3.12.5 Anxiety (Questionnaire)

Trait anxiety questionnaire prepared by spielberger R.L. Gorsuch and R.E. Lushers was used in the study for collecting the data. This questionnaire consisted of a series of 20 statements. The subjects were asked to make a (✓) mark against the best among the four answers. The inventory was validated by administrating it and was scored with the help of scoring provided by Spielberger Burgeon R.L. Gorsuch and R.E. Lushers. The investigator administered the questionnaire to the subjects and collected data from the respondents when they were in normal situation. The filled in questionnaire, from the respondents were collected and checked whether all the questions were answered or not. **Scoring**: Scoring was done after getting responses from the respondent. The authors have constructed a four point's scale. The format of the scale is given below: Anxiety questionnaire: Almost never - 1, Sometimes - 2, Often - 3, almost always 4.

3.12.6 Self Confidence (Questionnaire)

Self – Confidence with Agnilotry Self-Confidence Inventory (ASCI) developed by Rekha Aquilotry was used to measure the level of self-confidence. The inventory can be served by hand. A score of one is awarded for response indicative of lack of self-confidence. That is for making cross (X) to wrong response to item number 2,7, 23,31,40,41,43,44,45,53,55 and for making cross (X) to right response to the rest of the items.

The lower full score, full higher would be re level of self-confidence and vice-versa (The copy of the questionnaire was given in appendix)

3.12.7 Blood Sugar (Blood Analysis)

Blood glucose was estimated colorimetrically by O-toluidine method as described by Winckers and Jacobs, 1971.

Principle

Glucose reacted with ortho-toluidine in the presence of hot acetic acid forming a green clored complex which was measured colorimetrically at 620nm (wave length).

Procedure for sample Collection

Plasma: The venous blood was collected from radial vein in a small tube containing sodium fluoride and potassium oxalate anticoagulant; the block was mixed gently, centrifuged and the plasma was transferred into a clean test tube. The plasma was free of hemolytic.

Procedure

S.No	Reagent	Blank (B)	Standard (S)	Test (T)
1	O-Toluidine reagent	5ml	5ml	5ml
2	Glucose standard (100 mg)	--	0.1Ml	--
3	Plasma	--	--	0.1 ml
4	Distilled water	0.1 ml	--	--

The tubes were kept in boiling water for 10 minutes. After cooling, the optical density was recorded at 620 nm.

$$\frac{\text{O. D. of Test} - \text{O. D. of Blank}}{\text{O. D. of Std} - \text{OD of Blank}} \times 100\ mg$$

The obtained value was expressed as mg/dl.

3.12.8 Estimation of High Density Lipoprotein (Blood Analysis)

Method: HDL-Cholestrol was estimated by applying enzymatic colorimetric mthod as recommended by Burstein et.al., and Lopes et.al., Erba smart lab auto analyser was used for this purpose. **Test principle**: Chylomicrons, VLDL (Very low density lipoproteins) and LDL(Low density lipoprotein) are precipitated by adding phoshphotungstic acid and magnesium ions to the sample. Centrifugation leaves only the HDL in the supernatant and their cholesterol content is determined enzymatically by cholesterol oxidize paraaminohenazone method.

Reagents:

Phosphotungstic acid- 0.44 mmol/1. Magmesoi, Chloride-20 mmol/1.

Procedure: To 200ml of sample, 500ml of precipitating reagent was added, mixed and kept for 10 minutes at room temperature. The tubes were centrifuged at 4000rpm for 10 minutes and 100ml of clear supernatant was removed within two hours for cholesterol estimation by cholesteroloxidase. Paraaminophenazone method with 1000ml of the reagent. SerumHDL Cholestrol is expressed as mg/dl.

3.12.9 Estimation of LDL-Cholesterol (Blood Analysis)

LDL –Cholesterol was calculated from total cholesterol, triglcerides and HDL cholesterol levels, by using the following formula recommended by Fried Wald, Levy and Fredrickson LDL-C=Total Cholestrol-[Triglycreides+HDL-C] Estimation of Total Cholesterol:

Collection of Blood Sample: Venous blood was collected in the early morning after the subjects were abstained from food and drink except water for 12 hours to

estimate the selected biochemical variables. Five ml of blood was drawn from the subjects. Anticubital vein by venous puncture method and the blood was immediately transferred into sterilized small bottles. Blood samples were taken at the beginning (pre-test) and finally at the end of the experimental period of 12 weeks.(Post test).

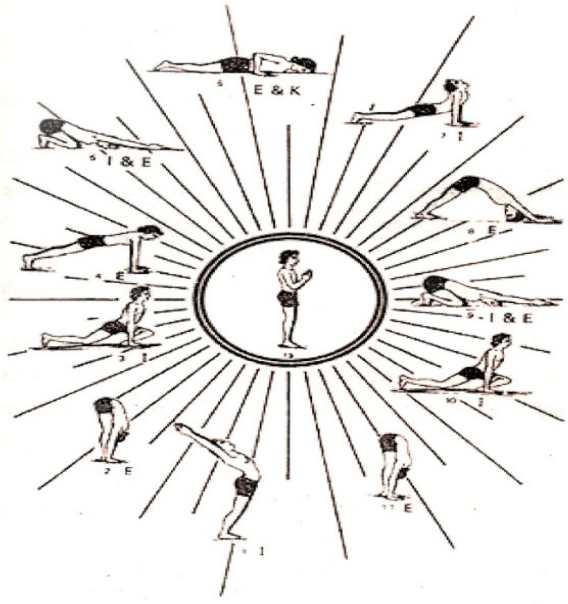
Method:

Enzymatic colorimetric method recommended by Siedel et.al., and Kattermann, et.al., was applied for estimation of cholesterol.

Test Principle:

Cholesterolesters+H20

3.13 PRACTICAL APPLICATIONS OF YOGIC PRACTICES IN THIS STUDY



I - INHALATION

E - EXHALATION

E&K - EXHALE AND HOLD BREATH

3.13.1 Surya Namaskar - The Sun Salutation

Surya Namaskar or the Sun Salutation is considered the 'king' of asana practice. It is a beautiful weave of the physical, emotional/psychological, spiritual aspects of our being. It comprises 12 vital postures that work on the spine and the major muscles of the body to give strength and flexibility. When combined with appropriate breathing, it works on the deeper physiology of the body, the very endocrine system, whose synchronized functioning is responsible for the health of our body and emotions.

Suryanamaskar (12-steps)

1. Students were asked to stand erect with feet together and palms in the prayer position in front of their chest. The investigator made sure that their weights were evenly distributed. (Exhaled).
2. They were asked to stretch their arms up and arch back from the waist, push their hips out, legs straight and their necks in relaxed position. (Inhaled).
3. The subjects were made to push their trunk forward, and were asked to press their palms down, fingertips in line with toes. (They could bend their knees if necessary.) (Exhaled).
4. They were asked to bring the right (or left) leg back and place the knee on the floor. Then they arched their back and looked up, with chin lifted. (Inhaled).
5. The breath was retained by them in this stage and they bought the other leg back and supported their weights on hands and toes. They kept their head and body in line and looked at the floor between their hands.
6. In this stage they lowered their knees, chest and forehead, kept their hips up and toes curled under. (Exhaled).

7. Then they lowered the hips, pointed toes and bent back. They kept legs together and shoulders down, and then looked up and back. (Inhaled).
8. In this stage, they curled their toes under, raised their hips and pivot into an inverted "V" shape. They tried to push the heels and head down by shoulders back. (Exhaled).
9. Next, they stepped forward and placed the right (or left) foot between the hands. Rested the other knee on the floor and looked up, as in position 4. (Inhaled).
10. Then they were asked to bring the other leg forward and bend down from the waist and kept the palms as in position 3. (Exhaled).
11. They were asked to stretch their arms forward, then up and back over the head and bend back slowly from the waist, as in position 2. (Inhaled).
12. Finally they came back to an upright position and dropped their arms down by their side. (Exhaled).

3.13.2 ASANAS

3.13.2.1 Bhujangasana

The students were asked to lie-down in prone position by placing their palms beside the chest. Then they were asked to lift the body, (head first, shoulder next and finally chest). In final posture the breath was maintained normally. Then they slowly came back to the original position.

3.13.2.2 Patchimothasana

The students were asked to sit in long sitting position with their hands above the head, palms facing each other. Then, slowly they were made to bend forward, (tried to)

touch the big toe, and then tried to touch the knees with their forehead. Normal breath was maintained and then they came back to their original position**.**

3.13.2.3 Dhanurasana

The students were asked to lie-down in prone position. Their knees were slightly folded behind and they were asked to take the arms back and to hold the ankle of the legs. The breath was maintained normally and they were back to their original position.

3.13.2.4 Halasana

The students were asked to lie-down in supine position. They were asked to keep the legs together and lift slowly up and to take both the legs behind the head and touched the floor. The breath was kept normal and then they were asked to come back to their original position.

3.13.2.5 Gomukhasana

The students were asked to sit in long sitting position and fold their left leg first and then right leg under the hip, both the knees one on the other. The students were asked to keep their back straight and the right arm above the head by flexing their elbow down behind their back. The other arm was under the back trying to hold the right arm finger. Their breath was kept normal. Then they were asked to come back to their original position. This asana was repeated to the other side of the body.

3.13.2.6 Ardhamatsyendrasana

The students were asked to sit in long sitting position with folded right leg under the hip. Then the left leg was crossed over the right leg and the right hand was used to hold the left ankle by pushing the knee and twisting the hip towards left. The breath was kept

normal. Then they were asked to come back to their original position. This asana was repeated to the other side of the body.

3.13.2.7 Ushtrasana

The students were asked to be in kneeling down position, with hip pushed forward and bend back. They were asked to hold the heel of their feet with their respective hands. Head was kept in a relaxed manner. The breath was kept normal. Then they were asked to come back to their original position.

3.13.2.8 Garudasana

The students were asked to stand feet apart keeping hands on their hips, akimbo. They were asked to bend both knees and slowly warp their right thigh over the left, curl their right foot behind their left calf, and hook it there. They reached both the arms out in front and warped their left arm over the right, then crossed the left elbow over the right upper arm and sided their right hand towards their face, crossed their forearms, and pressed their palms together, raising the elbows to shoulder height. Then they felt the stretch through their upper back. The breath was kept normal. Then they were asked to come back to their original position.

3.13.2.9 Virabadharasana

The students were asked to stand straight with legs wide apart. They were asked to take wider step forward with bend in their front knee. Then they lifted both the arms sideways to shoulder height with their palms facing upwards and slowly moved the hands above the head while both the palms touched each other. Then they were made to arch back by looking upward. The breath was kept normal. Then they were asked to come back to their original position. The same exercise (asana) was done with the other leg.

3.13.2.10 Natarajasana

The students were asked to stand erect with legs wide apart. They were asked to shift their weight on to their right foot and bend their left knee to bring their foot towards their left buttock. Then they were made to grab the inside of their left foot with their left hand and bring their right hand to their hip as their foot raised up, they tilted their torso forward, maintaining a lift through their chest. Then they raised their right hand up towards the sky. The breath was kept normal. Then they were asked to come back to their original position. The same asana was done with the other leg.

3.13.3 Bhastrika Pranayama

The students were asked to be seated in comfortable sitting posture (sukasanam). They were asked to breathe in, by inhaling forcefully through both the nostrils, so that their lungs were fully filled with air. And then they were made to exhale forcefully through both the nostrils without any holding in-between. Thus they successfully completed bhastrika pranayama.

3.13.4 Chin Mudra or Gyan Mudra

The students were asked to be seated in comfortable sitting posture (sukasanam). Both the hands were used to practice this gesture. They made a circle by joining their thumb and forefinger. They placed the nail of their index finger against the soft pad of the thumb by extending the last three fingers of their hands; the palm-side facing upward. They were made to place their hands on their knees to stimulate the “Nadi”.

3.14 PRACTICAL APPLICATIONS OF AEROBIC DANCE WORKOUT IN THIS STUDY

3.14.1 Aerobic Dance

Aerobic dance is a series of specially choreographed movement-routine that incorporate a combination of dance step patterns and other whole body movements including walking , jogging, hopping, skipping, jumping and kicking. Aerobic dance is performed to the rhythmic beat of popular music and might draw from various dance forms, such as jazz, folk, modern, ballet, and rock. The use of the aerobic dance as a means of developing and maintaining cardio respiratory endurance has become popular during the past few years. Aerobic dance workout, like other exercise programmes, consists of three phases: warm-up, the conditioning bout, and cool –down. To realize some fitness benefits, aerobic dance workout should be of sufficient intensity and duration to produce a training effect. The workouts should also be engaged in on regular basis to maintain fitness.

3.14.2 Aerobic Training Methods and Modes

Either continuous or discontinuous training methods can improve cardiovascular endurance. Continuous training involves one continuous aerobic exercise bout performed at low-to-moderate intensities without rest intervals. Discontinuous training consists of several intermittent low-to high-intensity exercise bouts interspersed with rest periods. Both training methods produce significant improvement in VO2 max (Morris et al. 2002). Recent research suggests that when the volume of exercise is controlled, high-intensity endurance interval training (90-95% HR max; 95% VO2R) improves vO2 max more than continuous, moderate-intensity (70% HR max;50% VO2R) aerobic exercise training in healthy adults (Gormley et al. 2008; Helgerud et al. 2007). However, one concern about

high-intensity intermittent training is the possibility of exercise burnout. Pollock and colleagues (1977) reported that the dropout rate of adults in a high-intensity interval (discontinous) training programme was twice that of those in a continuous jogging programme. Thus, for the typical subjects, high-intensity interval training may be better suited for stimulating short-term (e.g., 4 week) improvements in cardio respiratory fitness and for adding variety to the exercise programme. Future research needs to address the long-term health benefits of interval training and its effects on exercise adherence for the general population.

3.14.3 Aerobic Dance Workout

Warm up activities consist of the following: bending, twisting and stretching movements (other actions could be included to meet individual needs):

1. The students were asked to stand in a straddle position, feet about shoulder-width apart, toes straight ahead, and arms at the sides. They kept their elbows straight and lifted both arms up over the head (8 counts). Then they pushed their right arm up, by stretching their right side and then the left side. They repeated right and left for 8 counts.
2. They lowered both arms back down to the side (8 counts). They were asked to keep their knees locked, then they folded forward slowly according to their own ability, when they reached the floor, their arms and head hanged loose (8 counts). They held that position for 8 counts. They lifted their upper body, starting with the abdomen (midsection), and continued till they were in a standing position (8 counts). They kept their shoulders relaxed and down. They repeated the entire movement from the top again.