CHAPTER - III

METHODOLOGY

This chapter describes in detail of the procedures adopted for selection of subjects, selection of variables, experimental design, pilot study, criterion measures, reliability of the data, reliability of the instruments, tester's reliability, subject reliability, training programme, test administration, collection of data and statistical analysis are involved in the study.

3.1 SELECTION OF SUBJECTS

The purpose of the study was to find out the isolated and combined effect of yogic practices and aerobic exercises on selected physical fitness, physiological, psychological and skill performance variables of women basketball players. To execute this investigation, the research scholar employed random sample of sixty women basketball players among the basketball players who had represented from various affiliated colleges of University of Madras at the 'B' zone Inter-Collegiate basketball tournament, Chennai, Tamil Nadu, India. Their age ranged between 18 to 21 years. The selected subjects were assigned into three experimental groups such as Group I -yogic practices, Group II -aerobic exercises, group III – combined (yogic practices and aerobic exercises) group and a control group of fifteen (n=15) each.

The requirement of experimental procedures, testing as well as exercise schedules were explained to the subjects so as to get full cooperation of the effort required on their part and prior to the administration of the study.

3.2 SELECTION OF VARIABLES

The researcher reviewed various scientific literatures, books, journals, magazines, internet sources and research papers which revealed the importance of yogasanas and aerobic exercises for excelling the maximum performance in basketball game. Taking into consideration of feasibility criteria, availability of instruments and the relevance of the variable the following dependent and independent variables were selected for this study.

3.2.1 Dependant variables

Physical fitness variables

- Speed
- Muscular Strength
- Flexibility

Physiological variables

- VO_2 Max
- Vital Capacity
- Respiratory Rate

Psychological variables

- Anxiety
- Aggression

Skill performance variables

- Dribbling
- Passing
- Shooting

3.2.2 Independent variables

i. Group I – yogic practices

ii. Group II – aerobic exercises

iii. Group III – combined yogic practices and aerobic exercises

iv. Group IV – control group

3.3 EXPERIMENTAL DESIGN

Pre-post test randomized group design was used for this study. Sixty women basketball players who participated in the 'B' zone inter-collegiate basketball tournament of University of Madras during the year 2012 - 13 were selected as subjects at random and their age was ranged between 18 – 21 years. They were equally divided into four groups consisting of fifteen each. Pre-test was conducted for all the sixty subjects on the selected physical fitness variables namely speed, muscular strength and flexibility, physiological variables such as VO_2 max, vital capacity and respiratory rate, psychological variables namely anxiety and aggression, skills performance variables namely dribbling, passing and shooting. These initial scores were formed as pre-test scores of the subjects. Group I was exposed to yogic practices, Group II was subjected to aerobic exercises, Group III underwent combined yogic practices and aerobic exercises and the control group IV was not exposed to any experimental treatment other than their routine activities. The experimental groups have undergone the training programmes with their respective intensities of six days per week for duration of 55 to 75 minutes in the morning for a period of twelve weeks. After this experimental treatment all the sixty subjects were measured on the selected physical fitness, physiological, psychological and skill performance variables. The final test scores formed as post test scores of the subjects. The Pre-test and post test scores were subjected to statistical analysis, using analysis of covariance (ANCOVA) to find out the significance among the mean differences.

Whenever the 'F' ratio for adjusted test was found to be significant, Scheffe's post hoc test was used. In all cases 0.05 level of significance was fixed to test the hypotheses.

3.4 PILOT STUDY

The pilot study was conducted before analyzing the training program with ten basketball players with the help of experts and coaches in the game of basketball to ensure the suitability, load dynamics (intensity), frequency and duration of exercise. The aim of the pilot study was to know the subjects capacity and the difficulty of conducting training programme and to set a clear understanding about the duration of time, which is required for conducting the test.

3.5 CRITERION MEASURES AND SELECTION OF TEST

The present study was primarily undertaken "to assess the effect of isolated and combined effect of yogic practices and aerobic exercises on selected physical fitness, physiological, psychological and skill performance variables of women basketball players

The following tests were administrated to measure the selected physical fitness, physiological, psychological and skill performance variables. The test was administrated to the subjects before and after the training program and presented in table – I.

TABLE - I

LIST OF CRITERION VARIABLES AND STANDARDIZED TEST

CRITERION VARIABLES	TEST ITEMS	UNIT OF MEASUREMENT
Physical fitness Variables	Speed (50 meters run)	Seconds
	Muscular Strength (Push – up)	Numbers
	Flexibility (Sit and reach test)	Centimeters
Physiological Variables	VO_2 Max (Cooper's 12 minutes run and walk)	Meters
	Vital Capacity (Spirometer)	Liters
	Respiratory Rate (Expirograph)	Numbers per minute
Psychological Variables	Anxiety (Questionnaire)	Scores
	Aggression(Questionnaire)	Scores
Skill performance variables	Dribbling (Johnson basket ball test)	Seconds
	Passing (Johnson basket ball test)	Numbers
	Shooting (Johnson basket ball) test)	Numbers

3.6 RELIABILITY OF THE DATA

Test and retest method was followed in order to establish the reliability of data by using ten subjects at random. The same personnel under similar conditions were tested in all the dependent variables selected in the present study twice for the subjects. The scores obtained was analyzed using intra – class co-efficient of correlation to find out the reliability of data and the results were presented in Table-II.

TABLE - II

INTRA CLASS CO-EFFICIENT OF CORRELATION ON SELECTED DEPENDENT VARIABLES

S. No.	Variables	'r' Value
1.	Speed	0.87*
2.	Muscular Strength	0.89*
3.	Flexibility	0.84*
4.	VO_2 Max	0.88*
5.	Vital Capacity	0.87*
6.	Respiratory Rate	0.89*
7.	Anxiety	0.86*
8.	Aggression	0.87*
9.	Dribbling	0.90*
10.	Passing	0.88*
11.	Shooting	0.85*

*Significant at .05 level of confidence.

3.7 RELIABILITY OF INSTRUMENT

The stop watches, scales, spirometer, markers, measuring tape, bio-monitor, basketballs were obtained from standard firms which catered to the needs of various research laboratories. The reliability of these instruments were ensured and calibrated by their manufactures. Thus all the instruments used in the study were to measure the performance considered reliable and precise.

3.8 TESTER'S RELIABILITY

Tester's reliability was established by test-retest process. For this purpose two subjects were selected at random on the chosen variables, which

were recorded twice under identical conditions on different occasions by the investigator.

3.9 SUBJECT RELIABILITY

Prior to the test administration the testing procedure was explained in detail to the subjects to ensure proper understanding in order to secure reliable data from the tests. Demonstration was done before the subjects prior to the actual collection of data. The training program was conducted under the personal supervision of the research scholar.

3.10 TRAINING PROGRAMME

Experimental groups namely yogic practices group, aerobic exercises group and combined yogic practices and aerobic exercises group were subjected with respective experimental training for six days in a week for twelve weeks. The duration of training was planned according to the nature of exercises. The respective training treatments of all the experimental groups were carefully monitored under the supervision of the scholar throughout the study.

3.11 DESCRIPTION OF THE TRAINING PROGRAMME

During the training period the experimental groups (i.e.) yogic practices (Group I), aerobic exercises(Group II) and combined yogic practices cum aerobic exercises(Group III) underwent their respective training programmes in addition to their daily routine activities as per the training schedules given in table III(a), III(b), III(c), III(d), IV, V,VI, VII and VIII respectively.

The yogic practices group was imparted training on selected yogic asanas, pranayamas which are relevant to the basketball game. The aerobic

exercises group was subjected to walking, jogging, running, jumping rope and stair climbing exercises.

The combined group (i.e.) yogic practices and aerobic exercises had undergone their schedule on alternative days in a week with yogic practices on Monday, Wednesday and Friday and aerobic exercises on Tuesday, Thursday and Saturday respectively. The respective training programme was administrated for all three groups for six days in a week during morning session i.e., 6.30 to 7.45 am for twelve weeks. The duration of the training was planned for 55 to 75 minutes every day including warm-up and cool-down segments.

The control group did not expose to any specific training/conditioning except their regular programme. All the training programmes were carefully administered under the close supervision of the scholar.

TABLE-III (a)
TRAINING SCHEDULE FOR YOGIC PRACTICES GROUP
1-3 WEEKS

Yogic practices	Repetition	Rest between Asana	Rest between Repetition	Duration of exercise	Total Duration
Loosening exercises	--	--	--	10 Minutes	55 Minutes
Asanas					
a. Trikonasana					
b. Vrikshasana					
c.Veerabhadharasana					
d. Janusirasana					
e.Bhujangasana	3	10sec	2 Minutes	20 Minutes	
Pranayama	Cycles	Inhale	Holding	Exhale	
a.Nadi Shodhana	10 cycle	5sec	--	5 sec	15 Minutes
b.Sunyabhedana					
Relaxation asana	----			10 Minutes	
a. Savasana					

TABLE-III (b)

TRAINING SCHEDULE FOR YOGIC PRACTICES GROUP 4-6 WEEKS

<table>
<tr><th>Yogic practices</th><th>Repetition</th><th>Rest between Asana</th><th>Rest between Repetition</th><th>Duration of exercise</th><th>Total Duration</th></tr>
<tr><td>Loosening exercises</td><td>--</td><td>--</td><td>--</td><td>10 Minutes</td><td rowspan="6">65 Minutes</td></tr>
<tr><td>Asanas
a.Pachimottasana
b.Salabhasana
c.Veerabhadharasana
d.Halasana
e.Navasana</td><td>3</td><td>10sec</td><td>1.30 Minutes</td><td>30 Minutes</td></tr>
<tr><td>Pranayama</td><td>Cycles</td><td>Inhale</td><td>Holding</td><td>Exhale</td><td rowspan="3">15 Minutes</td></tr>
<tr><td>a.Nadi Shodhana
b.Chandrabhedana</td><td>10 Cycle</td><td>5 sec</td><td>5 sec</td><td>8 sec</td></tr>
<tr><td>Relaxation asana
a.Savasana</td><td colspan="4">----</td><td>10 Minutes</td></tr>
</table>

TABLE-III (c)

TRAINING SCHEDULE FOR YOGIC PRACTICES GROUP 7-9 WEEKS

<table>
<tr><th>Yogic practices</th><th>Repetition</th><th>Rest between Asana</th><th>Rest between Repetition</th><th>Duration of exercise</th><th>Total duration</th></tr>
<tr><td>Loosening exercises</td><td>--</td><td>--</td><td>--</td><td>10 Minutes</td><td rowspan="5">70Minutes</td></tr>
<tr><td>Asanas
a. Padahastasana
b.Salabhasana
c.Navasana
d.Sarvangasana
e.Dhanurasana</td><td>3</td><td>10sec</td><td>2 Minutes</td><td>35 Minutes</td></tr>
<tr><td>Pranayama</td><td>Cycles</td><td>Inhale</td><td>Holding</td><td>Exhale</td><td rowspan="3">15 Minutes</td></tr>
<tr><td>a.Nadi Shodhana
b.Sitali</td><td>10 Cycle</td><td>5 sec</td><td>8 sec</td><td>10 sec</td></tr>
<tr><td>Relaxation asana
a.Savasana</td><td colspan="4">----</td><td>10Minutes</td></tr>
</table>

TABLE-III (d)

TRAINING SCHEDULE FOR YOGIC PRACTICES GROUP

10-12 WEEKS

<table>
<tr><th>Yogic practices</th><th>Repetition</th><th>Rest between Asana</th><th>Rest between Repetition</th><th>Duration of exercise</th><th>Total Duration</th></tr>
<tr><td>Loosening exercises</td><td>--</td><td>--</td><td>--</td><td>10Minutes</td><td rowspan="5">75Minutes</td></tr>
<tr><td>Asanas
a. Pachimottasana
b. Halasana
c.Salabhasana
d.Sarvangasana
e.Dhanurasana</td><td>4</td><td>15sec</td><td>1 Minutes</td><td>40Minutes</td></tr>
<tr><td>Pranayama
a.Nadi Shodhana
b. Bhastrika</td><td>Cycles
12 cycle</td><td>Inhale
8 sec</td><td>Holding
10 sec</td><td>Exhale
12 sec</td><td>20 Minutes</td></tr>
<tr><td>Relaxation asana
a.Savasana</td><td colspan="4">----</td><td>5 Minutes</td></tr>
</table>

3.12 DESCRIPTION OF YOGASANAS SPECIFIED IN THE TRAINING PROGRAMME

3.12.1 LOOSENING EXERCISES

Forward and backward bending

Sideward Bending

Twisting

Jogging

3.12.2 TRIKONASANA (THE TRIANGLE POSE)

Figure-1: Trikonasana (The Triangle Pose)

Stand erect with feet apart Raise and stretch out the arms sideways to shoulder level and parallel to the floor with palms facing downward. Turn the trunk and head together from the waistline without moving the feet and changing the position of the arms. Maintain this position as long as possible and comfortably hold the breath.

3.12.3 VRIKSHASANA (THE TREE POSE)

Figure- 2: Vrikshasana (The Tree Pose)

Stand erect with feet together and the knees straight with arms joined upward towards the sky. Fold the right leg at the knee joint. Place the right heel at the top of the left thigh repeat their on the left side.

3.12.4 VIRABHADRASANA (THE WARRIOR POSE)

Figure- 3: Virabhadrasana (The Warrior Pose)

The Warrior Pose stands with feet apart, stretch the arms over the head. Keep the arms parallel, palms facing each other. Turn the right leg and foot in and the left foot out. At the same time turn the hips and trunk to the left.

Bend the left leg to a right angle at the knees and stretch the whole body up, look up. Move the shoulder blades in and open the chest. Stretch up and hold with normal breathing.

3.12.5 JANUSIRASASANA (THE HEAD TO KNEE POSE)

Figure- 4: Janusirasasana (The Head to Knee Pose)

Sit on the ground with legs straight. The left foot placed near the right thigh so that the left heel comes nearer the navel. Hold right big toe with both hands and bend toward. Touch the forehead with knee and elbows with the ground and breathe normal, Repeat the same on the other side

3.12.6 BHUJANGASANA (COBRA POSE)

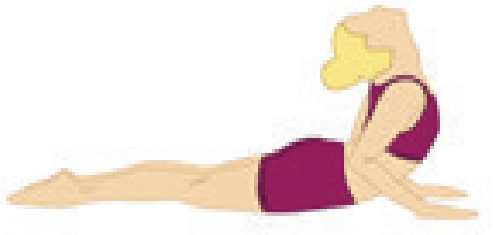

Figure -5: Bhujangasana (Cobra Pose)

Lie on the floor facing downward. Extend the legs, keeping the feet together. Keep the knees tight and the toes pointing outward. Rest the palms at the pelvic region and keep the elbows close to the back of the body. Inhale pulls the trunk slowly upward the neck backward with the trunk like the hood of a serpent. Stretch the feet backward so that the marks of the back and shoulders to be stretches. Hold the breath as long as possible and exhale bring the head to its original Position

3.12.7 PASCHIMOTTASANA (THE POSTERIOR STRETCH)

Figure- 6: Paschimottasana (The Posterior Stretch)

The legs are extended together. Bend the body forward and index finger to form a book, hold the greater toes with them and then bend the elbows. Exhale while bending forward and brings the head between the hands. Bending the elbows and the trunk further, try to touch the knees with forehead without raising the knees, Raise the trunk and head by straightening the spine, with hands on either sides, return to starting position.

3.12.8 SALABHASANA (THE LOCUST POSE)

Figure- 7: Salabhasana (The Locust Pose)

Lie prone, hands along the sides of the body with palms up, chin on the floor and stretch the arms back. Lift the head, chest and legs as high as possible simultaneously off the floor. The hands and ribs should rest on the floor. Only the abdominal front portion of the body should rest on the whole body weight. Keep both legs fully extended and straight touching the thighs, knees and ankles. Stretch the thighs, knees and ankles. Do not bear the weight of the body look in front and breathe normally.

3.12.9 HALASANA

Figure- 8: Halasana

Lie flat on the back with the arms straight and beside the body, palms facing downward. Keeping the legs straight, slowly raise them to the vertical position above the body. Simultaneously bend the trunk upward, hips first. Slowly lower the legs over the head and touch the floor curling the spine to the maximum extent keep the leg straight bend the arms and place the hands on the back as in sarvangasana. Relax the body. Hold this position as long as comfortable and breathe freely. Bring down the legs until the heels rest in the floor.

3.12.10 NAVASANA (THE BOAT POSE)

Figure- 9: Navasana (The Boat Pose)

Lie supine position on the ground raises the legs together slowly without bending the knees. Inhale and raise the legs further and then bring the arms down and place them to the buttocks. Then slowly raise the head and the chest of and bring the palms beside the knees with normal breathing.

3.12.11 PADAHASTASANA (THE HAND TO FEET POSE)

Figure -10: Padahastasana (The Hand to Feet Pose)

Stand erect with feet together breathing in deeply. Raise the hands high overhead palms forward and upper arms touching the ears exhaling and keeping the knees locked bend forward from the waist stretch down and grasp the feet. Try to touch the forehead with the knees stay bent forward and keep the breathing normal.

3.12.12 SARVANGASANA

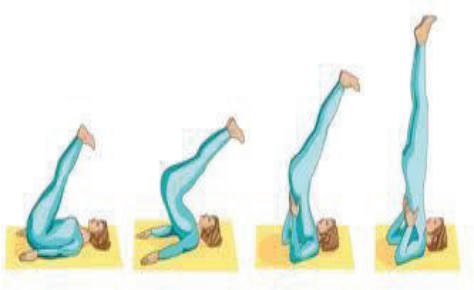

Figure -11: Sarvangasana

Lie flat on the back with the feet together, the arms by the sides and palms flat on the ground. Use the arms as livers. Raise the legs and back to a vertical position. Bend the elbows and use the arms as props to steady the back by pressing it with the palms. The trunk and legs should extend straight up, forming a right angle with the neck, the chest pressing the chin. Breathe deeply and rhythmically and maintain the posture return slowly to the starting position in the reverse order.

3.12.13 DHANURASANA

Figure- 12: Dhanurasana

Lie flat on the stomach and inhale fully. Bend the legs towards the knees and hold the ankles with the hands. Raise the chest and head and arch back fill the lungs with air. Straighten and stiffen the hands and legs. Hold the breath and then exhale slowly. Keep the knees together. Return to the original position slowly by bringing the chest and knees down, releasing the ankles and placing the trunk on the floor.

3.12.14 NADI SODHANA PRANAYAMA

Figure- 13: Nadi Sodhana pranayama

Sit in padmasana with erect spine and relaxed body. Keep right hand thumb on right nostril, the ring and little fingers on left nostril to open and to close the nostrils. Then close right nostril and inhale deeply through the left nostril then close left nostril and slowly through right nostril this makes one cycle

3.12.15 SURYA BHEDHANA PRANAYAMA

Figure-14: Surya Bhedhana Pranayama

Sit erect in padmasana/ vajrasana with head, trunk, and buttocks in a straight line. Close eyes and exhale completely. Inhale through right nostril (Suryanadi) slowly, continuously and steadily, hold the breathe and exhale through the same nostril only, keeping the left nostril closed all the time. One inhalation and exhalation makes one sound

3.12.16 CHANDRA BHEDHANA PRANAYAM

Figure- 15: Chandra Bhedhana Pranayama

Here the inhalation and exhalation are done through left nostril (Chandranadi only). Right nostril is kept closed the entire time, inhalation and exhalation makes one round.

3.12.17 SITALI PRANAYAMA

Figure- 16: Sitali Pranayama

Sitali means cool. This pranayama cools the system of body and mind. Sit in padmasana with the head and trunk in a straight line. Close the eyes and relax completely. Fold up the sides of the partially protruded tongue so as to form a long narrow tube resembling the beak of a bird. The passages are further narrowed by pressing the lips and perceive the cooling effect of the air as it passes through the tongue, exhale through both nostrils. Then allow the breath to be held comfortably before the next inhalation.

3.12.18 BHASTRIKA PRANAYAMA

Figure-17: Bhastrika Pranayama

Sit with erect spine and relaxed body in padmasana/ sidhasana or in standing position with feet together, Bhastrika is a series of very quick inhalation and exhalations vigorously through both the nostrils in one second. Force the air out of the lungs and rapidly contracting the muscles of abdomen relax and move the abdominal muscles out while inhale allowing lungs to fill with air completely. Do these in quick succession keeping pace after each cycle. Take a deep breath through right nostril and exhale slowly through left neck muscles relaxed.

3.12.19 SAVASANA

Figure -18: Savasana

Lie flat on the back with arms beside and in line with the body, palms facing upward. Move the feet slightly apart to a comfortable position and close the eyes. Let the breath becomes rhythmic and natural. Count the number of respirations I in I out and so on. Continue to count for a few minutes.

TABLE-IV

TRAINING SCHEDULE FOR AEROBIC EXERCISES GROUP 1-12 WEEKS

Aerobic training (type)	Week	Duration of exercises	Intensity	Repetition	Recovery	Total duration
Warm-up	1-3	5-7 Minutes	-	-	-	5-7 Minutes
Walking		8 Minutes	60 %	3	12Minutes	48 Minutes
Cool down		5-10 Minutes	-	-		5-10 Minutes
Warm-up	4-6	5-7 Minutes	-	-	-	5-7 Minutes
Walking + jogging		8 Minutes	65 %	3	12Minutes	48 Minutes
Cool down		5-10 Minutes	-	-		5-10 Minutes
Warm-up	7-9	5-7 Minutes	-	-	-	5-7 Minutes
jumping rope + running		8 Minutes	70 %	3	12Minutes	48 Minutes
Cool down		5-10 Minutes	-	-		5-10 Minutes
Warm-up	10-12	5-7 Minutes	-	-	-	5-7 Minutes
Stair climbing+ running		8 Minutes	75 %	3	12Minutes	48 Minutes
Cool down		5-10 Minutes	-	-		5-10 Minutes

3.13 DESCRIPTION OF AEROBIC EXERCISES

3.13.1 WALKING

Figure- 19: Walking

In walking one foot is always in contact with the ground, the legs is kept mostly straight and the centre of gravity vaults over the stance leg or legs in aerobic exercises.

3.13.2 JOGGING

Figure -20: Jogging

Jogging is a form of trotting (or) running at a slow or leisurely pace. The strides could be three inches or three feet apart. The main intention is to increase physical fitness with less stress on the body than from fast running, or to maintain a steady speed for longer periods of time. It is a form of aerobic endurance training performed over long distances.

3.13.3 JUMPING ROPE

Figure- 21: Jumping Rope

Jumping rope should be done only on a flat surface. Clear an area 4 to 5 feet around the place where you will be jumping rope to avoid tripping or catching the rope on obstacles. Use a rope that is the right length for your body. A rope is the correct length if the handles reach to the middle of your chest when you stand on the middle of the rope, Land on the balls of your feet to minimize the impact on your joints, especially your knees. Keep your arms relaxed as you swing the rope.

3.13.4 STAIR CLIMBING

Figure- 22: Stair Climbing

While walking and running, body moves in a horizontal pattern. With running, body does experience slight vertical movement. However, with stair climbing, muscles are forced to resist gravity and move in a vertical pattern. While moving the body vertically, place high demands on the lower body. Leg muscles must repeatedly lift body against the pull of gravity. In addition, muscles must stabilize and balance, which puts even more demand on the muscles in the lower body.

3.13.5 RUNNING

Figure- 23: Running

Running is a gait in which at regular points during the running cycle both feet are off the ground. It is a terrestrial locomotion, moving rapidly on foot.

TABLE - V

TRAINING SCHEDULE FOR COMBINED YOGIC PRACTICES AND AEROBIC EXERCISES GROUP 1-3 WEEKS

YOGIC PRACTICES							
Days	**Type Training**	**Intensity**	**Rest between Training**	**Repetition**	**Rest between Repetition**	**Duration of exercise**	**Total duration**
Monday Wednesday and Friday	Loosening exercises **Asanas** a. Trikonasana b. Vrikshasana c.Veerabhadharasana d. Janusirasana e.Bhujangasana	-	-	-	-	10 minutes 20 minutes	55 minutes
	Pranayama	Cycles	Inhale	Holding	Exhale	15 minutes	
	a.Nadi Shodhana b.Sunyabhedana	10 cycle	5sec	--	5 sec		
	Relaxation asana a.Savasana	-	-	-	-	10 minutes	
AEROBIC EXERCISES							
Tuesday Thursday and Saturday	Warm-up	-	-	-	-	5-7 minutes	55 to 65 minutes
	Walking	60 %	-	3	12 minutes	8 minutes	
	Cool down	-	-	-	-	5-10 minutes	

TABLE - VI

TRAINING SCHEDULE FOR COMBINED YOGIC PRACTICES AND AEROBIC EXERCISES GROUP 4-6 WEEKS

YOGIC PRACTICES							
Days	**Type Training**	**Intensity**	**Rest between Training**	**Repetition**	**Rest between Repetition**	**Duration of exercise**	**Total duration**
Monday Wednesday and Friday	Loosening exercises	-	--	--	--	10 Minutes	65 Minutes
	Asanas a.Pachimottasana b.Salabhasana c.Veerabhadharasana d.Halasana e.Navasana	-	3	10sec	1.30 Minutes	30 Minutes	
	Pranayama	Cycles	Inhale	Holding	Exhale	15 Minutes	
	a.Nadi Shodhana b.Chandrabhedana	10 cycle	5 sec	5 sec	8 sec		
	Relaxation asana a.Savasana	-	-	-	-	10 Minutes	
AEROBIC EXERCISES							
Tuesday Thursday and Saturday	Warm-up	-	-	-	-	5-7 Minutes	55 to 65 Minutes
	Walking + jogging	65 %	-	3	12 Minutes	8 Minutes	
	Cool down	-	-	-	-	5-10 Minutes	

TABLE - VII

TRAINING SCHEDULE FOR COMBINED YOGIC PRACTICES AND AEROBIC EXERCISES GROUP 7-9 WEEKS

YOGIC PRACTICES							
Days	**Type Training**	**Intensity**	**Rest between Training**	**Repetition**	**Rest between Repetition**	**Duration of exercise**	**Total Duration**
Monday Wednesday and Friday	**Asanas** Loosening exercises	-	--	--	--	10 Minutes	70 Minutes
	Asanas a. Padahastasana b.Salabhasana c.Navasana d.Sarvangasana e.Dhanurasana	-	3	10sec	2 Minutes	35 Minutes	
		Cycles	Inhale	Holding	Exhale		
	Pranayama a.Nadi Shodhana b.Sitali	10 Cycle	5 sec	8 sec	10 sec	15 Minutes	
	Relaxation asana a.Savasana	-	-	-	-	10 Minutes	
AEROBIC EXERCISES							
Tuesday Thursday and Saturday	Warm-up Jumping rope + running Cool down	- 70 % -	- - -	- 3 -	- 12 Minutes -	5-7 Minutes 8 Minutes 5-10 Minutes	55 To 65 Minutes

TABLE - VIII

TRAINING SCHEDULE FOR COMBINED YOGIC PRACTICES AND AEROBIC EXERCISES GROUP 10-12 WEEKS

YOGIC PRACTICES							
Days	**Type Training**	**Intensity**	**Rest between Training**	**Repetition**	**Rest between Repetition**	**Duration of exercise**	**Total Duration**
Monday Wednesday and Friday	**Asanas** Loosening exercises	-	--	--	--	10 Minutes	75 Minutes
	Asanas a. Pachimottasana b. Halasana c.Salabhasana d.Sarvangasana e.Dhanurasana	-	4	15sec	1 Minutes	40 Minutes	
	Pranayama	Cycles	Inhale	Holding	Exhale	20 Minutes	
	a.Nadi Shodhana b. Bhastrika	12 cycle	8 sec	10 sec	12 sec		
	Relaxation asana a.Savasana	-	-	-	-	5 Minutes	
AEROBIC EXERCISES							
Tuesday	Warm-up	-	-	-	-	5-7 Minutes	55 to 65 Minutes
Thursday and Saturday	Stair climbing + Running	70 %	-	3	12Minutes	8 Minutes	
	Cool down	-	-	-	-	5-10 Minutes	

3.14 TEST ADMINISTRATION

3.14.1 SPEED

Purpose

To measure Speed.

Equipments required

Stop watches, measuring tape, clapper and score sheet.

Procedure

Two lines were marked apart 50 meters as starting and finishing line. The subjects were asked to run as fast as possible across the finish line to cover the 50 meters area. The command used for starting was 'on your mark', 'set', 'go' and the time was recorded in $1/10^{th}$ of a second.

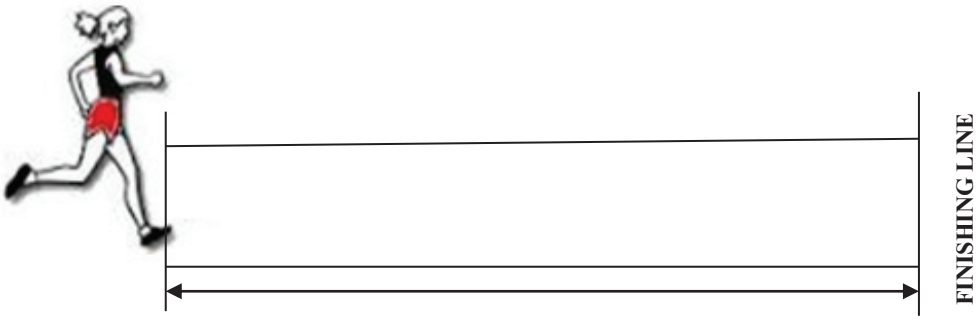

Figure -24:50 Meters Run

Scoring

The score was elapsed time from the start command to the subject crossed 50 meters finish line recorded to the nearest one tenth of a second.

3.14.2 MUSCULAR STRENGTH

Purpose

To assess the Muscular strength

Equipments

Mats

Procedure

Figure -25: Push ups

The subject being tested took prone lying position on the ground with the hands under the shoulder and fingers stretched, legs straight and parallel, comfortably apart and the toes under the feet. On the command 'go' the subject performed push up with the arms extended completely, the legs and the back were kept straight throughout the exercise. Then the subject lowered her body using the arm until it came 90 degree angle and upper arms were parallel to the ground. The action was repeated as many times as possible

Scoring

Total number of correct push- ups performed was recorded as the score.

3.14.3 FLEXIBILITY

Purpose

To assess the trunk flexibility.

Equipments

Sit and reach box with measuring scale.

Procedure

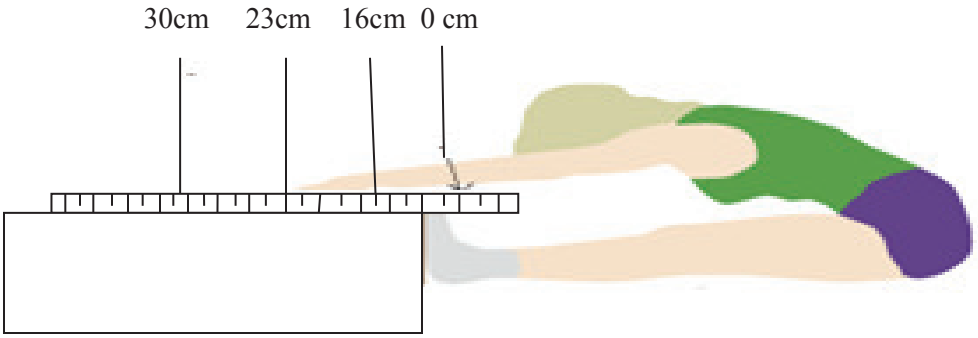

Figure -26: Sit and Reach

The subject sat on the floor without shoe and placed her feet flat on the side of the sit and reach box where the scale is set at 20 centimeters. The feet were placed shoulder width apart and one hand was placed on the top of the other, so that the finger tips of each hand were even. The subjects slowly reached forward four times along the scale by keeping the palm down and leg straight, while the fourth reach was held the distance was recorded. The test administrators place a hand lightly on the knees to remind the subject to keep the knee straight.

Scoring

The score was the farthest point reached on the scale measured to the nearest centimeter. **(Baumgartner, 2007)**

3.14.4 VO_2 MAX

Purpose

To measure cardio respiratory endurance.

Equipment

400 meters track with marking and stopwatch.

Procedure

The test was administrated on a standard 400 meters track in which the lanes were free of obstacles. The cones were placed at 50 meters interval in the track to measure the distance easily. The subjects were instructed to complete as many laps on the track as possible during the 12 minutes period. On the starting signal the subjects ran/ walked on the lane and the administrator counted the laps of an individual completed during the 12 minutes test period. While calling out the time lapsed at 3rd, 6th, 9th minutes besides encouraging the subjects verbally. At the end of 12th minute period the administrator gave a whistle to stop and counted the cones to determine the fraction of the last lap completed by each subjects. This distance was added to the distance of number of laps completed, to give the total distanceto be covered during the test.

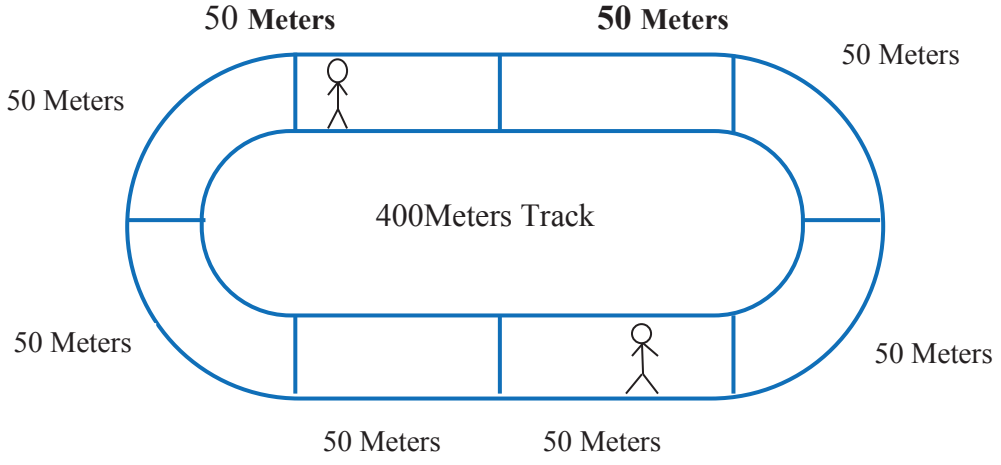

Figure- 27: Cardio Respiratory Endurance

Scoring

The distance covered by the subjects for 12 minutes was recorded in meters. (Cooper K.H. 1960).

3.14.5 VITAL CAPACITY

Purpose

To measure Vital capacity.

Equipment

Spirometer.

Procedure

The subject was required to breathe forcefully into the mouthpiece of a computerized pneumotochograph spirometer. After four normal inspiration and expiration, the maximal amount of air expired by the subject after a deepest inspiration was recorded as vital capacity and is expressed in liters.

Scoring

The spiro meter would display the amount of air blown by the subject and it was recorded in liters.

3.14.6 RESPIRATORY RATE

Purpose

To measure number of breaths per minute.

Equipment

The expirograph was used to measure the respiratory rate of the subject.

Procedure

Respiratory rate was assessed by using the expirograph. When the subject became familiar with the room temperature and attained normal breathing kymograph was switched on at a speed of 60 mm/minutes then the subject was asked to have the breath normally for one minute. Now the recorder pen was moving up and down with marking on the graph. It was allowed to move up to 60 millimeters. There were a number of sharp edges on the graph sheet indicating the number of breaths in one minute. The reading was recorded as the respiratory rate of the subjects.

3.14.7 ANXIETY

Purpose

Anxiety was measured through anxiety trait questionnaire.

Procedure

The anxiety trait questionnaire developed by Spielberg in the year 1976 was used for this study. The questionnaire was distributed to all subjects. Twenty items were adopted and the complete questionnaire scores were given as follows:

Scoring

This inventory was scored with the help of the scoring key given below. The range of score was from 4 to 20. The higher the score scored the more anxiety of the player.

TABLE – IX

ANXIETY QUESTIONNAIRE

S.No	Response	Score of Positive statements	Score of Negative statements
1	Not at all	1	4
2	Some what	2	3
3	Moderately so	3	2
4	Very much	4	1

Positive Statements	1,2,5,8,10,11,15,16,19,20.
Negative Statements	3,4,6,7,9,12,13,14,17,18.

3.14.8 AGGRESSION

Purpose

To measure the aggressiveness of the player

Procedure

The questionnaire developed by **Buss & Perry (1992)** for sporting aggression was used to scale the aggressiveness of players. The test consisted of 29 questions with five levels of responses. The level changed from extremely uncharacteristic to extremely characteristics. The questionnaire was distributed to all subjects. The respondent was made to encircle the appropriate number which suited their attitude.

Scoring

This inventory was scored with the help of the scoring key given below. The range of score was from 4 to 20. The two questions 9 and 16 with asterisk were reverse scored. The higher the score scored the more aggressive the player.

Response	Score of Positive Statement	Score of Negative Statements
Extremely uncharacteristic of me	1	4
Somewhat uncharacteristic of me	2	3
Neither uncharacteristic nor characteristic of me	3	2
Somewhat characteristic of me	4	1
Extremely characteristic of me	5	5

3.14.9 DRIBBLING

Purpose

To assess basketball dribbling ability

Equipments

Basketball court, stop watch, measuring tape, hurdles, chalk pieces, and pencils.

Procedure

Four hurdles were placed in a straight line with 6 feet apart, at a distance of 12 feet from the starting line to the first hurdle as shown in the diagram. The subject started from one end of the starting line (which was 6

feet long), dribbled around through the hurdles and back to the other end of the starting line. Only one trial was given.

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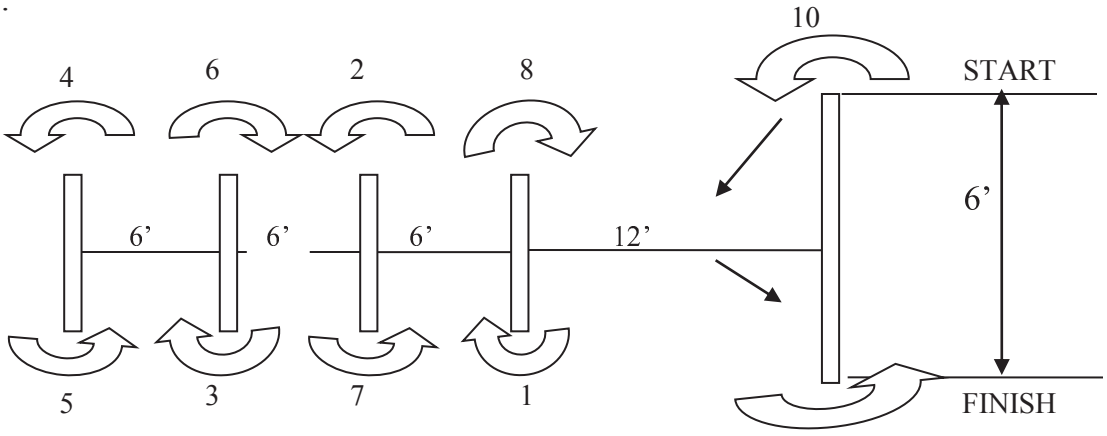


Figure- 28: Dribbling Test 9

Scoring

The number of zones passed in 30 seconds was recorded. **(Clarke and Clarke, 1976)**

3.14.10 PASSING

Purpose

To assess the basketball passing ability

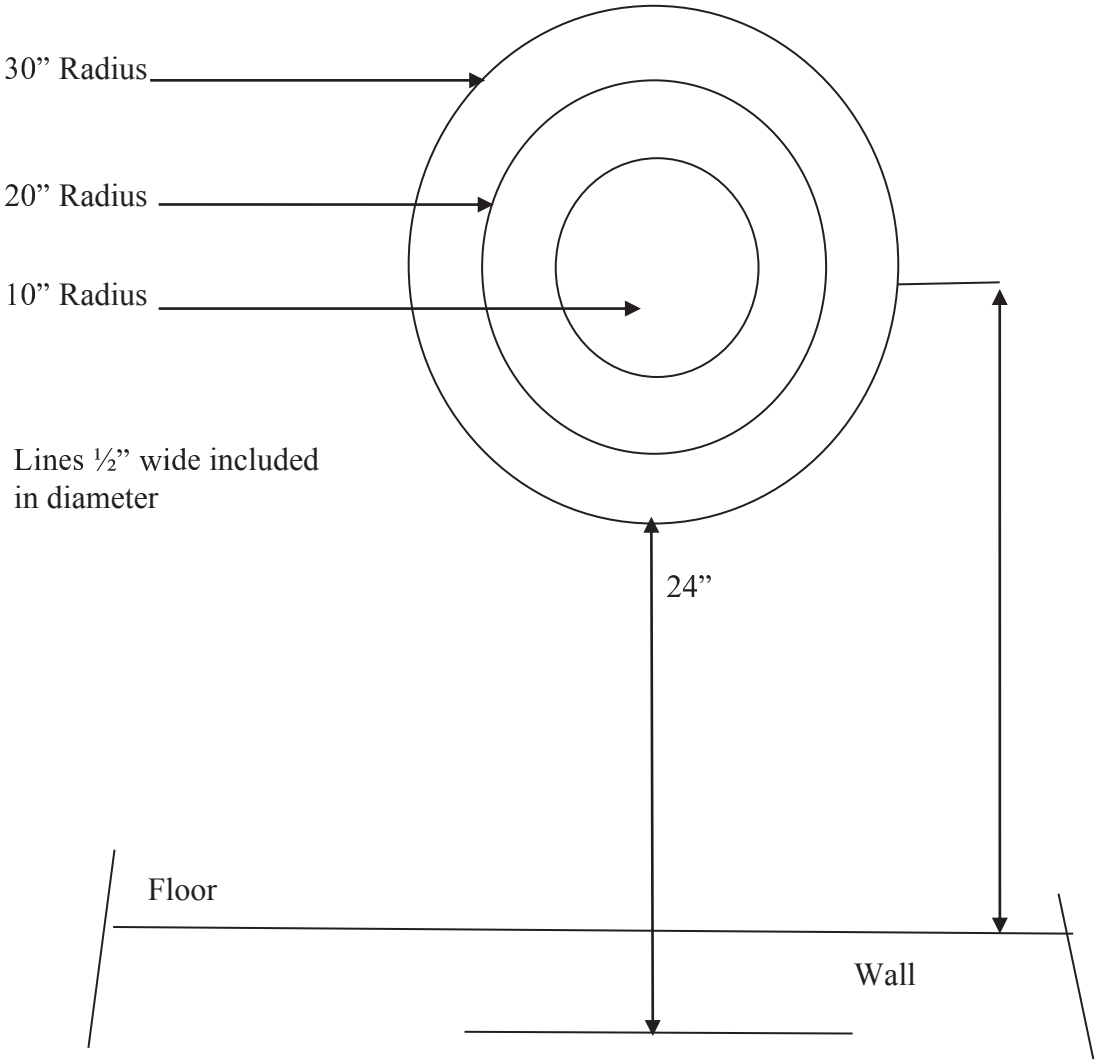
Equipments

Basketball court, stop watch, measuring tape, wall and flour marking

Procedure

A target of three ring concentric was drawn on the wall as shown in figure with the lower edge of the outer ring 24 inches from the floor. One-half- inch lines were used and included within the diameter of each inch. The inner ring 10 inches, middle ring, 20 inches outer ring 30 inches. The subject

stood behind a restarting line10 feet from the wall. The test consisted of passing a basket ball with a two hand chest pass to the target recovering the pass and continued to pass for 30 seconds. All passes must be made from behind the restarting line. The subject score was 5, 3 and 1 for hitting within the inner, middle, and outer circles respectively. Line hits are counted for the inner circle area.



Restarting line 10’ from wall

Figure- 29: Passing Test

Scoring

Total score made in 30 seconds. **(Clarke and Clarke, 1976)**

3.14.11 SHOOTING

Purpose

To assess the accuracy of shooting

Equipment

Basket balls, Basket ball Backboard and Stop Watches.

Procedure

The subject stood with the ball under the basket anywhere as she desired. At signal 'Go" she made Layup shots as many times as possible for a period of 30 seconds (Half Minute). When the ball got out of control the subject should retrieve the ball and continue making the baskets for half minute. If the ball left the hands of subjects at the end of 30 seconds the basket was counted. Two trials were given.

Figure- 30: Layup Shooting Test

Scoring

One point was awarded for each successful basket and no point for unsuccessful attempts. **(Clarke and Clarke, 1976)**

3.15 COLLECTION OF DATA

The purpose of the study was to find out the isolated and combined effect of yogic practices and aerobic exercises on selected physical fitness, physiological, psychological and skill performance variables of women basketball players.

The experimental groups were well acquainted with their allotted techniques and did only the experimental treatment given to them for a period of twelve weeks under the personal supervision of the researcher. The data was collected on the selected variables as per the methods described above. The pre test was organized before the experimental period and after 12 weeks of experimental period post test was conducted and data was collected.

3.16 STATISTICAL TECHNIQUE

The collected data from four groups prior to and immediately after the training programme on selected criterion variables were statistically analysed with suitable statistical techniques. Descriptive statistics such as mean and standard elevation were calculated. Normality of the data of all the selected variables were analysed to further go for Analysis of Covariance.

Analysis of covariance (ANCOVA) was used to find out the significant difference between experimental groups and control group. When the F- ratio indicated that there were significant differences between means, several tests may be used to identify which means are significantly different from each other. A text used for this purpose is referred to as Scheffe's post hoc test **David. Millen (2006)**. In all cases 0.05level of significance was fixed to test hypothesis.

The methodology adopted in the present study is shown in flow chart used for this purpose is referred to as Scheffe's post hoc test **David. Millen** (2006). In all cases 0.05level of significance was fixed to test hypothesis.

The methodology adopted in the present study is shown in flow chart figure - 31.

Figure - 31

FLOW CHART SHOWING THE TRAINING FOR EXPERIMENTAL GROUP