CHAPTER - III

METHODOLOGY

In this chapter, the procedure adopted for the selection of subjects, experimental variables, experimental design, details of interventions, procedures for test administration, collection of data and methods employed for statistical treatment are described.

Selection of Subjects

Four hundred and twenty players (Men) of Thiru. Vi. Ka. Government Arts College, Tiruvarur affiliated to Bharathidasan University, Tiruchirappalli, Tamilnadu were selected as subjects for the study. The college has bagged many laurels in the field of sports and games at University and State level. They play Volley Ball, Basket Ball, Cricket, Kabaddi, Hockey, Kho-Kho and athletics at College, University and State level competitions. Their age ranges from 19 to 25 years.

Subjective well being Inventory (SWBI) - a standardised questionnaire was used to measure the stress level of players. The SWBI questionnaire was administered to all 420 players. According to their scores, 56 over stressed subjects were identified. From the 56 overstressed subjects 45 were randomly selected for this study. Out of this 45 subjects, 15 were randomly assigned to each of the two experimental groups - yogic practice group and aerobic exercise group and the remaining 15 to the control group.

Subjective well-being Inventory (SWBI)

Available standardised SWBI questionnaire was used to collect the data. Subjective well being inventory consists of 40 item version developed by Nagpal and Sell (1984) for measuring stress level. Ninteen of these
elicit positive effects i.e. whether one feels happy or good or satisfied about particular life concern. Twenty one items elicit negative effects, i.e. unhappiness or worry or regret about particular life concern. All these items permit three response categories only - very positive, positive and negative.

The inventory measures 11 factorial dimensions. The number of questions of each of these dimensions and a brief description of these is given below:

Factor-1 : Subjective well being positive affect - feelings of well-being arising out of an overall perception of life as functioning smoothly and joyfully.

Factor-2 : Expectation - achievement congruence - feelings of well-being generated by achieving success and the standard of living as per one's expectations or what may be called satisfaction.

Factor-3 : Confidence in coping - perceived personally strength, the ability to master critical or unexpected situations. It reflects positive mental health in an 'ecological sense' i.e. the ability to adopt to change and to face adversities without breaking-down.

Factor-4 : Transcendence - feelings of subjective well-being derived from life experiences that are beyond the ordinary day-to-day material and rational existence. These have a touch of spiritual value.

Factor-5 : Family group support - positive feeling derived from the perception of the wider family as supportive, cohesive and emotionally attached.

Factor-6 : Social support - feelings of security derived from supportive attitude in times of crisis.
Factor-7: Primary group concern - feeling of happiness / worry about one's relationship with primary family, viz., spouse and children.

Factor-8: Inadequate mental mastery - feelings of having a sense of insufficient control over inability to deal efficiently with certain aspects of life that are capable of disturbing the mental equilibrium. This inadequate mastery is perceived as disturbing or reducing subjective well-being.

Factor-9: Perceived ill-health - physiological dysfunctioning complaints.

Factor-10: Deficiency in social contacts - feelings of missing friends or lack of close relationship.


Validity of SWBI Questionnaire

The external validity of scales is usually determined by the extent it agrees with other standardized scales that measure. SWBI questionnaire was validated against the stress questionnaire designed by Indian Council of Medical Research (ICMR) (Herchbach et.al, 1997). The subjective well-being questionnaire as well as ICMR stress questionnaire were administered to 20 college players. Correlation between the scores of the two instruments was calculated by the rank difference method and yield a co-efficient of correlation $r = 0.611$; significant at 0.05 level of confidence.

Reliability - Split half reliability

The internal consistency of the test was measured by dividing the test into two equal halves, by the odd-even method. All the odd-numbered items formed one half and the even-numbered items formed the other half. The co-efficient of correlation between the two parts calculated by
the product moment method was estimated at 0.98. Since the obtained coefficient of correlation is greater than the tabulated value, the test was considered to be reliable at 0.01 level of confidence. Hence the scale in its original form was used in this study.

**Administration of SWBI**

The SWBI is essentially a self-administering one. The subjects were asked to sit in a comfortable place so as to answer the questionnaire individually. The stress questionnaire was given to the subjects and asked to give their true responses to all the statements. Clear-cut instructions were given. After a stipulated time the answer sheets were collected. The collected answer sheets of each subject were first checked to make sure that subjects had not given double responses to any question and have not omitted any question. The stress questionnaire was administered before and after the experimental period, the initial and final scores of all the three groups were also obtained.

**Scoring and Interpretations**

The SWBI is scored by attributing the values 3, 2 and 1. The minimum and maximum scores that can thus be obtained are 40 and 120 respectively. The total score can be interpreted summarily in the light of three broad score ranges 40-60 (over stressed), 61-80 (moderate stressed) and 81-120 (normal) to have an overall picture of well-being status.

**Selection of Variables**

Based on the relevant literature are viewed and in accordance with the views of professional physical education personalities, the importance of variables at the high level performance, availability of equipment, feasibility aspect of measurement, the following variables were selected for this study. The dependent variables are stress hormone cortisol, circulatory responses such as resting heart rate, systolic blood pressure and diastolic
blood pressure and metabolic responses such as blood sugar, serum cholesterol and serum protein. The independent variables used in this study are yogic practices and aerobic exercises.

**Experimental Design**

Experimental design is the blueprint of the procedure that enables the researcher to test hypotheses by reaching valid conclusions about relationship between independent variables and dependent variables. For this study the true experimental randomized group design has been employed (Clarke, 1972). To find out the effects of yogic practices and aerobic exercises on stress hormone cortisol, resting heart rate, systolic blood pressure, diastolic blood pressure, blood sugar, serum cholesterol and serum protein, the selected samples have been tested.

**Experimental parameters**

The following criterion measures are chosen for testing hypotheses.

1. Cortisol - stress hormone - microgram/dl
2. Resting heart rate - beats/minute.
3. Systolic blood pressure - mm/Hg
4. Diastolic blood pressure - mm/Hg
5. Blood sugar - mg/dl (fasting)
6. Serum cholesterol - mg/dl (fasting)
7. Serum protein - g/dl (fasting)

**Reliability of instruments**

The instruments stethoscope, stop watch and sphygmomanometer which are used have been calibrated in standard units. To determine the reliability of the instruments each of the variables are recorded two times under similar conditions using the same instrument and also the scores are
compared with other scores taken from the instruments from other reputed firms.

**Tester's Competency and Reliability of Tests**

To determine the reliability of the measurements adopted in this research, the tester correlated the data of nine subjects selected randomly from all the three groups. Tester's competency was evaluated by determining reliability of the tests. Biochemical tests were administered twice and Pearson product moment correlation was computed between the two measures on each the reliability coefficients were shown in table-I. The coefficients of reliability were significant at 0.01 level for all the tests under investigation which had reliability coefficients more than 0.798 required for 7 degrees of freedom.

<table>
<thead>
<tr>
<th>St.No.</th>
<th>Test</th>
<th>Coefficient of Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Cortisol</td>
<td>0.85</td>
</tr>
<tr>
<td>2.</td>
<td>Resting heart rate</td>
<td>0.96</td>
</tr>
<tr>
<td>3.</td>
<td>Systolic blood Pressure</td>
<td>0.95</td>
</tr>
<tr>
<td>4.</td>
<td>Diastolic blood pressure</td>
<td>0.96</td>
</tr>
<tr>
<td>5.</td>
<td>Blood sugar</td>
<td>0.92</td>
</tr>
<tr>
<td>6.</td>
<td>Serum cholesterol</td>
<td>0.91</td>
</tr>
<tr>
<td>7.</td>
<td>Serum protein</td>
<td>0.87</td>
</tr>
</tbody>
</table>
Orientation of subjects

Prior to the administration of test the subjects were oriented by informing them about the purpose of the test, method of test administration and demonstration to familiarise them with this type of test.

Administration of Interventions

In this study the interventions are stress hormone cortisol, resting heart rate, systolic blood pressure, diastolic blood pressure, blood sugar, serum cholesterol and serum protein. The variables cortisol, blood sugar, serum cholesterol and serum protein can be tested only in the clinical laboratory. So the investigator has tested the above variables in a reputed pathological laboratory by taking the blood samples from the subjects.

1. Stress Hormone - Cortisol

The stress hormone cortisol level can be estimated by analysing the hormone cortisol in blood. The blood cortisol level is of importance and this can be analysed in pathological laboratory. The blood sample is taken from the subjects at rest in the morning at 7' O clock.

2. Blood Sugar

Blood sugar level is estimated in pathological laboratory, the blood sample is taken when the subjects are in fasting at 7.00 a.m.

3. Serum Cholesterol

The serum cholesterol level are of importance and this can be estimated in the same pathological laboratory. The blood sample is taken while the subjects are in fasting at 7.00 a.m.

4. Serum Protein

The serum protein level is also estimated in the pathological laboratory. The blood sample is taken while the subjects are in fasting at 7.00 a.m.
5. Resting Heart Rate

Measuring the resting heart rate.

Test Objective

The objective is to measure the resting heart rate in the normal position.

Description

The heart beat of the individual is measured with the earphones of the stethoscope placed in the tester's ears, the bell of the stethoscope was placed on the left side of the heart, so that he could measure the heart beat.

Equipment - Stethoscope and stop watch.

Scoring - Heart rate was measured for one minute.

Blood Pressure

Measuring the systolic blood pressure and diastolic blood pressure.

Test Objective

The objective is to measure the blood pressure (systolic and diastolic) in the normal position.

Description

The method used to measure the systolic and diastolic blood pressure is relatively simple. The cuff of the sphygmomanometer is wrapped around the forearm above the elbow, with earphones of the stethoscope in the tester's ears, the bell of the stethoscope is placed on the branchial artery just above the hollow of the elbow. The cuff is pumped up until the artery collapsed, that is no pulse beat could be heard. Pressure was then slowly released as the tester watched the gauge or mercury column. When the first sound of the pulse was heard, the reading in millimeters of
mercury at that instant was recorded as systolic blood pressure. The tester continued to release pressure slowly until a very dull, weak beat is noted. At that instant the pressure in millimeters of mercury is noted as diastolic pressure. The measure is recorded with the systolic blood pressure first and the diastolic blood pressure next.

**Administration of Treatment**

In the present study yogic practices and aerobic exercises are given as treatment to the two experimental groups (yogic practice group and aerobic exercise group) for twelve weeks on six days a week and Sunday as active rest. The method of doing the yogic practices and aerobic exercises were clearly explained and demonstrated to the subjects and they were asked to do the yogic practices and aerobic exercises in a systematic manner. It helps the investigator to get the successful application of interventions. The details of the selected yogic practices and aerobic exercises are described briefly in the following section.

**Description of Yogic Practices**

Yogic practices are asanas, pranayama and meditation. The selected yogic practices given as experimental treatment and the duration of time for each asana and the order of doing selected yogic practices namely Padmasana, Vajrasana, Paschimothasana, Matsyasana, Vakrasana, Yoga-Mudra, Ardha Katti Chakkarasana, Ardha Sirasasana, Bhujangasana, Shalabasana, Sarvangasana, Dhanurasana, Halasana, Savasana, Pranayama, Nadi sudhi pranayama, Nadi shodhana pranayama, Sitali pranayama, Kapalabhathi pranayama, Breath Counting Meditation and Mantra Meditation are given below.
Yogasana

1. Padmasana

Padmasana is also called Lotus posture. The subjects are asked to sit on the ground with the heel of the left foot resting on the right thigh as close as possible to the navel. Then the right foot should be placed on the left thigh in such a way that the heels touch each other as near as possible to the navel. The spinal column and the body above the waist should be kept erect and the knees touch the ground, hands placed on the lap and palms upward.

Figure - 2 : Padmasana
2. Vajrasana

It is otherwise called Adamantine posture. The subjects are asked to squat on the toes placing the heels beneath the arms, hands placed on the thighs and keeping the trunk and neck erect.

*Figure - 3 : Vajrasana*
3. Paschimothasana

This asana is performed from sitting position, keeping the legs stretched straightforward and slowly bending forward from the hips trying to catch hold of the legs with fingers. The knees are kept straight without any jerks. The trunk is bent forward as far as possible without much discomfort and is maintained in that position.

Figure - 4 : Paschimothasana
4. Matsyasana

The sanskrit word 'Matsya' means fish. The subjects are instructed to sit in padmasana position and with the help of elbows, the trunk is leaned backward. The top of the head is rested on the ground. The big toes are caught hold with hands. This is maintained for sometime and then the subjects stretch the body back and relax.

Figure - 5 : Matsyasana
5. Vakrasana

This asana is called the spinal twist posture. In long sitting position slowly fold the right leg and place the right foot flat on the floor inside the left knee. Twist the body to right side, and bring the left arm outside the right leg and place the left hand near the left foot with the palm touching the ground. Keep the right knee at straight. Further turn the body to the right side and the right hand is placed back with the palm flat on the ground and be in-line with spinal column. Finally, turn the head as much as possible to the right side and keep the chin in line the right shoulder.

*Figure - 6: Vakrasana*
6. Yoga-Mudra

This asana is called the psychic union posture. Subjects are asked to sit in long sitting position. Slowly bring the right leg and place it on the left thigh. The heel of the right foot should as much as possible touch the groin. Slowly bring the left leg and place it on the right thigh. The heel of the left foot should as much as possible touch the groin. Slowly bring the hands back and hold the right hand at wrist by the left hand. Slowly bend the trunk forward until the forehead touches the ground or nearly touches the ground.

Figure - 7 : Yoga-Mudra
7. Ardha Katti Chakkarasana

'Chakra' means a wheel. In this asana, the body is made to look like a wheel. The subjects lie down on their back, bending knees, both feet are placed slightly apart below the hips. The palms are kept on the ground on either side of the head with fingers pointing towards the feet. Now the body is raised to knee level and the head is rested on the ground. Then the body and head are lifted and the back is arched so that the body weight is placed on the hands and feet. Finally, the arms are stretched steadily until the elbows are straightened and the legs, body and hands form a semicircle.

Figure - 8 : Ardha Katti Chakkarasana
8. Ardha Sirasasana

The subjects are asked to sit in kneeling position and to bend the body so that the head is on the ground. Supporting with the palms, the legs are straightened. Only the foot and head should rest on the ground.

Figure - 9 : Ardha Sirasasana
9. Bhujangasana

Bhujangasana means serpent posture. The subjects are asked to lie down on their chest and stomach on full length. They put the palms below their shoulder, keep the elbow close to the body, raised their face, chest and stomach from the floor up to the navel level. The parts of the body below the navel region remained pressed down on the floor.

Figure - 10 : Bhujangasana
10. **Shalabasana**

The subjects lie in a prone position and the fists are closed in supinated position and kept under the thighs slowly the legs are raised upward. Knees are kept together and straight while raising the legs. Raising of legs is smooth and without any jerk. The pelvic region is also raised up and fore head is touching the floor.

*Figure - 11: Shalabasana*
11. Sarvangasana

'Sarva' means entire or whole and 'anga' means body. Initially the subjects are asked to lie on their back. The legs are kept on the floor as support at the hip. Then legs are raised slowly till they are vertical keeping the upper part of the body flat, the lower trunk is raised slowly.

Figure - 12 : Sarvangasana
12. Dhanurasana

Dhanurasana means bow posture. The subjects are asked to lie on their stomach, fold the legs backward and catch hold of ankles with respective hands. They raise the chin and chest by looking forward without bending their elbows. The knees are brought together and feet higher to the maximum possible limit by pushing the heels away from the back.

Figure - 13 : Dhanurasana
13. **Halasana**

'Hala' means plough. The subjects are asked to lie on their back with arms stretched by the side of the body and palms flat on the ground. Slowly the legs are raised vertically. Then the legs are gently lowered behind the head to touch the ground with the tips of the feet. The feet is slowly pushed further back and then come to the starting position.

*Figure - 14 : Halasana*
14. Savasana

'Sava' means corpse. The subjects lie on their back, arms at the sides, legs stretched out and slightly apart breath deeply. All the parts of the body should be completely relaxed. It should be ensured that not even the smallest part of the body remains tense.

Figure - 15 : Savasana
15. Pranayama

The Pranayama exercises are the control of the breath. Breathing is an act in which we take air from the atmosphere into our lungs, absorb oxygen and expel the air again. Inhalation of air is called ‘puraka’, holding the breath is called ‘kumbhaka’ and exhalation of air is called Rechaka.

Figure - 16 : Pranayama
1. Nadi Sudhi

The subjects are asked to sit on Padmasana, close their eyes, close the right nostril with their right thumb. They were instructed to inhale slowly through the left nostril as long as they can do it with comfort and not to make any sound during inspiration and then to exhale slowly. This was done twelve times. This constitute one round. Then the same was don 12 times through the right nostril.

2. Nadi Shodhana

Nadi means a channel, shodhana means that which purifies. This variety is called the purifier of the nadis especially because it helps to clear both the nostrils which are used alternatively for inhalation and exhalation.

The subjects are asked to sit in padmasana posture. They inhale through the left nostril by closing the right nostril with the thumb in ‘nasika Mudra’. Open the right nostril close the left with the ring finger and the little finger to exhale slowly through the right after a deep ‘kumbhaka’. Then they change and inhale through the left to right nostril by closing the left nostril. Open the left nostril close the right nostril to exhale slowly. This completes one round, 9 more number of rounds were repeated.

3. Sitali

Sitali means pleasantly cold. This variety has a cooling effect.

The subjects are asked to sit in a suitable posture, the tongue is drawn out of the mouth and its sides are turned upward to form a channel. During ‘puraka’ (inhaling) the air is slowly sucked in through this channel. After the puraka the tongue is taken in the mouth is closed. ‘Kumbhaka’ (breath holding) is done, and then ‘rechaka’ (exhaling) is done through both the nostrils. About ten to twenty such rounds may be gone through in a sitting.
4. Kapalabhathi

Kapala means skull and bhati means cleanses. The subjects are asked to sit on Padmasana and keep the hands on the knees, perform puraka and Rechaka rapidly like the bellows of a blacksmith. This exercise should be performed vigorously. There is no kumbaka in this practice. Sudden expulsions of breath follow one another in rapid succession.

Meditation

Meditation is also one of the yogic practices. Meditation is uncritically attempting to focus your attention on one thing at a time. In order to practice this effectively the following essential things are required.

A quiet environment: For this, one is required to have a quiet room, as one usually keeps for worship. This greatly helps in minimizing distraction.

Passive attitude: This is the most important thing in eliciting the relaxation response. One should not bother about any disturbing thoughts that come to his mind he should let the matter go away and then concentrate on his practice.

Comfortable position: This is important to prevent undue muscle tension in the body. Any posture that would give a person maximum relaxation, such as the cross-legged lotus posture is good.

1. Breath counting meditation

The subjects were asked to sit in padmasana posture with their eyes closed in a comfortable room. They take deep but not forced belly breathes, focus their attention on each part of the breath: the inhale, the pause and the exhale. As they exhale say 'one' continue counting each exhale by saying two ... three ... four ... five ... six ... seven ... eight ... nine ... ten. They begin again with one, continue for 5 minutes.
2. **Mantra Meditation**

This is the most common form of meditation throughout the world. The subjects are asked to sit on padmasana posture with their eyes closed. Chant the mantra 'OM' silently to themselves and continuously for 5 minutes, during which they should concentrate their mind in the middle of the forehead in between the two eyebrows.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Yogic Practice</th>
<th>Name</th>
<th>Duration (Minutes)</th>
<th>Total (Minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Asanas</td>
<td>1. Padmasana</td>
<td>1.5</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Vajrasana</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Paschimothasana</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Matsyasana</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Vakrasana</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>6. Yogamudra</td>
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<td>7. Ardha katti Chakkarasana</td>
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</tr>
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<td></td>
<td></td>
<td>8. Ardha Sirasasana</td>
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</tr>
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<td></td>
<td></td>
<td>9. Bhujangasana</td>
<td>1.5</td>
<td></td>
</tr>
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<td>10. Shalabasana</td>
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</tr>
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<td></td>
<td></td>
<td>11. Sarvangasana</td>
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<td>12. Dhanurasana</td>
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<td>13. Halasana</td>
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<td>14. Savasana</td>
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<td>II</td>
<td>Pranayama</td>
<td>1. Nadi Sudhi</td>
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<td>3. Sitai</td>
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<td>4. Kapalabthathi</td>
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<td>III</td>
<td>Meditation</td>
<td>1. Breath Counting Meditation</td>
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<td>2. Mantra Meditation</td>
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<td></td>
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<td>40</td>
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</table>
Description of Aerobic Exercises

Any activity which utilises large muscle groups for a sustained and rhythmic period of time at a relatively sub-maximal intensity is known as aerobic exercises. The common aerobic exercises are jogging, bicycling, rope skipping, steps climbing and swimming. As per the opinion from the experts in the field of physical education a package of aerobic exercise programme has been designed and it is used as one of the intervention in the present study.

**Table - 3 :** Daily Schedule for Aerobic Exercises

<table>
<thead>
<tr>
<th>Type of Work</th>
<th>Duration</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warning up</td>
<td>10 Minutes</td>
<td>Stretching, Mobility and Tonic exercises</td>
</tr>
<tr>
<td>Aerobic Exercises</td>
<td>20 Minutes</td>
<td>Long slow sustained run</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Interval run</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fartlek run</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Steps climbing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cycling</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Jumping rope</td>
</tr>
<tr>
<td>Cool down</td>
<td>10 Minutes</td>
<td>Stretching and Tonic exercises</td>
</tr>
</tbody>
</table>

Warming-up Exercise

Warm-up a general term used for practices performed prior to exercise for the purpose of preparing the body for the exercise. It increases local blood flow, muscle temperature and reduces oxygen deficit. Start with slow jogging for one or two minutes in order to rise the body temperature and then the following mobility, stretching and tonic exercises are done.

Mobility Exercises

Mobility exercises are not vigorous or prolonged enough but they improve flexibility and joint mobility. Some mobility exercises are head rotation, shoulder rotation, hip rotation, knee rotation and ankle rotation.
Stretching Exercises

Stretching exercises are slow, sustained and relaxing in nature. They decrease muscle tension, improve the flexibility and helps maintain joint mobility. Stretching also improves circulation and help to prevent injury. The following stretching exercises are done while on warm-up and cool-down periods. They are calf stretch, front thigh stretch, hamstring stretch, back stretch, hip stretch, ankle stretch, groin stretch, front and sideways kick, arm circling, side bends and trunk twisting.

Tonic Exercises

Tonic exercises focus on specific muscles that need to be firmed or tightened. There are two types. One is isotonic and the other one is isometric. Isotonics are contraction of muscles against resistance through a range of movement. Isometrics are the contraction of muscle against resistance without movement. These exercises are done during warm-up and cool-down sessions. The tonic exercises are toe-raise, partial thigh squat, pushups, and sit-ups.

Aerobic Exercises

1. Long slow sustained Run (Easy Run)

These are often termed L.S.R. and they usually refer to distances in excess of 10 kms. Because the activity is sustained the heart is kept pumping at an increased rate for an extended period of time, placing a natural overload on the heart muscle, which has a strengthening effect. The effect is likely to be an enlargement of the heart. Hence the training effect is likely to be one of improved capillarisation. With this form of running the demand is sustained, hence greater is the strengthening effect upon heart muscles.

2. Interval Running (Track Interval)

This is almost essentially a heart conditioner. In this form of running the athlete runs for a period of about 30 seconds, sufficient to
raise the heart rate to a level of about 180 beats / minutes. This period of activity is followed by a rest interval during which the heart rate drops to a level of about 120 beats / minute before a subsequent effort period is undertaken. This has a two-fold effect. The first is to put a natural overload on the heart muscle. And the second is to enable the muscles to be cleared of waste products quickly.

3. **Fartlek Running (Desired Running)**

This could almost come under the loading of intermittent running. It is a type of training developed in Sweden by Gosta Holmer. The word Fartlek means speed play. The total distance can vary from, about three to eight miles, the run being divided into fast and slow sections depending upon the feeling of the individual. Fartlek training is an excellent relaxing form of running.

4. **Steps Climbing**

During steps climbing, numerous muscles are engaged simultaneously and carry entire body weight up and down. In particular they target legs and glutes. The subjects are asked to climb 20 steps at a height of nine inches.

5. **Cycling**

The cheapest and most environment-friendly form of transportation, cycling doubles up as a very popular competitive sport as well. It provides an excellent cardiovascular exercise, which not only tones and strengthens the muscles but also provides a fun-filled escape from the four walls of a gymnasium.

6. **Jumping Rope**

It is considered as a game amongst the young, but jumping rope is one of the most exhausting cardiovascular workouts one could ask for. Elite boxers use jumping rope as a conditioning tool. Contrary to popular
belief, it is not just the legs that are getting the workout. In addition, the arms are moving the rope and body is tucking, moving and holding in muscles to end up with good tone as depending on weight and the intensity of jumping, one can burn about 300 calories in just 30 minutes.

**Cool-down**

The cool down exercises have two aspects, the first one is a gradual lessening of activity over a period of a few minutes rather than a sudden halt helping the removal of waste products and the second one is a series of stretching activity which helps to prevent painful muscle stiffness and loss of suppleness. The cool down exercises consist of deliberate and intensive stretching exercises. The most effective method of stretching is to stretch the discomfort muscle and hold the position for 20 to 30 seconds.

**Table 4 : Weekly schedule for Aerobic Exercises**

<table>
<thead>
<tr>
<th>Day</th>
<th>Warm-up</th>
<th>Specific aerobic exercises</th>
<th>Cool-down</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Type</td>
<td>Type</td>
<td>Duration</td>
</tr>
<tr>
<td>Monday</td>
<td>General</td>
<td>LSR</td>
<td>20 minutes</td>
</tr>
<tr>
<td>Tuesday</td>
<td></td>
<td>Interval running</td>
<td>20 minutes</td>
</tr>
<tr>
<td>Wednesday</td>
<td>Steps climbing &amp; Jumbing rope</td>
<td>20 minutes</td>
<td></td>
</tr>
<tr>
<td>Thursday</td>
<td></td>
<td>Cycling</td>
<td>20 minutes</td>
</tr>
<tr>
<td>Friday</td>
<td></td>
<td>Fartlek running</td>
<td>20 minutes</td>
</tr>
<tr>
<td>Sturday</td>
<td>Jumbing rope and steps climbing</td>
<td>20 minutes</td>
<td></td>
</tr>
<tr>
<td>Sunday</td>
<td></td>
<td>Active rest</td>
<td></td>
</tr>
</tbody>
</table>

The exercise programme has been done for 12 weeks as per the above schedule.
Statistical Technique

To study the effect of yogic practices group and the aerobic exercise group along with control group and to find out the significant mean difference among them, the analysis of covariance (ANCOVA) technique was employed. Further, the scheffe's post-hoc test was used to identify which group has shown up for the source of significant mean difference among the three groups viz: yogic practices groups, aerobic exercise group and control group (Clarke, H.H., and Clarke, D.H., 1972).