Chapter III

In this chapter the procedures adopted for the sources and selection of subjects, selection of criterion variables, experimental design, reliability of data and tester competency, instrument reliability, orientation to the subjects, pilot study, training programme schedule, test administration, collection of data, and statistical analysis are explained.

SOURCES AND SELECTION OF SUBJECTS

The purpose of the study was to analyse the effect of exercise training on (Aerobic and Yoga) health related physical fitness variables and psychomotor domain on women teacher trainees. One hundred and thirty five B.Ed teacher trainees of Stella Matutina College of Education, Chennai, enrolled their name to under go training and they were divided into three groups (aerobic, yoga and control) each group consists of forty five students as seen in Fig. 2. The subjects age ranged from 20 years to 29 years. Purpose sampling was employed to select the sample. Selected (N=135) subjects age, height and weight ranged from 20 to 29 (completed) years (141 cms to 166 cms), (41 kg to 77 kg) and the means were 23 yrs, 152 cms and 53 kg.

The psychological behaviour among the teacher trainees (N = 135) was determined by the administration of questionnaire – Exercise Identity Scale-EIS -Anderson and Cychosz (1994). Further the exercise identity scale was compared among the B.Ed (i.e., aerobic n=45 and yoga n=45) and the (control group n= 45) teacher trainees. Further the Exercise Identity Scale was compared between the Bachelor of Physical Education (B.P.Ed n=44) from Y.M.C.A College of physical education, Chennai and B.Ed teacher trainees as seen in Fig. 3. The physical education trainees were aged between 20 years to 29 years.
Sample Distribution – Aerobic, Yoga And Control Groups

Fig. 2
Sample Distribution For Exercise Identity

*Fig - 3*
The selected subjects were grouped by random method to either one of the three groups and had no previous information as to which group would use the aerobic training, yoga training and control group. Each group consisted of 45 subjects group 'A' was exposed to aerobic exercise training, to group 'B' yoga training was administered and group 'C' was restricted from participating in the training programme and was designated as the control group. Care was taken to see that the selected subjects were free from deformities and ailments 'if' any. A". r the distribution of the subjects into three groups, the differences in age, height and weight among the three groups were tested using ANOVA and a few minor adjustments were made so that there was not significant differences in these, aspects among the three groups. 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 in the course of the study.

SELECTION OF CRITERION VARIABLES

For a normal and healthy life the heart, blood vessels, lungs and muscle must function at optimal efficiency. In addition to this, flexibility and body composition play an important role. Flexibility is essential in carrying on many daily activities and can help to prevent muscle strain and orthopedic problems. Balance improves the motor fitness, Kinesthetic perception measures the effectiveness of the "sixth" sense. An excess of fat in the body is unhealthy. Being overweight shortens life and also contributes to the development of orthopedic problems. Hence cardio respiratory endurance, muscular strength and endurance, flexibility and body composition which come under health related physical fitness variables have been selected as variables for the current study.
Though there are a number of factors and variables that would enhance the performance level and changes in an individual. The following variables were selected to assess the changes after the influence of the training programme in the subjects.

HEALTH REALTED PHYSICAL FITNESS VARIABLES

1. Muscular endurance – One minute sit-up test.
3. Flexibility – Sit and reach test.
5. Body composition – Percentage of body fat-Skin fold caliper.

PSYCHOMOTOR DOMAIN

1. Balance – Static balance test

PSYCHOLOGICAL VARIABLE

1. Exercise Identity Scale - Questionnaire method

RELIABILITY OF THE DATA & TESTER COMPETENCY

To ensure uniformity and reliability of the testing techniques, the investigator had a number of practice session in the testing procedures. The test reliability was established by test and retest process. For this, 10 subjects were selected at random and the selected parameters were administered and the co-efficient of correlation 'r' between test and retest was computed by the method as described by - Clarke and Clarke, (1984).
With the assistance of experienced physical education teachers the cardio respiratory endurance, muscular strength and endurance, kinesthesis, balance, flexibility, height and skin fold thickness were assessed.

Table I
Reliability of data & Tester Competency

<table>
<thead>
<tr>
<th>S.No</th>
<th>Parameters</th>
<th>Co-efficient correlation 'r'</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>One minute sit -ups test (muscular endurance)</td>
<td>0.992*</td>
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<tr>
<td>2</td>
<td>Modified push-ups (muscular strength)</td>
<td>0.865*</td>
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<tr>
<td>3</td>
<td>Sit and reach test (flexibility)</td>
<td>0.895*</td>
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<td>4</td>
<td>Three minute step test (cardio respiratory endurance)</td>
<td>0.950*</td>
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<tr>
<td>5</td>
<td>Skin fold measurements (Percentage of body fat)</td>
<td>0.823*</td>
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<tr>
<td>6</td>
<td>Static balance test (balance)</td>
<td>0.903*</td>
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<tr>
<td>7</td>
<td>Perception jump (kinesthesis)</td>
<td>0.878*</td>
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</tbody>
</table>

* Significant at the 0.05 level of confidence.

The obtained values of criterion variables were higher than the required 'r' value for significance. It indicated that the co-efficient of correlation between test and retest data on the above mentioned criterion variables were significant at 0.05 level with degrees of freedom \( N - 1 = 9 = .602 \).
INSTRUMENT RELIABILITY

Stop watches (1/10th of a second), measuring tape (steel) and weighing machine, music system (tape recorder), skin fold caliper, visual charts and bench-step were procured from standard company and were accepted as accurate enough for the purpose of this study.

ORIENTATION OF THE SUBJECTS

Before the commencement of the training programme the investigator explained to the subjects the purpose of the training programme and their role in the investigation. A period of two days was utilized to teach aerobic exercises for group ‘A’ and yogic exercise for group ‘B’. Control group ‘C’ was not exposed to any of the orientation regarding training. Group A & B subjects were motivated to perform well and the recording of measurements were made known to the subjects with a view to familiarizing them about their performance.

EXPERIMENTAL DESIGN

Aerobic exercise training is considered to contribute to physical fitness by improving cardio respiratory endurance, muscular strength and endurance, kinesthesia, balance, flexibility and altering percent body fat. Just like aerobic exercise, yoga too contributes to all the components of physical fitness. So aerobic exercise and yoga asanas have been selected as the experimental training programme (independent variables) for the study. The study was formulated using true experimental randomized design.
PILOT STUDY

Pilot study was conducted to ensure uniformity, intensity and duration of the aerobic and yoga training programme. The yoga and aerobic training programme were planned and organized so that the work load was within the limits of the subjects capacity. For this purpose 20 subjects were (age between 20-29) randomly selected from N.K.T Coll of Education, Triplicane, Chennai. Twenty subjects were divided into two groups of 10 each.

Ten subjects (n=10) were designated as aerobic exercise training group 'A'. The aerobic training administration had variation in walking for a period of three to five minutes (i.e., slow walking, brisk walking, walking on toes, walking like a dwarf and free walking) and was followed with conditional warming up for a duration of 10 minutes. Aerobic exercise consisted of exercise that involved the upper extremities, lower extremities, trunk, abdominal and buttocks for a time limit of 20 minutes. The last phase of the training programme had limbering (cooling down) for three to five minutes.

The remaining ten subjects (n=10) were termed as group 'B' the yogic exercise group. This initially included the variations in walking as followed by group 'A' with time limit of three to five minutes. This was followed by specific yogic stretching exercises for a period of 10 minutes. The yoga asana programme included the most general and common asanas for a duration of 20 minutes. Savasana was administered after each asana followed by three to five minutes as cool down process.

The experimental treatment was conducted for 10 weeks. For both A and B groups. The trainings were administered in the morning (6.45 am to
7.45 am) and evening (3.00 to 4.00 pm) sessions of six days per week respectively. In group ‘A’ the subjects were exposed to rhythmic exercises with light apparatus (hoops, wands and leziums) along with aerobic exercise training from Monday to Saturday. Group ‘B’ subjects were given only yoga asanas from Monday to Saturday.

**EXPERIMENTAL TRAINING PROGRAMME**

Based on the results of the pilot study the training schedule for experimental group ‘A’ & ‘B’ were programmed for 10 weeks. During the training period, the experimental groups underwent their respective training programme six days per week for 10 weeks. Group ‘A’ underwent aerobic exercise training, group ‘B’ underwent yogic exercise training. Both experimental groups training intensity were fixed to 75-80% of their maximum heart rate.

Both experimental groups consisted of seven working units with three phases (first phase for four weeks, second phase for four weeks, third phase for two weeks). Work periods were interspaced by the rest periods. The length of the rest periods were based on the work relief. The aerobic exercise training consisted of seven units. The first unit was 10 minutes general warming up. After 10 minutes during rest periods the subjects walked. The aerobic exercise training for 25 minutes consisted of five units Arms, Waist, Abdominal, Leg & hips and Buttocks. Each unit had five exercises with limited time. Arms five minutes, Waist six minutes, Abdominal five minutes, leg & hip five minutes and Buttocks four minutes. Cool down was the seventh unit for five minutes. This training was carried out only on Monday, Wednesday and Friday, as seen in fig 4.
Aerobic Exercise Training

Fig 4
Tuesday, Thursday and Saturday the aerobic exercise training timings were reduced from 25 minutes to 15 minutes and light apparatus Hoops, Wands and lezium were practiced respectively for 10 minutes with exercises based on stepping, bending, turning and swinging. In the aerobic exercise training three to five minutes were extended during the course of training period.(planned programme 40 minutes went up to 45 minutes during first four weeks I phase.) Each work period consisted of number of exercises. The length of the work periods and repetitions were progressively increased during the course of training period. The stipulated exercises were performed throughout the training session, as seen in Fig. 5.

Group ‘B’ Yoga exercise training consisted of seven units. The first unit general warming up for 10 minutes. Yoga asanas training for 30 minutes, as seen in Fig. 6. Yoga systems which proceeded by disciplining of the mind. There are systems which begin with the control of feelings and there are others which take the body as the starting point according to the natural tendencies and abilities of the subject. At the beginning suryanamaskar was performed with three to five repetitions. The asanas mentioned below were done slowly and each poses were maintained for 30 to 60 seconds followed by savasana. On Monday, Wednesday and Friday the following asaanas were practiced.

Suryanamaskar thrice with a duration of 10 minutes.

<table>
<thead>
<tr>
<th>Asana</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Padmasana</td>
<td>Two minutes</td>
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<tr>
<td>Bhujangasana</td>
<td>One minute</td>
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<tr>
<td>Vajrasana</td>
<td>30 seconds</td>
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<tr>
<td>Sputa vajrasana</td>
<td>30 seconds</td>
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<tr>
<td>Savasana</td>
<td>Two minutes</td>
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<tr>
<td>Pascimatanasana</td>
<td>Two minutes</td>
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<tr>
<td>Usthrasana</td>
<td>30 seconds</td>
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<tr>
<td>Tara asana</td>
<td>30 seconds</td>
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<tr>
<td>Savasana</td>
<td>Two minutes</td>
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<tr>
<td>Vrikshaasana</td>
<td>Two minutes</td>
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<tr>
<td>Savasana</td>
<td>Two minutes</td>
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</tbody>
</table>
Light Apparatus - Hoops

Light Apparatus - Wands

Light Apparatus - Lezium

Aerobic Exercise Training

Fig 5
Yoga (Asanas) Exercise Training

Fig 6
After two or three asanas, the subjects were asked to relax by doing savasana. On Tuesday, Thursday and Saturday, they practised Surya namaskar for perfection, along with the following asanas.

<table>
<thead>
<tr>
<th>Exercise</th>
<th>Duration</th>
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<tbody>
<tr>
<td>Veerasana</td>
<td>30 seconds</td>
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<tr>
<td>Ardha Salabasana</td>
<td>30 seconds</td>
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<tr>
<td>Yoga Mudra</td>
<td>3 minutes</td>
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<tr>
<td>Savasana</td>
<td>2 minutes</td>
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<tr>
<td>Santulan asana</td>
<td>30 seconds</td>
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<tr>
<td>Savasana</td>
<td>2 minutes</td>
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<tr>
<td>Gomukasana</td>
<td>2 minutes</td>
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<tr>
<td>Dhanurasana</td>
<td>2 minutes</td>
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<tr>
<td>Savasana</td>
<td>2 minutes</td>
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<tr>
<td>Trikonansana</td>
<td>2 minutes</td>
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<tr>
<td>Halasana</td>
<td>2 minutes</td>
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</table>

For the first four weeks both the experimental groups had taken three to five minutes extra to finish their exercises. But during the second phase and the third phase, they took approximately 40-45 minutes to finish the exercises. Five to seven minutes general warming up, 30 to 35 minutes Aerobics/Yoga, three minutes cooling down with gradual increase of intensity and duration the experimental treatment was executed.
Table II
Aerobic Exercise – Training Plan

<table>
<thead>
<tr>
<th>Week</th>
<th>Warming up</th>
<th>No of exercises performed approximately</th>
<th>Each exercise duration</th>
<th>Length of the work period in minutes</th>
<th>Exercise intensity</th>
<th>No of work intervals</th>
<th>No of sets</th>
<th>Activity during relief interval</th>
<th>Limbering down</th>
<th>Total time period except warming up and cool down</th>
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<tr>
<td>4 weeks Phase I</td>
<td>10 mins</td>
<td>12</td>
<td></td>
<td>18 sec</td>
<td>Arms -6</td>
<td>7</td>
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<td>Brisk walking</td>
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<td>25 minutes</td>
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### Table III
Yoga Exercise - Training Programme Plan

<table>
<thead>
<tr>
<th>Week</th>
<th>Warming up</th>
<th>No of asanas performed approximately</th>
<th>Each asana done for</th>
<th>Length of the work period for each asana</th>
<th>Exercise intensity</th>
<th>No of work intervals</th>
<th>No of sets</th>
<th>Activity during relief interval</th>
<th>Total time period except warming up and cool down</th>
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<tr>
<td>4 weeks phase I</td>
<td>10 mins</td>
<td>Suryanamaskar-3 times. Asanas 2 times</td>
<td>3 to 5 minutes</td>
<td>30 sec to 2 minutes</td>
<td>75-80 % of maximum heart rate</td>
<td>7 units</td>
<td>2</td>
<td>Savasana</td>
<td>40 to 45 Mins</td>
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<td>Mon, Wed, Fri.</td>
<td></td>
<td>Suryanamaskar-3 times. Asanas 2 times</td>
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<tr>
<td>4 weeks phase II</td>
<td>7 mins</td>
<td>Suryanamaskar-3 to 5 times. Each Asanas 2 to 4 times</td>
<td>8 to 10 minutes 5 to 10 mins</td>
<td>30 sec to 2 minutes</td>
<td>75-80 % of maximum heart rate</td>
<td>7 units</td>
<td>2</td>
<td>Savasana</td>
<td>40 to 45 Mins</td>
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<tr>
<td>Mon, Wed, Fri.</td>
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<td>Suryanamaskar-3 to 5 times. Each Asanas 2 to 4 times</td>
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<tr>
<td>2 weeks phase III</td>
<td>7 mins</td>
<td>Suryanamaskar-5 times. Each Asanas 5 times</td>
<td>10 mins 15 to 25 mins 10 mins</td>
<td>30 sec to 2 minutes</td>
<td>75-80 % of maximum heart rate</td>
<td>7 units</td>
<td>2</td>
<td>Savasana</td>
<td>45 to 50 Mins</td>
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<td>Mon, Wed, Fri.</td>
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<td>Suryanamaskar-5 times. Each Asanas 5 times</td>
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EXERCISE IDENTITY SCALE

To assess the psychological factors in relation to the development of physical fitness and self concept of teacher trainees the questionnaire method was used as given by Anderson & Cychosz (1996). Reliability = 0.94

Purpose: To assess the extent to which exercise describes one’s concept of self.

Procedure: The Exercise Identity Scale is a nine-item scale. Utilizing a Likert scale format with the anchorings from 1 (strongly disagree) to 7 (strongly agree). The subjects were asked to indicate their responses in the space provided, which best described themselves and how they feel. For example, Serial No 7 responded to the exercise identity scale as instructed. As per the Likert scale the score was graded against each question, and the total sum of responses on each item.

Q1 – 5, Q2– 2, Q3 – 6, Q4 – 6, Q5 – 6, Q 6-4, Q7 – 6, Q8 – 6, Q 9 – 6. total = 46.

<table>
<thead>
<tr>
<th></th>
<th>Disagree</th>
<th>1</th>
<th>2</th>
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<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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<tr>
<td>1. I consider myself an exerciser</td>
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<td>2. When I describe myself to other people,</td>
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<td>I usually include my involvement in physical activity</td>
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<td>3. I have numerous goals related to exercising.</td>
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<td>4. Physical exercise to feel good about myself</td>
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<td>5. I need to exercise to feel good about myself</td>
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</table>
6. Other people see me as someone who exercise regularly.

7. For me, being an exerciser means more than just exercising

8. I would feel a loss of, if I were forced to give up exercising

9. Exercise is something I think about often

Scoring: Exercise identity scores are the total sum of the responses of the items.

TEST ADMINISTRATION

MUSCULAR ENDURANCE

ONE MINUTE SIT-UP TEST

Purpose: was to find the muscular endurance

Equipment: gymnastic mattress and 1/10 of a second stop watches

Procedure: The subjects were in supine position, knees bent at a right angle and with their feet 30 centimeters apart. They kept their hands with fingers interlocked and placed it behind the head and the same position was maintained throughout the test. Subjects ankles were held by partners so that their heels were kept in contact with the mat. For each sit up the elbows touched the knees. When the command 'Begin' was given the subjects touched their knees with their elbows and returned to the starting position. The subject performed as many repetitions as possible within one minute, with interlocked
fingers their elbows contacted the mattress when the subject returned to the starting position. The subject was asked to exhale when sitting up and to inhale while bending forward.

Scoring: Number of sit-ups completed in one minute was recorded.

**MUSCULAR STRENGTH**

**PUSH-UP TEST**

**Purpose**: was to measure the muscular endurance

**Equipment**: A mat on the floor.

**Procedure**: With the knees bent at right angle and hands on the floor (directly under the shoulder), then lowered her body to the floor until the chest touched and then she pushed back to the starting position the exercise was continued for many repetitions as possible without rest precautions was taken to see that the body did not sag but maintained a straight line through out the process.

Scoring: The score was the number of correct push ups executed.

**FLEXIBILITY**

**SIT AND REACH TEST**

**Purpose**: was to assess the range of hip and trunk joint mobility

**Equipment**: Sit and reach apparatus
**Procedure:** Before testing the subject was asked to do five to ten minutes warming up consisting of slow stretching movements involving hip and trunk joints. Subject was asked to hold their legs straight and was not allowed to bend their knees through out the test no jerking movements were permitted. They were asked to bend forward with the neck flexed and push the sliding marks with their fingertips as far as possible along the scale, and was asked to maintain the same position for 2 seconds. Then they were asked to come to the starting position.

**Scoring:** Best of two trials were recorded to the nearest centimeters.

**CARDIO RESPIRATORY ENDURANCE**

**THREE MINUTE STEP TEST**

**Purpose:** To measure the cardio respiratory endurance

**Equipment:** 20 inch height bench, a stop watch with a sweep second hand.

**Procedure:** The subject was asked to stand in front of the 20 inch height bench when the command was given, the subject was asked to climb on the bench. Step UP...UP.... Onto the bench, first with the right foot, then with the left. Then step DOWN..DOWN.... from the bench back down to the floor, first with right foot, then with the left. They continued the sequence in rhythm, setting UP....UP....DOWN.....DOWN.... at a rate of 30 steps per minute.

After three minutes the subject was asked to sit on the bench immediately and remained sitting quietly for three and a half minutes. During this recovery period the pulse rate were recorded by palpitation of the radial artery at wrist.
1. After one minute of recovery pulse was counted for 30 seconds.
2. After two minutes of recovery pulse was counted for another 30 seconds.
3. After three minutes of recovery the final 30 second pulse was counted.

**Scoring**: Three pulse counts were added and recorded.

**PERCENT BODY FAT**

**SKIN FOLD MEASUREMENTS**

**Purpose**: To determine the percent body fat of the subjects. Body fat was measured from four sites.

**Equipments and materials**: Skin fold caliper, Pencil and score sheet.

**Biceps skin fold Thickness**: The subjects were asked to stand. The level of the back of the upper arm at a level of midway between the acromion and the tip of the elbow was located, and a skin fold was picked up parallel of the long axis of the upper arm. The skin fold caliper was kept at one centimeter above by pinching the region of the biceps thickness fold, measurement was recorded in millimeter.

**Triceps skin fold Thickness**: The subjects were asked to stand with right elbow fixed at 90 degree. Half way between acromion and the tip of the elbow was located and the top of the elbow was located, and a skin fold was picked up parallel to the long axis of the upper arm. The skin fold caliper was kept at one centimeter above by pinching the region of the triceps thickness fold, measurement was recorded in millimeter.
Subscapular Skin fold Thickness: The subjects were asked to stand. Measurement was about one centimeter below the lower angle of the right scapula skin fold was picked up and its crease runs at an angle of about 45 degrees down wards from the neck spine. The skin fold caliper was kept at one centimeter above by pinching the region of the triceps thickness fold, measurement was recorded in millimeter.

Suprailliac Skin fold Thickness: The subject was asked to stand and by using a skin fold caliper suprailliac thickness was measured at the diagonal fold in like with the natural angle of iliac crest. The measurement was taken along the anterior axillary line just above the iliac crest.

Scoring: The measurement was taken to the nearest one millimeter of the skin fold caliper. Percentage of body fat was located from the standardized table against the appropriate gender and age for the total sum of skinfolds thickness.

BALANCE

Purpose: To measure the static balance.

Equipment: One – tenth of a stop watch

Procedure: The subject was asked to stand on the flat foot and instructed to keep their dominant leg on the floor and asked to place the other foot on the inside of the supporting knee. They kept their hands on the hips and held in the same position as long as possible.

Scoring: was on the length of time in records that subject was able to maintain balance. The best of three trials were recorded.
KINESTHETIC PERCEPTION

**Purpose:** To measure the effectiveness of the “Sixth” sense.

**Equipment:** Blind fold, Measuring tape.

**Procedure:** Two lines were drawn on the floor 24 inches apart. The subject was asked to stand on the starting line and visually reviewed the situation. Then they were blind folded and paused for five seconds; After five seconds, they were asked to jump from the starting line. The distance jumped, the heels landed on the floor was marked as a target line.

**Scoring:** The distance covered by the subject between the target line and the take off line was measured to the nearest quarter metric system. The subject was given two trials and the total distance covered for the two trials were recorded.

YOGANASAS AND PRAYANAMA FOR HEALTH

SITTING POSITION

PADMASANA

**Starting position:** The subjects sat on the floor with legs stretched forward without any strain and discomfort. Their spine, neck and head were kept in an erect position.
**Description of Asana:** The subjects held their right foot with their left hand and slowly flexed their right leg and placed it on their left thigh close to the left groin. The same method was followed with their left leg. Having attained this position; they sat erect with eyes closed and hands placed on their knees. The thumb and index finger of each hand to met together and other three fingers were kept open straight and joined together. Subjects maintained the lotus form for 20 to 30 seconds, as seen in fig 7.

**Back to position:** Subjects released their legs slowly and stretched their legs comfortably for the next repetition.

**Benefits**

- This asana improves concentration and breathing.
- This asanas activates all the organs of digestive system.

**PRANAYAMA**

The subjects sat in the Padmasana position. Closed the mouth. Contracted the lower part of the tongue and the glottis and inhaled rapidly and deeply through both the nostrils and filled the lungs up to the brim. They then practised Kumbhaka for as much time as possible. Then closed the right nostril with the right thumb and slowly exhaled through the left nostril. While inhaling, they expanded the thoracic cage. This was practiced during padmasana, as seen in fig 8.
Padmasana

Fig 7.

Pranayama

Fig 8.
PRANAYAMA – UJJAYI

Position of Readiness: Subjects sat on the floor in padmasana (Lotus pose) position. The spine, neck and head were held erect. They looked forward, straight at the level of the eyes, stretched their arms and their wrists were kept on the knees. Thumb and index finger of each hand met together so that they formed a circle and the other three fingers were kept opened straight and joined together. Breathing was normal, as seen in fig 9.

Steps for Practice

i) Subjects exhaled slowly through both nostrils and simultaneously pulled their stomach inwards, i.e., contracted the abdominal muscles to expel all the air from the lungs.

ii) Having exhaled, the position was held for a second and then slowly started inhaling through both nostrils. They inhaled as deeply as much as they could and stretched out the abdominal muscles, the expansion of the stomach with inhalation was gradual and rhythmical, not abrupt and fast.

iii) After deep inhale, the subjects paused for a second and then started exhaling again. They continued this process for ten to fifteen times. (one exhalation and one inhalation each time).

PASHCHIMOTTANASANA

Starting position: The subjects sat on the floor with both the legs stretched forward and slowly raised the arms over head.
Pranayama

Fig 9.

Pashcimottanasana

Fig 10.
Description of Asana: Then the subjects slowly bent forward exhaling her breath and hands held on the big toes with the index fingers and thumbs of the corresponding hands. Retained this pose while breathing normally, as seen in fig 10.

Slowly the subjects tried to bring the face towards the knee to eventually rest it between them. The elbows was bent, touching the floor on the outside of either leg. This position was maintained for 20 to 30 seconds.

Back to position: The subjects released their hands from their toes, slowly raised their heads and got back to the starting position.

Benefits

- This asana corrects the backache, cures spinal disorders.
- This asana relieves stomach troubles and normalizes the functioning of the nervous system.
YOGA MUDRA

Starting position: The subjects sat on the floor. The legs were stretched forward; paced the right foot on the left thigh and left foot on the right thigh.

Description of Asana: The hands were brought back and held the wrist of one hand with the other hand. Spine was straight, neck and head was also kept straight upward. The head was lowered down towards the ground, while lowering the head down they exhaled gradually and simultaneously. The head touched the ground and the breath was retained. The hands were gradually raised upwards without strain. This position was remained for 20 to 30 seconds, as seen in fig 11.

Back to position: They started inhaling while lowering down the hands and gradually returned to the position of readiness. After few seconds of rest they repeated the same asana.

Benefits

- This asana helps restore the normal health of lungs and their functioning.
- This asana corrects the disorders of the spine; removes gastric troubles and constipation.
Yoga Mudra

Fig 11.
SUPINE POSITION

SAVASANA

Starting position: The subjects were in a supine lying position. The feet were together, with straight knees. The hands were close to the body. The palms were touching the sides of the body.

Description of Asana: The right and left legs were spread apart. They were flat on the ground. The right hand was moved to the right side. The left hand was moved to the left side. The head was straight and eyes were closed. The whole body was in relaxed position. This position was maintained for 20 to 30 seconds, as seen in fig 12.

Back to position: The left hand was taken close to the body, then the right hand was placed close to the body. The left and right legs were kept straight in line with the body. After few seconds of rest the same asana was repeated.

Benefits

- This asana relaxed all the muscles, nerves and organs.
- This asana has very good effect upon the patients as well as upon any yoga practitioner.

HALASANA

Starting Position: The subjects were in a supine lying position.
Savasana

Fig 12.

Halasana

Fig 13.
Description of Asana: The subjects raised both the legs slowly 30°, 60°, up to 90° degrees. The raised legs were stopped for fifteen seconds in each degree of levels. The extended legs were taken behind the head and allowed to touch the floor by the toes, knees were kept straight normal breathing was emphasized, and the final pose was held for 20 to 30 seconds, as seen in fig 13.

Back to position: Subjects brought their legs to the starting position slowly by stopping at 90°, 60°, and 30° degree angle. Knees were kept straight, after few seconds of rest the same asana was repeated.

Benefits

- This asana improves the trunk flexibility of the individual.
PRONE POSITION

BHUJANGASANA

Starting position: The subjects were in a prone lying position with the forehead on the ground. They placed the palms on the ground underneath the shoulders, with feet together.

Description of Asana: The hands were slowly bent at the elbow and the palms were brought forward upto the chest level. The elbows were closer to the body. The head was slowly raised to the position with the chin resting on the floor. It was further raised with the support of the hands. The subjects arched back and tried to look begained. The trunk was raised upto the navel region. This position was maintained for 20 to 30 seconds, as seen in fig 14.

Back to position: The head was brought down. The head and the chest were brought together to the ground. The chin was drawn in and the fore head was touching the ground. The palms were taken backward and the hands were pressed against the body and palms were touching the sides of the body. After few seconds the same asana was repeated.

Benefits

- This asana improves the flexibility on upper back.
Bhujangasana

Fig 14.
DHANURASANA

Starting position: The subjects were in prone lying position on the floor, with the fore head resting on the floor, arms were placed along with the body and palms were facing downward.

Description of Asana: The subjects raised the head and bent the legs at the knee joints ultimately the subjects grasped the ankles with the corresponding hands. Normal breathing was emphasized then the subjects raised the head, chest and thighs by which the whole body was rested on the abdomen. This position was maintained for 10 to 15 seconds, as seen in fig 15.

Back to position: Later the hands were slowly released and the legs were brought down. At the same time, the chin and chest were placed on the floor.

Benefits
- This asana improves the trunk flexibility.

ARDHA SALABHASANA

Starting position: The subjects were in a prone lying position. With forehead on the ground, the feet were together and their arms were close to the body.

Description of Asana: The forehead was slowly raised till the chin supported the head. Fingers were closed making a fist. One leg was raised slowly upward and knee was kept straight. The other leg was on the floor. This position was maintained for 20 to 30 seconds. This same asana was repeated with the other leg also, as seen in fig 16.

Back to position: The leg was slowly lowered down to the ground. The fingers were unfolded. The chin was drawn inward and fore head was placed on the ground.

Benefits
- This asana improves the flexibility of trunk.
Dhanurasana

Fig 15.

Ardha Salabhasana

Fig 16.
KNEELING POSITION

USHTRASANA

Starting position: The subjects sat on the floor. The well folded legs at the knees and kept them apart from one another at about 6 inches.

Description of Asana: They stand on their knees, the ankles and toes of both legs fall flat on the floor. They hold the back of the ankles of right leg with right hand, left leg with left hand. Straightened the thighs and waist. The head and neck was bent back ward. Waist area was slightly pushed forward and breathing was normal. Position was maintained 20 to 30 seconds, as seen in fig 17.

Back to position: The hand were released from their holdings and the body was straightened and they came back to the kneeling position and sat comfortably. The same asana was repeated after a few seconds of rest.

Benefits

- This asana activates the facial tissues the nasal passage, the pharynx, the lungs and the whole of respiratory organs and the nerves.
- This corrects many disorders of the neck, shoulders and spine.
- This asana cures various type of visionary defects of the eyes and strengthens all the sense organs
- It develops the visionary power of the eyes, brings flexibility to the spine and provides quality of mental attentiveness.
- Blood circulation becomes normal in the joints and they regain strength.
Ushtrasana

Fig17.
GOMUKHASANA

Starting position: The subjects sat on the floor with their legs stretched.

Description of Asana: The subjects bent the left leg at the knee and placed it on the side of the right hip. Similarly the subject folded the right leg and brought the right knee to come over the left knee, at the same time setting the right hand just by the side of the left hip. Here the subject experienced a steady stretch and kept the heels lightly pressed against the hip. This same position was maintained 20 to 30 seconds, as seen in fig 18.

Back to position: The subjects released their holding position of their back and stretched their both legs then they came back to the starting position. After few seconds they repeated the same asana.

Benefits

- This asana improves the flexibility of chest and trunk.

VEERASANA

Starting position: The subjects sat on the floor. The body was kept straight and breathing was normal.
Gomukhasana

Fig 18.

Veerasana

Fig 19.
Description of Asana: One leg was folded at the knee the heel was behind the hip, toes of the leg on the ground. The other leg was lifted and placed on the thigh of the folded leg. The knee was on the floor only the sole was placed on the thigh of the other leg. Both hands were raised, the wrists were on the head. They join the palms and fingers of both hands close together. Then they straightened the elbows as much as possible. The spine neck and head was kept erect, the palms and fingers were together and the elbow remained straight. This position was maintained for 20 to 30 seconds, as seen in fig 19.

Back to position: They unfold the palms and the hand were brought down. Then they left the leg which was placed on the other legs thigh finally they pulled back the folding relaxed for few seconds then they repeated the same asana.

Benefits

- This asana enhances circulation in the joint areas and restores their normal health.
- This asana tones up the muscles of the thighs hips and the arms.
VRUKHASANA

Starting position: The subjects stood on the floor both the hands were on their sides. Breathing was normal.

Description of Asana: The subjects stood on their on leg (left leg) The other leg (right leg) folded at the knee and placed on the thigh of the left leg. Outer part of heel and sole was placed on the left thigh. The hands were raised sideways towards the head. When the hands stretched above the head, they joined their palms and fingers together, and placed the palms and wrists on the head. This position was maintained for 20 to 30 seconds, as seen in fig 20.

Back to the position: The pressure on the palms were loosened, the arms were stretched out. The lifted leg was brought back. They come to the standing position. After few seconds of relaxation, the same asana was repeated.

Benefits

- This asana activates all the joints of the body

VAJRASANA

Starting position: The subjects sat on the floor with both legs bend at the knees.
Vrukhasana
*Fig 20.*

Vajrasana
*Fig 21.*
Description of Asana: The subjects placed the heels at the sides of the anus in such a way that the thighs rested on the legs and the buttocks on the heels. Supported the whole body on the knees and the ankles. Breathing was normal, while performing this asana. Stretched the arms and placed the hands on the knees. Kept the knees close by sat erect keeping the trunk, the neck and the head in a straight line. This is a very simple posture and one can hold this posture with ease for a longer time. This position was maintained 20 to 30 seconds, as seen in fig 21.

Back to position: The subjects slowly relaxed from the position and the legs were extended. After few seconds they repeated the same asana

Benefits

- This asana improves the flexibility of the spine.
- This asana corrects the spinal problem.
SUPTA VAJRASANA

Starting position: The subjects were asked to do Varjrasana.

Description of Asana: The subjects lowered their body slowly, and with the support of the elbows laid down with the back on the ground. The back touched the ground, the arms were interlocked and placed on the chest. The head was tilted back as far as possible. This position was held for 20 to 30 seconds. The lower part of the back may remain in a raised position, as seen in fig 22.

Back to position: The subjects with the support of the elbow raised their body slowly upward. Then the legs were stretched.

Benefits

- This asana improves the individuals flexibility.
- This asana strengthens the abdominal muscles and corrects the abdominal disorders.
Supta Vajrasana

Fig 22.
STANDING POSITION

SURYANAMASKAR ASANA

Starting position: The subjects were asked to stand up and keep the legs apart at about two feet distance. The hands were at the sides. The head was kept straight and breathing was normal.

Steps for Practice

i) Subject inhaled slowly and raised both hands towards the sky, in sidewise circular movement. By the time hands came up, inhaling was completed. When the hands are up, the palms were turned forward and the arms were in a parallel position.

ii) Started exhaling and lowering the upper area of the body towards the ground. While thus bending forward, both hands were kept parallel to one another and move them towards the grounds, in a circular motion. By the time both hands reached the floor, exhaling was complete.

iii) The breath was held for about six to eight seconds. While holding the breath, the upper part of the body (above the waist) was quite loose, and the lower part, i.e., the waist and the lower part, rigid and hard. The head was bent down towards the ground and head should be between the two arms. The palms were placed on the floor.

iv) Both the hands were brought towards the legs and the subjects inhaled and came up in the standing position. While coming the palms passed over and touched upward. One round of Suryanamaskar Asana has been completed, as seen in fig 23.

Back to position: After the rest for five to six seconds the same process was repeated and the trainees, stayed in the position of readiness while resting.

Benefits

- This Suryanamaskar improves the flexibility of the total body.
Suryanamaskar

Fig 23.
SANTULANASANA

Starting position: The subjects stood on the floor. The body was kept erect and the hands were on their sides.

Description of Asana: They stood on their right leg. The left leg was slowly raised, the heel was brought near to the hip and the toes of the left leg was held tightly by the left hand. The right hand was raised above the head and it was kept straight. This position was maintained 20 to 30 seconds. The same procedure was repeated with left leg also, as seen in fig 24.

Back to the position: They lowered the folded leg and brought down the raised hand. They come back to the standing position and after few seconds of rest they repeated the same asana.

Benefits

- It removes the rigidity of the major joins and brings flexibility.
- It also normalizes the blood circulation in the affected areas and tones up the muscles.

TARASANA

Starting position: The subjects stood on the floor, with the hands on their sides.
Santulanasana

Fig 24.

Tarasana

Fig 25.
Description of Asana: The hands were raised forward up to the level of shoulder while raising the hand they slowly inhaled. They brought both the hands in front with palms facing upwards and inhaling was completed. The hands were kept straight parallel and firm. After a few seconds the breath was held and the hands were moved sideward, palms facing downward up to the shoulder level. Then the palms were turned to face one another and lifted towards the sky. The breath was held, the position was maintained for a second then they started exhaling and lowered the hands down. When the hands returned to the sides, they exhaled completely, as seen in fig 25.

Back to the position: They loosened their body and took test for few seconds and then they repeated the asana.

Benefits

- This asana strengthens the lungs and chest.
- This asana corrects the shoulder joint pains and shoulder disorders.
TRIKONASANA

Starting position: The subjects stood on the floor and kept their legs at about two and a half feet distance from one another, and the hands were on the sides.

Description of Asana: Both hands were raised sideward up to their shoulder level, and the palms faced downwards. They inhaled slowly while raising their hands to the sideward. Then they started exhaling and lowered the left hand and touched the left foot, the right hand was towards the sky. By the time they touched their foot they completed exhaling. The same procedure was repeated on the right side also, as seen in fig 26.

Back to position: They raised their body and stood erect. The hands were brought down to their sides. This asana was repeated after a few seconds of rest.

Benefits

- This asana has medical value for curing the pain or any disorder of the neck and the shoulder joints.
Trikonasana

Fig 26.
AEROBICS – *Fonda, Jane (1981)*

1. Warming-up

Marching:

1. On the spot marching

Shoulder lifts:

1. The right shoulder was lifted up, toward the ear for count one.
2. The left shoulder was lifted up for count second the right shoulder was lowered.
3. The right and left shoulders were lifted for a total of eight counts.

Stepping:

1. The trainees moved on both right and left sides and forward steps.
2. Repeated on all directions.

Waist Reaches:

1. The subjects pulled outward and directly to the side, left arm was over the head to the right. They gently bounced for four counts, hips forward, left shoulder back, and right arm curved in front.
2. They placed the right arm over the head to the left and bounced for four counts, curving the left arm in front.
3. Repeated once on right and on the left side.
Roll Up:

1. Starting position: was to go off the feet, straighten the knees, let the arms and head hang limp like a rag doll.
2. Slowly rolled up, one vertebra at a time.

Kick Front:

1. The right knee was kept up and kicked forward (Both sides right and left alternate).

Grape Wine:

1. The right leg was kept apart and left leg tapped down and they repeated the same as the right for one more time. (Both sides right and left alternate).

'V' Shape:

1. The right leg was diagonally kept forward on the right side and left leg was diagonally kept forward as the left side. Right leg was brought back to the center and left leg was also placed to the center close to the right leg. (Both sides right and left alternately).

II. Arms

Straight Arm Circles:

1. Arms were kept straight out to the side with wrists flexed upward, heels and hands were pushed to opposite walls. The arms were circled forward eight counts and back eight counts, and the shoulders formed hunch up position. The circling motion was with the entire arm from the shoulder.
2. Repeated the circling eight counts forward, eight counts backwards, with wrists flexed downward, back of the hands were pushed to side walls as hard as they could, the knuckles were folded underneath.

3. The circling eight counts forward, eight counts backwards with palms facing the ceiling, was repeated.

Shoulder Release:

1. Starting position: The arms were kept down to the sides. The subjects put their arms out to the side and over the head.

2. They swung their arms down to the sides and knees were slightly bent, for a total of 8 counts. The knees were straightened and the movement was repeated.

Shoulder Twists:

1. Starting position: The arms were extended straight to the side, shoulder height and palms were kept up. The arms rotated forward from the shoulders and then arms raised backward from the shoulder to the starting position.

Arm Stretches:

1. The subjects swung up to the right arms diagonally and back overhead. The left arm were also swung diagonally down and back.

2. The arms were held together as in starting position. These two movements were done to one count and movements of count one and two were repeated.
III. Waist

Side Pulls:

1. The subjects pulled over to the right arm and extended the left arm directly over the ear, right arm curved in the front. Bounced gently for eight counts, being sure to keep the hips forward, and the weight was evenly distributed on both feet and left shoulder back.

2. They placed both hands behind the head and bounced gently to the right side for eight counts. The elbows were pulled inward and kept opened outward.

3. The subjects reached both arms to the right, grabbed the left wrist with the right hand and pulled over, pushing gently for eight counts.

4. Back to the center, bend the knees, clasp hands and circle the hips and arms.

IV. Abdominal

Sit ups:

1. The subjects lifted the head and upper back off the floor as high as they can, using their abdominal muscles, not the arms and the elbows were kept back.

2. They lowered a little but did not touch the floor.

Bicycle:

1. The subjects placed the hands behind the head and extended the right leg straight out, a few inches off the floor with toes pointed. They bent the left knee in to the chest and reached their right elbow to touch the left knee.
2. They had to switch sides and extended the left leg out with toe pointed. The subjects bent the right knee in and touched the left elbow to the right knee.

Knees to Chest:
1. The knees were tightly hugged to the chest, and held for 10 counts.

Extended Leg Sit-ups:
1. The subjects lifted the head and upper torso using the abdominal muscles, and not the arms.
2. Then they released back slightly and the head or shoulders did not touch the floor.
3. They extended their arms and lifted the legs and kept the knees slightly bent. They lifted reached, released, reached, released - for 30 counts.

V. Legs and Hips
The subjects lifted the leg to the Side:
1. With toes pointed, they lifted the right leg up and lowered it.
2. They lowered the right leg and repeated with left leg.

Knee In, Leg Up:
1. They bent the right knee in to the body.
2. They extended the right leg straight out again, on line with the left leg.
3. They lifted the right leg straight up.
Cross Over:

1. The leg was bent, trying to align the thigh with the upper body. They grabbed the right knee with the right hand and pulled the knee in to the chest.
2. They extend the right leg out from the body at a slight angle. Turned the toes down so that the heel was held higher than the toes.
3. Lowered the right leg to within a few inches of the floor.
4. Raised the right leg up again

Inner Thigh Lifts:

1. Lifted the left leg, lowered it slightly between lifts, for 10 counts with toes pointed.
2. Repeated, same leg, for 10 counts with foot flexed.

VI. Buttocks

Buttocks Lifts:

1. Knees and feet were kept parallel, shifted the weight onto the shoulders and lifted the buttocks up.... then slightly lower them, and repeated for 10 counts.
2. Turned the knees and feet out (let them drop open) and continued lifting and slightly lowered the buttocks for 10 counts.
3. They brought the knees in till they pushed up hard with the buttocks.
4. The knees were opened out again, buttocks muscles were slightly relaxed.
5. The knees were bounced together repeatedly for 10 counts.
6. Knees were pressed together as to continue to lift and lowered the buttocks for 10 counts.
7. Then they placed the ankles and knees together and lifted for a final 10 counts.

Hip release and Stretch:
1. The subjects extended the left leg out on the floor with the toe pointed and grabbed the right foot with both hands and pulled the foot across the body, stretching the right hip. They pulled gently for four counts.
2. They extended the right leg up towards the head with a straight knee and pulled it toward with both hands for four counts.
3. They pointed and flexed the foot twice and pulled the leg in to the body.
4. Then legs were changed and extended the right leg out on the floor while grabbing the left foot with both hands and pulling it across the body for four counts.
5. The left leg was extended up toward head and pulled it toward both hands for four counts.
6. Pointed and flexed the left foot twice and pulled the leg to the body.
VII. Cool-Down

The Frog:
1. The subjects relaxed the inner thighs and pressed the small of the back onto the floor.

The Plough:
1. Pulled the knees in to the chest.
2. Hip was lifted upward and supported their lower back by their hands. Bend the knees over the head.
3. Extended the legs out, head as far as to the pointed toes, feet touched the floor behind the head. Supported the lower back with the hands. The position was held a minute or two.
4. Dropped the knees next to the ears and held for a minute.
5. Extended their legs out again and grabbed their ankles with both hands.
6. Knees were held and hugged tightly to chest.
7. Extended the legs and arms and stretched out, legs in one direction and arms in the other.

WAND DRILL

I. Standing Position

Counts:
1. Wand forward raise
2. Position

Counts:
1. Wand forward raise
2. Bend forward-wand downward
3. Wand forward raise
4. Back to position

Counts :
1. Wand forward raise
2. Wand upward raise
3. Wand forward raise
4. Position

Counts :
1. Wand upward raise
2. Hands bent with wand behind the neck-press
3. Wand upward raise
4. Position

Counts :
1. Wand forward raise
2. Right hand over left-wand turn
3. Wand forward raise
4. Position

II. Stepping

Counts:
1. Left leg forward step-wand forward raise
2. Bend forward downward swap
3. Left leg forward step-wand forward raise
4. Position
Counts:
1. Left leg forward step-wand forward raise
2. Left leg sideward step, wand upward raise
3. Left leg forward step-wand forward raise
4. Position

Counts:
1. Left leg forward step-wand forward raise
2. Left leg backward step, wand upward raise
3. Left leg forward step-wand forward raise
4. Position

Counts:
1. Left leg forward step-wand upward raise
2. Left leg sideward step, wand behind the neck press
3. Left leg forward step-wand forward raise
4. Position

Counts:
1. Wand forward raise
2. Left leg sideward step, wand sideward place
3. Wand forward raise
4. Position

III. Launching

Counts:
1. Wand forward raise, Left leg forward step
2. Wand upward raise left leg forward launch
3. Wand forward raise, Left leg forward step
4. Position

Counts:
1. Left leg forward step, wand forward raise
2. Left leg forward launch wand forward vertical position
3. Left leg forward step, wand forward raise
4. Position

Counts:
1. Left leg forward step, wand upward horizontal
2. Left leg forward launch, wand behind the neck
3. Left leg forward step, wand upward horizontal
4. Position

IV. Moving

a) Counts:
1. Left leg forward step, wand behind the neck
2. Wand upward horizontal right leg near to left leg
3. Left leg forward step, wand behind the neck
4. Position

b) Counts:
1. Right leg backward step, wand upward horizontal
2. Left leg near the right leg wand behind the neck
3. Right leg backward step, wand upward horizontal
4. Position
a) Counts:
1. Left leg sideward step, wand behind the neck
2. Right leg close to the left leg wand upward horizontal
3. Left leg sideward step, wand behind the neck
4. Position

b) Counts:
1. Right leg sideward step, wand upward horizontal
2. Left leg near to the right leg, wand behind the neck
3. Right leg sideward step, wand upward horizontal
4. Position

V. Jumping

Counts:
1. Wand forward horizontal feet apart jump
2. Wand upward horizontal
3. Wand forward horizontal feet apart jump
4. Position

Counts:
1. Wand forward horizontal feet apart jump
2. Wand downward bend
3. Wand forward horizontal feet apart jump
4. Position

Counts:
1. Wand upward horizontal feet apart jump
2. Wand behind the neck
3. Wand upward horizontal feet apart jump
4. Position

Counts:
1. Wand forward horizontal feet apart jump
2. Wand sideward shooting action
3. Wand forward horizontal feet apart jump
4. Position

Counts:
1. Wand forward horizontal feet apart jump
2. Wand upward horizontal
3. Wand forward horizontal feet apart jump
4. Position

V. Squatting

Counts:
1. Wand forward horizontal – half squat
2. Wand upward horizontal – full squat
3. Wand forward horizontal – half squat
4. Position

Counts:
1. Wand upward horizontal – half squat
2. Wand behind the neck – full squat
3. Wand upward horizontal – half squat
4. Position
VI. Hoop Drill

Counts:
1. Hoop upward – rotate
2. Position

Counts:
1. Hoop upward
2. Bend sideward
3. Hoop upward
4. Position

Counts:
1. Hoop upward
2. Right hand over left hand
3. Left hand over right
4. Position

Counts:
1. Hoop forward
2. Hoop upward
3. Hoop forward
4. Position

Counts:
1. Hoop forward – right foot forward
2. Hoop sideward – right foot sideward
3. Hoop forward – right foot forward
4. Position
Counts:
1. Hoop upward
2. Forward bending hoop downward
3. Hoop upward
4. Position

Counts:
1. Hoop forward – left foot sideward
2. Launge – Hoop sideward
3. Hoop forward – left foot sideward
4. Position

Counts:
1. Hoops swinging
2. Right and Left
3. Position

Counts:
1. Hoop forward
2. Left hand over right hand
3. Right hand over left hand
4. Position

Counts:
1. Hoop forward, left leg forward
2. Hoop forward right leg together
3. Hoop forward, left leg forward
4. Position
Counts:

1. Hoop sideward, left leg sideward
2. Hoop sideward, right leg together
3. Hoop sideward, left leg sideward
4. Position

Counts:

1. Hoop forward
2. Hoop upward
3. Hoop forward
4. Turn

Trunk Bending Series

1. Hanuman baitak with hoop in front
2. (a) Thrust arms forward
   (b) Full squat with hoop on shoulder in a horizontal position - Repeat
3. Trunk bending sideward and backward with the arms following the trunk

Fancy Steps

1. Marching, change the hoop from one hand to the other with every fourth or eighth step.
2. Marching four abreast with a hoop held horizontally in between two
3. Fancy combinations of the arms, leg and body movement

Wave Formation (in a Circle)
LEZIUM

Counts:

1. Iron handle was held by the right hand
2. The lezium was brought down, the wooden handle was held by the left hand.

**Exercise 1**: was administered by commands through counts as given below.

The movements were referred as B.E. 1, B.E. 2, B.E. 3 and B.E. 4.

1. **Counts**:
   1. (B.E. 1) Bend forward and click the iron handle against the wooden handle held parallel to the ground in front of the toes
   2. (B.E. 2) Pull the iron handle apart vertically in front of the knees
   3. (B.E. 3) Come to the erect position and fling the wooden handle rapidly on the right fore-arm towards the body.
   4. (B.E. 4) Pulling the wooden handle up in front of the face.

**Exercise 2**

2. **Counts**:
   1. Step left foot forward, and click in front of the left toe.
   2. Pull the iron handle apart vertically in front of the left knee.
   3. B.E 3.
   4. B.E. 4. with left foot back to position.
Exercise 3

3. Counts:
   1. Step left foot forward, and click in front of the left toe.
   2. Pull the iron handle apart vertically in front of the knee.
   3. Right about face, keeping the legs in Position and do B.E 3.

The same was repeated in front of the right toe and finished on the left. The left foot is brought to position on the fourth count.

Exercise 4

4. Counts:
   1. B.E. 1
   2. B.E. 2
   3. B.E. 3 Bring left foot behind right knee and cross.
   4. B.E. 4. left replace. Try with right

Exercise 5

5. Counts:
   1. B.E. 1 with the left foot forward
   2. B.E. 2
   3. B.E. 3 full squat
   4. B.E. 4. stand up.

Exercise 6

6. Counts:
   1. B.E. 1 with left foot forward.
   2. B.E. 2
   3. B.E. 3 full squat
   4. B.E. 4. stand up.
Exercise 7

7. Counts:
   1. B.E. 1 with left foot forward.
   2. B.E. 2
   3. Swing the arm overhead, right to left and left to right and assume B.E. 3.

Exercise 8 (Lateral Movements)

8. Counts:
   1. B.E. 1 on the left
   2. B.E. 2 in front of the knee
   3. B.E. 3. towards the right
   4. B.E. 4. on the right hand side.

This was repeated from the right to left.

Exercise 9

9. Counts:
   1. B.E. 1 with left foot one step forward.
   2. B.E. 2 bring the right foot forward to the left and do a full squat.
   3. B.E. 3. while squatting pivot the left to the right.
   4. B.E. 4. stand erect, feet together.
Exercise 10

10. Counts:
   1. B.E. 1 with left foot forward.
   2. B.E. 2
   3. B.E. 3. lunge forward

B.E. 4. Feet together, either left foot moved backward or right foot moved forward.

STATISTICAL PROCEDURES EMPLOYED

Univariate Analysis of covariance was used to find out the effects of exercise training on health related physical fitness variables and psycho motor domain among the three groups, namely aerobic, yoga training groups and control group. The data on health related physical fitness variables (muscular strength, muscular endurance, body composition, flexibility, cardio vascular endurance, psychomotor domain- balance and kinesthesia) were collected by administering the one minute step test, modified push up test, skinfold measurements, sit and reach test, three minute step test, static balance test perception jump test. Pre test data were collected two days before the training programme and the post tests data were collected for a period of two days i.e, after the experimental training programme. Pair wise comparison was used to identify the mean significant differences between any two groups, with the 0.05 level of significance.

The psychological variable – exercise identity scale was compared among B.Ed and B.P.Ed teacher trainees using ‘t’ test. The same variable was analysed among three experimental groups by one – way ANOVA. The linear relationship between exercise identity and the differences in the pre–test and post–test scores in health related physical fitness variables was statistically analysed using regression analysis with backward elimination process.