

3

**Figure-28**

The Saw
SET UP:

Open the legs a little wider than one's shoulders and reach the arms out to the sides in line with the shoulders. Sit tall; lift up out of the hips; perch with the toes to kneecaps.

ACTION:

- Twist the spine
- lower the back arm and look at it as reach pinky finger past the little toe
- reach and exhale
- reach further and exhale
- reach further again and exhale
- Inhale to roll up (initiate from the navel) and return to the center position.
- Repeat on the opposite side.

PRECISION:

- Anchor sit bones,
- Twist with the belly.
- Opposite hip and legs stay anchored
- Stay in twist to sit up.
- “Look with the eyes, listen with the ear”.
3.16.8. The Flight Position

SET UP:

Lie on the stomach; hands by the sides, palms up. Scoop “house for a mouse”. For lower back support, clench butt and wrap around the back of the inner thighs.

ACTION:

- Raise your arms, your shoulders, your head, and finally your legs.
- Breathe into the sides of the ribs and bring the breastbone high.

PRECISION:

- Roll the shoulder blades down the back.
- Reach for the back wall with your toes and fingers.
- Keep the length in the back of the neck

3.16.9: Rest Position

Figure-30
Rest Position
SET UP:

Sit on the heels with knees together or just slightly apart; lengthen the tailbone under the heels. Place the hands in front and slide them forward.

ACTION:

- Inhale into the side of the ribs
- Exhale and scoop the belly off your thighs…
- Now rest heavy on your thighs, and breathe up and down your spine.

PRECISION:

- Soft and heavy shoulders
- Armpits point down.

3.16.10. Beats on Belly Transition

![Image 1](image1)

![Image 2](image2)

Figure-31

Beats on Belly Transition
SET UP:

Roll onto stomach; rest the forehead on the back of stacked hands, palms on floor. Press the heels together scoop abdominals clench the butt and lift the legs off, the floor.

ACTION:

❖ Clench the butt and lift the legs off the floor.
❖ Beat the whole inner leg briskly together: “flubba, flubba, flubba flubba”.

PRECISION:

❖ Lengthen the neck and the sides of the body.

3.17. COLLECTION OF THE DATA

The data on Flexibility was assessed by Sit and Reach test, Muscular Endurance was assessed by Bent Knee Sit-ups, Resting Pulse Rate was assessed by radial pulse method, vital capacity was assessed by Wet Spirometer, Total Cholesterol(TC) was assessed by Calorimetric method, Triglycerides(TGL) was assessed by Blood samples test, Blood Sugar was assessed by Folin – wu Method, Blood Urea was assessed by Diacetyl Monoxime Method, Self-confidence was assessed by Self Confidence Inventory (ASCI) developed by Rekha Agnihotry and Anxiety was assessed by Sports Competition Anxiety Test (SCAT). Pre-test data were collected two days before the training programme and post-test data were collected immediately after the twelve week training session.

3.18. TESTS ADMINISTRATION

3.18.1. FLEXIBILITY

(Sit & Reach Test)

Purpose

To assess the athlete's lower back and hamstring flexibility.
Equipment Used
- A 'sit & reach table' or a bench with a ruler

Procedure
- The starting position was sitting on the floor/bench, feet flat against the table, and legs straight.
- To reach forward by pushing the fingers along the table as far as possible.
- The distance from the finger tips to the edge of the table represented as the score.
- As the 'sit and reach' table has an overhang of 15 cm, a person had to reach 10 cm past his toes scores 25 cm.
- It is important to have several warm-up attempts before recording the best score.

Scoring
Maximum of reading taken by the students was recorded in centimeters.

3.18.2. MUSCULAR ENDURANCE

(Sit-ups Test)

Purpose
The purpose of this test was to measure the strength endurance of the abdominal muscles.

Equipments Used
Mats and stopwatch

Procedure
The subjects lay flat on the back with knees bent and the feet flat on the floor with the heels not more than 30 cms away from the buttocks. The knee angle should
not be less than 90 degrees. The fingers were interlocked and placed behind the neck with elbows touching the mat. The feet were held securely by a partner. The subject then curled up to a sitting position and touched his knees with the elbows. The exercise was repeated as many times as possible in one minute.

**Scoring**

One point was scored for each correct sit-up. The score was the maximum number of sit-ups completed in one minute *(Hernandez and Uppal, 1992).*

### 3.18.3. RESTING PULSE RATE

(Radial Pulse Test)

**Purpose**

To record the resting pulse rate per minute

**Equipment**

Stop watch and chair.

**Procedure**

The pulse rates of all the subjects were recorded in a sitting position in the morning session between 6.00 am and 7.00 am. Before taking the pulse rate, the subjects were asked to sit in a chair and relax for 15 min. To record the pulse rate, the first three finger tips were placed on the left radial artery at the wrist so as to feel the pulse beat.

**Scoring**

The pulse beats were noted for 15 seconds and then multiplied by four to record for a minute.
3.18.4. VITAL CAPACITY

**Purpose**

The objective of this test was to measure the largest quantity of air which a person can expel from lungs by a forcible expiration after the deepest possible inspiration.

**Equipment**

Wet Spirometer was used for measuring the vital capacity.

**Description**

The wet spirometer was placed at a height that allowed the subjects to stand even at the beginning of the test. The subject forcefully inhaled and exhaled twice before the test (hyperventilate). The subject cautioned not to allow air to escape through the nose or around the mouthpiece. The subject at completion should bend slightly forward to blow as much air as possible into the wet spirometer.

**Scoring**

The tester should watch the needle to obtain the maximum reading *(Clarke, 1975)*.

3.18.5. TOTAL CHOLESTEROL (TC)

Enzymatic calorimetric method recommended by Siedal et al, and Kuattermann et al was applied for estimation of cholesterol. Bio-chemistry analyzer (Model RA-50) was used for this purpose.
**Principle**

\[
\text{Cholesterol esters + } H_2O \xrightarrow{\text{Cholesterol esterase}} \text{Cholesterol + RCOOH}
\]

\[
\text{Cholesterol + } O_2 \xrightarrow{\text{Cholesterol Oxidase}} \text{Cholesterol + } H_2O_2
\]

\[2H_2C_2O_4 \rightarrow 4 \text{ Aninophenazonc + Phenol} \xrightarrow{\text{POD}} 4 \text{ p}
\]

Benzoquinone – Monooiminol—Phenazone + 4 H$_2$O$_2$

**Procedure**

Tem µl of serum, standard and distilled water was incubated with 1000 µl of reagent at 37°C for 5 minutes and the absorbance of the sample and standard were read at 546 nm within one hour against reagent blank.

Serum cholesterol is expressed in mg/dl. *(Natarajan, 2014).*

**3.18.6. TRIGLYCERIDES (TGL)**

Blood samples were drawn in the morning after a 12- to 14-hour fast; 0.5 ml. of serum was delivered into 12 ml. of a 2:1 mixture of chloroform methanol in a glass-Stoppard bottle. The mixture was shaken for 10 minutes, diluted with 2.5 ml. of water, cooled and centrifuged.

Five millilitres of clear infranatant was treated with activated silicic acid and 5.0 ml. of chloroform, which completely removed phospholipids. (This was checked by thin-layer chromatography.) One millilitre of supernatant was evaporated to a residue on a steam bath, and then saponified at 60°C. for 30 minutes with 1 ml. of 4% potassium hydroxide in 95% ethanol. It was necessary to use ethanol which had been treated with ra-phenylene diamine dihydrochloride and redistilled. The saponification mixture was neutralized with 1 ml. of 8% hydrochloric acid and made up
to a volume of 10 ml. with distilled water. Five millilitres of hexane was added, the mixture was shaken and centrifuged, and the upper layer was removed by aspiration.

Glycerol was determined in 5 ml. of the aqueous layer, treated with the following freshly prepared reagents for colorimetry: 0.5 ml. potassium metaperiodate (39 mg./25 ml. of distilled water) for 10 minutes in the dark; 0.5 ml. phenylhydrazine hydrochloride (454 mg./25 ml. of distilled water) for 10 minutes in the dark; 0.2 ml. potassium ferricyanide (1.12 g./25 ml. of distilled water) for five minutes in an ice bath; and 2.5 ml. concentrated hydrochloric acid.

The resulting colour was read after 10 minutes in a Klett colorimeter with a 540 filter against a blank prepared from saponification of 1 ml. of chloroform.

Aqueous glycerol kept under toluene in brown glass in the refrigerator was used as a standard. The stock standard was prepared by weighing a known volume and calculating the amount of glycerol from table. A working standard of appropriate dilution was prepared immediately before use. Five millilitres, containing 10 fig. glycerol, gave an optimum reading in the Klett colorimeter.

**Results**

The technical error in 47 duplicate determinations (range: 71-342 mg. %) was 9.1 mg. %, *(Natarajan, 2014).*

**3.18.7. BLOOD SUGAR**

**Objective**

To measure the Blood Sugar of the subjects.
Equipments

Three Folin – wu tubes, collected blood, dry filter paper, water, sodium tungstate, tungstic acid, phosphomolybdic acid and sulphuric acid.

Procedure

Folin – wu method

In this method protein in blood was precipitated with tungstic acid. The protein free filtrate containing glucose was treated with alkaline copper reagent. The cuprous oxide formed is treated with phosphomolybdic acid. The acid was reduced to phosphomolybdous acid (molybdenum blue) – a blue solution. The intensity of blue solution was the measure of the amount of glucose or reducing substances present (Anry, 1984).

3.18.8. BLOOD UREA

Objective

To measure the Blood Urea of the subjects.

Equipments

Three test tubes, collected blood, dry filter paper, water, urea standard, diacetyl monoxime and thiosemicarbazide.

Procedure

Diacetyl monoxime method

Blood or serum was deproteinized with trichloroacetic acid and a clear supernatant was obtained after centrifugation. A portion of this supernatant was heated with diacetyl monoxime in the presence of acid, oxidizing agent and thiosemicarbozide and a red complex was formed with urea. The absorbance of this complex was measured at 530 nm (Anry, 1984).
3.18.9. ANXIETY

(Sports Competition Anxiety Test (SCAT))

Procedure

The standardized sports competition anxiety test (SCAT) was used to measure the anxiety. The test consists of fifteen statements. It is based on Likert’s method and each statement has three responses after value.

‘Hardly ever’, ‘sometimes’ and ‘often’. The respondents make a cross mark (x) on any one of the responses that fitted them. The inventory in its original form was used in this investigation.

Scoring:

This inventory was scored with the help of a scoring key, which is given below. A separate scoring method was followed for positive and negative statements. The scores obtained for both positive and negative statements were added. A higher score indicates higher anxiety. Positive Statement-Questions are numbered such as 1, 2, 3, 4, 5, 7, 8, 9, 10, 12, 13, 14 and 15 and Negative Statement-Questions are 6 and 11.

<table>
<thead>
<tr>
<th>S.No</th>
<th>Response</th>
<th>Scores for Positive Statements</th>
<th>Scores for Negative Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Hardly ever</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>2.</td>
<td>Sometimes</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3.</td>
<td>Often</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

Sports competition anxiety test (SCAT) questionnaire consists of fifteen questions. There was no right or wrong answer. A three point scale was used for scoring. Subjects were asked to mark one of the above cited words like ‘hardly ever’,
‘some times’, or ‘often’ before being measured. Performance improves with increasing levels of anxiety to an optimum point, any further increase in anxiety causes performance impairment. Sports Competition Anxiety Test (SCAT) Questionnaire is given in Appendix -I.

3.18.10. SELF-CONFIDENCE

Self confidence with Agnihotry’(1987), Self Confidence Inventory (ASCI) developed by Rekha Agnihotry was used to measure self confidence.

The ASCI questionnaire was given to all the subjects to measure self confidence. All the items were adopted for this investigation. The inventory was scored by hand. One point was awarded for a response indicative of lack of self confidence that is for making cross (X) to wrong response to item numbers 2,7,23,31,40,41,43,44,45,53,54,55 and for marking cross (X) to right response to the rest of the items. The lower the score, the higher would be the level of self confidence and vice versa. The inventory was presented in Appendix-II.