CHAPTER - III
RESEARCH METHODOLOGY

3.1 Research Design:

Experimental Design

Answer to various questions. Like, “What is the outcome when a certain inputs are made to perform under controlled conditions?” are deduced through research by experiments which is a systematic and logical method. Researchers observe the changed conditions or how the subject’s behavior is affected when definite stimuli, treatments or environmental conditions are handled cleverly. This way of handling is done with a certain purpose and with proper rules. Experiments also consider parallel factors that could vary the outcome and remove or control it. Hence we can reach upon a logical association between effects under observation and factors that are skillfully handled.

To test any hypothesis (assumption) experimentation is necessary. After a problem arises through experiment, we suggest a certain answer or a hypothesis. Then we test the hypothesis and finalize it or reject it upon the controlled variable relationship observations. Here we take mathematical probability as a base to confirm or reject the stated hypothesis.

To test this hypothesis, the researcher sees the design through experiments as a blueprint (detailed plan) of procedures through which he can draw valid conclusions and clearly see the relations between the dependent and independent variables. The purpose to experiment depends upon selection of a particular design, the numerous variables handled and conditions or factors through which we conduct it. Design involves dealing with practical problems like assigning subjects to experimental and control groups, manipulate and control variables, extraneous (unrelated) variables need to be controlled, to make notes and
observations and lastly how to interpret the data with the help of statistical analysis and reach upon our required goals.

Experimental designs requirement is decided by intensity of elimination or minimization of threats to experimental acceptability.

**Three levels are presented:**

1. Pre-experimental design is the least effective, for it provides either no control group or no way of equating the groups that are used.
2. True experimental design employs randomization to provide for control of the equivalence of groups and exposure to treatment.
3. Quasi-experimental design provides a less satisfactory degree of control, used only when randomization is not feasible.

   A complete discussion of experimental design would be too lengthy and complex for this introductory treatment, therefore in this study only a relatively in discussing experimental designs, we have followed Quasi-experimental design.

   The selected subjects were divided equally into two groups. viz. Yoga Practices (Group X) and Control Group (Group C) having 30 subject in each. The subjects of group X specified Yoga practices whereas the Group B was treated as control. Since the subjects of all the groups were junior players. They were directed to continue their daily activities in the Junior College.

   Training period was to 12 weeks. After the training was over, all the subject were exposed to post test where all the variables were measured for the subjects of all the group the pretest data were collected on 7 & 8 December 2012 Whereas the post test data were from 14, 15, & 16 March 2013.

**Quasi-experimental designs**

Design offers control of when and to whom the measurement is applied, as there remains no application of any random assignment to
experimental and control treatments, hence there is no assurance about the equivalence of the groups. We select only the man five Quasi-Experimental designs. Refer cook & Campbell (1979) for Quasi-Experimental designs detail. Campbell and Stanley (1966) also provided in tabular form a description which treats the internal & external validity of a study are controlled by each of Quasi-Experimental designs described.

For the present study Researcher wants to find out the effect of yogic exercises program on Volleyball skills and Physical fitness. Researcher will be used Experimental method. Two Group Design will be used the present study.

There are two groups, X is experimental Group and C is controlled group.

Group X and Cs Pre Test will be taken prior to Treatment of twelve week yogic practice and volleyball skill practice for measure the status of dependent variable.

After that, a treatment of twelve week of yogic exercises and volleyball skill practice will be imparted to Group-X to record its influence on the dependent variable. After the treatment period is over. Post test will be administered to measure the degree of change on the dependent variable. There are two groups, one is experimental and another is controlled group.

R - O₁ X₁ O₂ X₂ O₃ X₃ O₄ X₄ O₅
R - O₆ C O₇ C O₈ C O₉ C O₁₀
O₁ & O₆ Pre Test Observation.
O₂ & O₇ Test after 3 Weeks
O₃ & O₈ Test after 6 Weeks
O₄ & O₉ Test after 9 weeks
O₅ & O₁₀ test after 12 weeks (Post Test)
R-Randomization by height wise
X1= X2= X3= X4 Treatment given to Experimental Group
(Treatment of Yoga Exercises)
X1- Yoga Training Program 1 to 3 weeks
X2- Yoga Training Program 4 to 6 weeks
X3- Yoga Training Program 7 to 9 weeks
X4- Yoga Training program 10 to 12 weeks

X- Experimental Group
C-Control Group (No Treatment of Yoga Exercises)
Distribution of Twelve weeks Training Programme.

3.1.1 Population and Sample of the Study

Populations

Through a population the researcher studies any group of individuals having one or more characteristics in common. As per our population. At the root of any research lie the principles to be discovered which have universal application, as the study of the entire population is in practical. A population means a group of individuals having common characteristics, distinguishing from other individuals.

Consider a group under study about learning disabilities. There are numerous factors like age, educational level etc., in a large population. Studying a population on such a problem in this manner is impossible as the size is huge and not so useful because of its variety.

Population of the study was Junior college volleyball players from Pimpri-Chinchwad Municipal Corporation (P.C.M.C) Area.

Overall 60 junior colleges participated in the Inter-School Volleyball competition was considered as population for the study.

Sample

Sample means a small selected part of population for observation and analysis. By studying characteristics of the sample we can freely
apply it for the whole population of which the sample is a part. Form the changes which occur in sample we can understand the likely changes in the population.

Among the 60 junior colleges only two colleges were selected using purposive sampling method. In the first stage the number of junior college volleyball players were 200, from these only 60 volleyball players will be selected by using simple random sampling method.

60 Volleyball players were purposely selected after that, the volleyball players of the junior college were randomly height wise equally divided into two group’s i.e.30 for experimental group and 30 for control group.

**Selection of the Sample -**

Pimpri-Chinchwad Municipal Corporation Area

60 Junior Colleges

Two Junior College (1st stage)

30 boys          30 boys

(Second Stage Randomization)

It has been stated that earlier the primary purpose of the Research is to discover the principles that have universal application. Therefore arriving at sound inferences and findings known as generalizations applicable to the population has become a target in this scientific enquiry. But to study a whole population for arriving at the generalization is impossible in maximum cases. Thus, in these present investigations instead of studying the entire population, the sample drawn has been studied.

The major task in a sampling is to select a sample from the defined population by an appropriate technique that ensure that the sample is
representative of the population and as far as possible not biased in any way. Sample must be adequately large in size so that the power of generalization of the findings seems to be high and accurate in estimating the properties of the population.

Considering these points purposive cum random sample system, sampling technique has been employed and the sample size has been targeted, in this investigation to 60 volleyball players studying in Junior College in Pimpri-Chinchwad Municipal Area. The population of the Junior college volleyball players from the age between 16 to 18 years of the academic year 2012-2013.

The study subjected by purposive cum random sampling technique without considering caste, creed, and color.

3.2 Research Variables

Independent, Dependent And Confounding Variables.

The experimenter observes, manipulates and controls the numerous conditions or characteristics which are the variables. In independent variables the experimenter manipulates or controls the conditions or characteristics to form a relationship with the observations. On the other hand the dependent variables form the conditions that appear, disappear or change when the experimenter introduces removes the independent variables.

Independent variables in educational research can be assign as a particular teaching skill, teaching gadgets, a reward, a period of exposure to a particular condition or an attribute like sex or intelligence level. We can assign dependent variables as test score, the number of errors, speed measurement to perform a task. So the study happens as the measuring changes in pupil performance (dependent variables) which are in accordance to the (independent variables).
Independent variable main are of 2 types.

1. Treatment Variables
2. Attribute Variables

When the experimenter handles the factors to which he is assigned, are termed as treatment variables. Factors which cannot be altered are termed as attribute variables. The experimenter decides whether such independent variables like age, sex, race or intelligence level have to be included or removed then as variable to be studied. Hence this is a question of whether eight year old girls how greater reading achievement than eight old is an example of attribute variable.

Teaching procedure remains same in both groups so there is no treatment as independent variable.

3.2.1 Independent Variable - Yoga Training Programme

Variables of the study

- Independent Variables
  - Treatment Of Yoga, Body Height,
  - Attributed HRPF
  - Flexibility,
  - Agility,
  - Strength,

- Dependent Variables
  - Volleyball Skills,
  - Service Skills,
  - Passing Skills,

- Confounding Variables
  - Intervening Variables,
  - Boredom,
  - Fatigue,
  - Excitement,

- Extraneous Variables
  - The age,
  - Socioeconomic Level,
  - Academic Ability,
  - Daily Routine,
3.2.2 Dependent Variables
The dependent variables being selected in this research.

1) **Health Related Physical fitness factors**: (HRPF)
   1) **Flexibility** - Sit and Rich test, Bridge-up test
   2) **Agility** - Shuttle run, SEMO Agility test
   3) **Strength** - Pull-ups test and Standing Broad Jump.

2) **Volleyball Skills**
   1) **Service Skill**
   2) **Underarm Pass Skills**

      Standard tests were use to measure the above variables.

3.2.3 Confounding Variables

1) **Intervening Variables**; Intervening Variables are hard, if not impossible, to observe because they usually have to do with an individual’s feelings.

2) **Extraneous Variables**; on the other hand, are more readily observed or measured and thus more easily controlled.

3.3 Tools used for Data Collection

3.3.1 Physical Fitness Test will be used to measure the physical Fitness
1) Flexibility Test 2) Agility Test 3) Strength Test

3.3.2 Volleyball Skill Test, (AAHPER) Volleyball Skill test.
1) Service Test 2) Passing Test

3.4 Description of Test

3.4.1 Description of Standing Height  (146) pp Purpose:
To measure the standing body height of subject

**Facilities and Equipments** -
Manpower (One helper and one scorer), wall perpendicular to a flat surface, measuring tape and scale.
**Procedure**

Each subject one by one, stands on the flat surface adjacent to the perpendicular wall where the measuring tape has been fixed. Subject stands without shoes or slippers in front of the wall (fixed with scale) contacting his heels, buttocks, and upper back and back of the head making firm contact with the scale. A foot scale was placed on the subject head that firms right, angles with the measuring wall tape. Keeping the scale at its position The subject was instructed to come out of the wall and the score of height of each subject was recorded.

**Score**

The score was recorded in CM least count to 0.1 CM.

**3.4.2 Description of Health Related Physical Fitness Test (HRPF)**

**Test: 1- Flexibility Test –**

**Flexibility Meaning and Definition:**

In general flexibility means the range of movements around the skeletal joints, of the body. The flexibility is not a general body character but it is specific to each body region. If a person has highly flexible shoulder joint, it does not necessarily means that he will have good knee flexibility or hop flexibility. Even it is possible that one shoulder joint is more flexible than the other. For a good physical fitness. It is essential that a person has quite flexible joints, and is able to maintain his or her body flexibility, the flexibility components of physical fitness enables the person to have free body movements. Better movements requiring lesser work and to handle greater stress with lesser chances of injury.

**Definition:**

Precisely, flexibility may be defined as "the range of motion around a joint as determined by the elasticity of the muscles, tendons and ligaments associated with the joint under consideration." In other words, flexibility is the ability of a person to move the parts of the body through
as wide a range of motion as possible without undue strain to the joints and its muscle attachments

**Test -1 - Sit and Reach Test**

(David K Miller, 5th edition, Measurement By The Physical Educator, Why And How, 146, 147,)

![Test Image]

**Fig.3.1**

**Test Objectives** - To measure the flexibility of the lower back and posterior thighs.

**Age Level** - Five through adulthood.

**Equipments** - Fig. 12.1 includes the specifications of the box use for its test. It is crucial that the 9 inch mark be exactly in line with the vertical panel against which the test performer's feet will be placed. This flexibility test and box are included in many fitness tests some tests, however, report the score in centimeters. If centimeters are used the 23 Centimeter line, should be exactly in line with the vertical panel against which the test performer's feet will be placed. If the AAHPERD norms are used the specially constructed box or benches that are only 12 inches high, should be used when administering this test. If local norms are established, benches turned on their sides, or the bottom row of bleachers that are a few inches higher than 12 inches may be used, yardsticks may be taped to the benches or bleachers so that several students can be measured at the same time.
Validity - Logical validity has been claimed the AAHPERD sit-and-reach test has been validated against several other tests and coefficients ranging between 0.80 and 0.90 have been found.

Reliability: 70 or higher

Objectivity: Not reported

Norms: Table 12.1 includes norms for ages five through college-age. The AAHPERD Test manuals provide percentile norms.

Administration and Direction:

The test apparatus should be prevented from slipping (may be placed against a wall) and the test performer should not be wearing shoes. The performer:

1. Sits at the test apparatus with the knees fully extended and the feet shoulder width apart, flat against the end of the board.
2. With the palm down and hands placed on top of each other, extends the arms forward; and
3. Reaches, directly forward four times and holds the position of the maximum reach on the fourth trial for one second (See Fig.12.2)

The test administrator may place a hand on the knees of the performer to discourage knee flexion, but the knees should not be hyper extended.

Scoring:

The score is the most distant point reached on the fourth trial, measure to the nearest 1/4 inch or the nearest centimeter. The test administrator should be in a position to note the most distant line touch by the fingertips of both hands. If the hands reach unevenly, the position is not held for 1 second or the knees bend the test should be read ministered, you should be aware that it is normal for many boys and girls not to reach the 9 inch level during the preadolescent and adolescent growth spurt (ages ten through fourteen). It is not unusual for the legs to
become proportionately longer in relation to the trunk during this period, flexibility exercise should be prescribed for individuals who score below P.50 as any score below this percentile represent poor flexibility in the posterior thigh, lower back, or posterior hip. Individuals who score below P25 have a critical lack of flexibility.

Test -2: Bridge-up Test


Fig.3.2

Test Objective: To develop hypertension of the spine

Age Level: Age six to college, satisfactory as a test for both boys and girls.

Equipment: Flexomeasure case with yardstick and ruler guide inserted. Be sure the A-B line of the case is nearest the zero end of the yardstick.

Validity: Face validity is acceptable for this test when students are strong enough to extend the body from the floor.

Reliability: An r of .97 was found when the best score of three trials was recorded from separates testing and correlated.

Objectivity: An r, of .99 was found when the scores from an experienced tester were correlated with scores from an inexperienced tester.
Test Administration and direction:-

1. Assume a supine (back-lying): Position on the floor (or a mat) and tilt your back while walking and the hands and feet as close together as possible.

2. Your partner located at one side places the zero end of the yard stick on the mat or floor and slides the flexomeasure case vertically upward until the ruler guide touches the highest point of your arched spine. The reading (to the nearest quarter of an inch) is taken in the case window at the lower (C-D) line.

Scoring -

The Best score (to the nearest quarter of an inch) of three trials is recorded and then subtracted from your standing height (floor to navel).

Example : Standing height = 46 inches ( Floor to naval)

- Best arch = 30
- Score = 16 inches

The closer your arch upward gets to your standing navel height, the better your score. Thus, less the difference, better the performance.

Note:

1. Your thumb should be next to your ears as you push your body upward from the floor.

2. If you are too weak to push upward, your head may remain on the floor as you arch your back for the measurement.

3. Do not strain unduly to arch for a 9000 score. It is best train over an extended period of time and thus avoids injury.

4. The Tester should slide the case upward rapidly to get the correct upward reading since this exercise is difficult for some individuals to hold.

Test 2- Agility Test

1. Shuttle Run

2. SEMO Agility
Test 1 - Shuttle Run

Fig. 3.3

Agility - Meaning and Definition
"Commonly speaking, agility means ability, of quick and swift movements, and ability of quick apprehension of body movements. As used in Physical Education and Sports, agility may be defined as "One's controlled ability to change body position and direction rapidly and accurately."

Test Objective: To measure Agility while Running and Changing direction.
Age Level - Nine through college-age.
Equipment - Stopwatch, measuring tape, marking tape and two block of wood (2'x2'x4')
Validity: Not Reported by AAHPERD
Reliability: Not Reported by AAHPERD
Norms: Table 9.3 provides quartile norms for age nine through seventeen and up. The president challenge described in Chapter 15, includes, the shuttle run as a test component, To qualify for the National Physical Fitness Award, 9 student must score no less, than the fiftieth percentile on
all components of the President's challenge comparing the shuttle run Fiftieth percentile score in tables 9.3 and 15.14. You will note that they differ. The percentile scores for the challenge were established at a later date than the AAHPERD Shuttle Run percentiles.

**Administration and Directions:-**

Lines are placed 30 feet apart with marking tape. The two blocks are placed adjacent to and outside of the line not being used as the starting line. On the single "Go" the test performance

1. Runs from the starting line to the blocks and picks one up.
2. Returns to the starting line and places the Block behind the line.
3. Runs to pick up the second block and
4. Return to the starting line and places the second block behind the line.

**Scoring**

Two trials are permitted. The better time to the nearest on tenth second is accepted as the score. Rest should be allowed between trials. The student is not permitted to throw or drop the blocks. To eliminate this problem, test given some time administer the test without the blocks. The student is instructed to touch behind the line.

**Important Note:**

If two times are available. It is preferable to ask two subjects to run at the same time from the opposite lines. This arrangement does not only save the time but also eliminates the need to return the block after each race.

**Additional Pointers:**

a) Stress importance of running as hard as possible across the finish line with second block.

b) Marking tape should be used to designate the starting and finishing line.
c) A person may touch behind the line and not use blocks since blocks may be tumbled, dropped, kicked, or thrown and thus require an additional testing or problems in standardization.

**Test 2 - SEMO Agility Test**

![Test Image]

**Fig.3.4**

**Test Objective:**

To measure agility ability of the subject while moving the body during forward, sideward and backward maneuvering movements the test is suitable for both Boys and Girls aged 12 years and above.

**Age Level:** High School and College - Age

**Equipment:** A Stopwatch, measuring tape, marking tape and four plastic cones 9"x9" base having 12" height (or any suitable alternates substitute objects).

**Validity:** 63 when correlated with AAHPERO Shuttle run.

**Reliability:** A reliability of .88 for High School and College males using trials one and two.

**Objectivity:** A reliability of .97 was found when the scores from two test administrators were corrected.
Test Administration and Direction:

After a Demonstration given by a trained helper, the tester asks the subject to stand just outside the marked rectangle at the starting point (s) with his back forwards the free throw line, the subject waits for the signal, Ready, Steady, Go. At the word ‘Go” the tester starts the stopwatch while the subject starts side stepping to his right at his fastest speed until he reaches outer corner of the second cone from where the subject starts, back pedaling (Running Backward) from the outer corner of the second cone to the inner corner of the cone number 3, from where he comes out of the test rectangle and take Forward running sprint from cone3 to cone1 just outside the 19’ mark line. As soon as the subject reaches the cone no.1 he is to take a side turn and again run back pedaling to reach the inner corner of cone no.4 at the free throw line where he has to change the direction to perform another sprint from the outer corner of the test rectangle at cone no.4 to cone no.2 where he is to perform a side step to his left to reach the finish line as rapidly as possible with his best efforts. As soon as he steps Outside the finish line with his both feet, the tester stops the stopwatch.

Scoring:

Each subject is given two trials and time of each trial is noted accurate up to 0.1 seconds (nearest 1/10 second) the lesser value of the time out of the two trials is the score of the subject.

Comments / Additional Pointers :

The test is slightly difficult to perform and needs proper understanding and practice by the subject. The tester has to observe the following important events while the subject performs the test.

1. The subject while performing the side step should not cross over feet.
2. In performing the backpedal, the subject must keep his back perpendicular to the line connecting the corners of the cone.

3. Each time the subject performs the test with an incorrect procedure, the tester must ignore that trial, and the subject should be tested until they complete two correct trials.

**Tes-3 Strength Test.**

Strength may be defined as the maximal muscular force of tension used in the creation or prevention of the movement in an maximal effect of a muscle group. Muscular strength is produced by four basic types of muscular contraction. Hence muscular strength may be subdivided into four categories listed below.

- Isotonic M. Strength
- Isometric strength
- Isokinetic and eccentric muscular strength.

Muscular strength is the ability of a muscle or muscle group to exert maximum force, Dynamic strength and static strengths.

**Test-1: Pull-up/Chin-up Test**

( [http://www.topendsports.com/testing/tests/pullup.htm](http://www.topendsports.com/testing/tests/pullup.htm) )

**Fig.3.5**

The Pull-ups test (also called Chin-up test) is widely used as a measure of upper body strength. The following information describes the procedure as used in the president’s challenge fitness awards and fitness Gram.
**Purpose:** this Test measures upper body muscles strength and endurance.

**Equipment required:** Horizontal overhead bar, at an adequate height so that the participants can hang from with arms fully extended and feet not touching the floor.

**Procedure:** Grasp the overhead bar using either an overhead grip (palm facing away from body) or underhand grip (palm facing towards body), with the arms fully extended. The subject then raises the body until the chin clears the top of the bar then lower again to a position with the arms fully extended. The pull-ups should be done in a smooth motion, jerky motion, swinging the body, and kicking or bending the legs is not permitted, as many full pull-ups as possible are performed.

**Scoring:** The total no. of correctly completed pull-ups recorded. The type grip should also be recorded with the results.

**Target population:** Sports in which upper body strength is important such as rowing.

**Advantages:** The equipment is readily available and this test is easy and quick to perform.

**Disadvantage:** due to variation in technique and whether the arms are extended or the chin reaches the bar, the scoring can be subjective, therefore it is difficult to standardize the result. For those with poor upper-body strength, no pull-ups may be achieved. For such group, an alternative test of upper body strength may be appropriate. Alternative test to the pull-ups is flexed arm hand or push-up test. The body weight of the subject has a great effect on the results of this test.

**Other Comments:** for some subjects, they may need to be lifted up to the starting position, check for improper technique such as legs swinging or kicking, and failure to fully extended the arms or get the chin over the bar. The subjects should be instructed to spend as little time hanging from the bar before hand as possible as the extra time on the bar may cause
fatigue and reduced the number of pull-ups performed. When repeating the test. Ensure that the same grip technique is used each time.

The terms chin-up and pull-up are often used interchangeably, though some people consider that when using the overhand grip (palms facing away from body, pronated grip) it is a pull-up, and when using an underhand grip (palms facing towards body, supinated grip) it is a chin-up.

Test No.2: Standing Broad Jump (AAHPERD 1976)

(D.K. Miller,(2006). Measurement by the physical educator. why and how.pg.175,176.

Fig.3.6

Test Objectives : To measure explosive leg power and strength.
Age and Sex : Six Through College Age, Both Sex.
Equipments : A Yardstick, tape, marking tape/Chalk or a peg mat is optional
Validity : Face Validity.
Reliability : Coefficient ranging from .83 to 99 have been reported.
Test Administration and Direction:

A tape measure should be taped to the floor or mat close to and parallel with the area where the jump will be performed. The test performer:

1. Stands behind the restraining line with the feet parallel and several inches apart.
2. Bends the knees and swing the arms forward to take off for the broad jump in forward direction.
3. Jumps forward as far as possible. The test administrator marks the landing point of the nearest heel to the restraining line with the yardstick. All test performers should be permitted to practice the jump until they can perform correctly.
4. The subject is given three trials.

Scoring:

The score is the number of inches between the restraining line and the nearest heel on landing. If the test performer falls backward on landing, the measurement is made from the restraining line to the nearest part of the body touching the floor or mat.

3.4.3 Description of Volleyball skill Test


Why measure sports skills.

Perhaps the most popular purpose of sports skills measurement is to determine an individual's progress or level of achievement a particular sport. Other important purposes for the classification of Diagnosis, motivation, practice program Accountability and performance.
Test No.1 - Volleyball Serving Test
g379, 380)

Fig.3.7

Test Objective : The test item aimed to measure the Volleyball serving skills


Administration and Direction of the Test

The Volleyball serving skill is conducted in a standard Volleyball Court. The server (subject) is asked to stand at the proper service position and asked to serve over the net on the opposite side where marking are made for the test scoring. The subject may use any legal serve to hit the ball over the net in to the opposite court each examinee is given 10 trials for scoring.
Test 2 - Volleyball Passing Test (AAHPER)

Fig.3.8
Objective: To measure the perfection and accuracy of volleyball passing skill.

Equipment: Volleyball pole, net, 8 feet high rope bar, chalk,
Antenna etc

Administration and Direction of Test -
This test is also performed in the Volleyball Court the subject is asked to stand at the centre back position on the court, receives a high throw from the thrower, and execute a pass so that the ball goes over an 8 feet high rope and on to the specifically marked areas on the court, the subject is given 20 trials and asked to perform passes alternately to the right and to the left.

Scoring:
For each correct pass i.e. making the ball to go over the rope and land on to the marked area, the subject is awarded one point, while the wrong passes count for his 20 chances but without any point being awarded.

3.5 Testers Competency
Since there were many variables, the researcher has taken assistance of professionally qualified physical educationist experts. The researcher took the assistance sports persons for conducting the tests that were administered which establishes testers’ competency.

3.6: Description of Yogic Practices

3.6.1 Prayer:-

(“Prayer And Mantrajapa” (2011) Kaivalyadhama Ashram Lonavla.pg.6 to 8 )

![Initiation of Sadhana with Prayer](image)

**Initiation of Sadhana with Prayer**

Prayer is the first step towards Sadhana this is an accepted truth by religions all the World over. Even science has given its acceptance through psychology. Power of faith is established and this helps us achieve our goals. To reach towards the spirit is the primary goal of prayer. Thus prayer has to be with proper attitude, this is performed when mind is peaceful thus a sync is established by which one can realize that aspirant moves towards Samadhi.

**Shanti Path** : Appeal to higher authority for Peace. Here the prayers of Upanishads are performed and the objective of recipient is not to achieve any personal gains but solely for inner peace of oneself. This is the Result of realization of one's own nature. Hence, this is also termed as Shanti Path or appealing towards higher power for peace. Such prayers
are performed at the start of each session of Pranayama, Sadhana Shibir, Yoga Sadhaka Sangh meetings and Special Yoga Courses.

**NAMASKARA MUDRA**

1. Select a cool place and sit in meditation pose.
2. Perform the Namaskar Mudra
3. Keep the eyes be closed.
4. Now stay focused on your breath and observe the whole body.
5. The mind is turned in words. The Yoga session starts with chanting verses from Upanishad, the prayer conveys the welfare of teacher and the student.

*(Dr. Nagarathna, Dr. H. R.Nagendra. Yoga” (2008) pg 101, 129)*

May be protect us both (i.e. the teacher & the student). May he nourish us both. May we both work together with great energy. May our study be enlightening and fruitful. May we not hate each other. Om peace, peace, peace.

**Prayer for Windup the session.:**-

OM poornamadah poornamidam
Poornaat poornamudachyate.
Poornasya poornamaadaaya
Poornamevaa vasshishyate.

*(Dr.Nagarathna, Dr. H.R. Nagendra pg. 124)*

Sarve ‘tu sukhinah santu
Sarve santu niramayah:
Sarve bhadraani pashyantu,
Ma kashchit dukhabhag bhavet.

May all be happy, may all be free from diseases. May all see things auspicious. May none be subjected to misery.

Om peace peace peace OmShaantih Shaantih Shaantih.
3.6.2: SURYANAMASKAR-(Salutation to Sun).
(Reference Yoga- Dr.R Nagarathna, Dr.H R Nagendra Page No. 33 to 38)
Suryanamaskar is the outcome of Yogasanas & Pranayama. The body now becomes flexible for its further use in Asanas & Pranayama. Suryanamaskar is best performed at Sunrise and Sunset. Care is taken to perform it facing the Sun, after the chanting of verses.

Hiranmayena Patrena Satyasyapihitam Mukham
Tat tvam pusan Apavrnu Satya Dharmaya Drstaye.

**Meaning:** Like a lid to a Vessel, O Sun, your golden orb covers the entrance to Truth. Kindly open thy entrance, to lead me to truth.

There are mainly two modes of performing Suryanamaskar. In one, there are 12 steps or counts and in the other only 10 in each round. Each stage of Suryanamaskar is accompanied by regulation of breath. Each round of Suryanamaskar is done after the utterance of ‘Omkar’ with the appropriate “Bijamantra”. Along with the corresponding name of Sun God in the following sequence:

1) **Aum Hram Mitraya Namah.**
2) **Aum Hrim Ravaye Namah**
3) **Aum Hrum Suryaya Namah**
4) **Aum Hraim Bhanve Namah**
5) **Aum Hroum Khagaya Namah**
6) **Aum Hrah Pusne Namah**
7) **Aum Hram Hiranyagarbhaya Namah**
8) **Aum Hrim Maricaya Namah**
9) **Aum Hrum Adityaya Namah**
10) **Aum Hraim Savitre Namah**
11) **Aum Hroum Arkaya Namah**
12) **Aum Hrah Bhaskaraya Namah**

Suryanamaskar consists of 12 different postures and along with chanting of mantras in every posture. Suryanamaskar is performed on
empty stomach at sunrise which is considered the most spiritually favorable time and facing the rising sun.

**Suryanamaskar Position**-

The student stands straight with legs together. Then perform the namaskara mudra joining the two palms together.

**Step 1**  Now slowly take the hands above the head, and slowly inhale air and then bend your trunk backwards.

**Step 2** The body is now bent forward and the air is slow exhaled simultaneously for forehead is touched to the knees. Now the palms are placed on either side of feet.

**Step 3** Here we breathe in and draw the right leg back
The buttock is pushed forward and downward such that the left leg is perpendicular position and then look up.

**Step 4** Now slowly exhale and take the left leg also back resting the whole body on palms and toes. The body is to be kept straight head to toes but the whole pose is at 30º with the ground Care is taken to keep the neck in line of back.

**Step 5** Now slowly inhale and then bend the legs at the knees and rest them on the floor with buttocks taking the rests on heels. Rest position of hands, palms and toes are retained. When the forehead comes on floor the breath is slowly exhaled. After this do your normal breathing Exhaling and retaining positions of hands and toes.

**Step 6** Now glide the body forward and bold breath (Bahya Kumbhak) the forehead, chest, hands, knees and toes lie flat on ground. This has thus derived "Sastanga namaskara" (Salutation with 8 parts).

**Step 7** Inhale and raise head & trunk to make are concavity shape. The view is upward but position of hands & feet are not
changed. Arch the back as much possible till the elbows are in straight position. Care is taken to keep knees off ground.

Step 8  
Slowly exhale & raise the buttocks, the head is pushed down until the heels touch the ground, don't shift hands and feet position.

Step 9  
Now inhale slowly and start bending legs at knees and rest them on the floor with buttocks rested on heels and position of palms and toes is unaltered. Exhale slowly as forehead is rested on the floor. After performing relax and breath normal.

Step 10  
Inhale freshly and in between the two hands place the right leg. Repeat the procedure of step 3 Arch the Back Concave upwards. See that right leg is perpendicular to the ground.

Step 11  
Slowly exhale, the left foot is brought forward in line with the right foot and bend down with upper body & touch forehead to knees as in Step.2

Step 12  
Slowly inhale and Return to Original Position Step.1 This is one complete Suryanamaskar.

Note (In 10 stages – Sryanamaskara the 5th & 9th stages are omitted)

The prolonged pronunciation of ‘Omkar’ followed by the Bija aksara, Ha and the sounds ‘R’ ‘M’ which come in every mantra Influence as and stimulate the nerve centers in the Brain corresponding to the respiratory, circulatory and digestive systems, make them more active efficient and healthy.

The different names of the Sun according to their meanings instill in you those qualities like friendship, devotion, energy, health, strength, luster and vigor, as you identify with the supreme and meditate on those qualities during the practice.
In this research practices program, Suryanamaskar practice program of every stage in static manner.

Although Suryanamaskar is considered as good Exercise for Improvement of physical fitness still It is a Big topic of discussion whether suryanamaskar belongs to Yoga or not, there is no any evidence proved in that in ancient Literature such as manuscript the Suryanamaskar is Yogic activity.

3.6.3: Description of Asanas:

1) Shavasana
2) Sukhasana
3) Brahmanudra
4) Parvatasana
5) Vakrasana
6) Bhujangasana
7) Ardha Halasana
8) Ardha Shalbhasana
9) Shalbhasana
10) Naukasana
11) Halasana
12) Vipritkarni
13) Padmasana
14) Gomukhasana
15) Paschimottanasana
16) Ushtrasana
17) Chakrasana
18) Tadasana
19) Kapalbhati
20) Ujjai Pranayam
21) Breathe Meditation
22) Om Shanti 3
1. Shavasana (Yog-nidra):

(Dr. Manohar L. Gharote. (2013) Guidelines for yogic practices. pg. 80)

Fig. 3.11

The Shavasana is lying on the ground like a corpse with head facing upwards. This asana prevents us from physical tiredness and keeps the mental state calm and peaceful. It is the mother of all asanas, as it can remove the tiredness created by performing the other Asanas.

**Technique:**

1. The person lies on the back and his hands extended on either side.
2. The two feet are placed 40-50 cms away from each other and toes are pointing outside.
3. Hands are placed on either side at about 15-20 cms distance from the body. It semi flexed position and palms facing upward. Close the eyes and keep the head in a convenient position.
4. Do deep abdominal breathing slowly.
5. Do a whole body collapse.
6. Carefully follow the breath flow at the nose.
7. Enjoy immediate relaxation thereafter.

**Special Hints:**

1. Take care to keep the eyes close in Asana position.
2. Once adjusted to the body position then don't shift this position.
3. Make your body, legs, hands, and fingers go loose.
4. Keep concentration on the breathing.
5. Relaxation is topmost in mind and keep cool.
Advantages & Limitations:

1. Physical and mental fatigue is removed.
2. Regular practice of this asana will help bring symptoms of High Blood pressure and other Psycho-somatic reactions under control.
3. Good results are seen with people suffering from neurosis and fear complexes.
4. This asana also brings instant freshness feeling.
5. In cases where doctors have forbidden the supine (face upwards) position should not practice it.

Physical Relaxation Exercises:

1. The knees are kept bend and preferably rolling on to one side (left side). Relaxation or loosening of the body parts and its control. There is no strain on any muscles. Keep yourself positioned for 3 to 5 minutes. Feel thoroughly relaxed.
2. Now change to the other side (right) and repeat the same procedure. Stay in this relaxed position for 3 to 5 minutes.
3. To promote relaxation of tired muscles a small massage can also give good results as per need. But a thorough complete body massage once a week is recommended for players.
2. Sukhasana:

(Dr Nagarathna, Dr H.R. Nagendra. (2008) pg.78)

Fig. 3.12

Technique:

1. First sit on the firm ground with the right leg completely bend at knees and place the foot under the left thigh, keep the heels pressed against the perineum.

2. Now bend the left leg at the knee and place the left heel on the right heel.

3. Slowly, tuck the toe of the left foot into the folded right knee structure.

4. The right hand is pushed into the fold of the left knee, then pull up the right big toe to see that it presses against the inner left thigh part.

5. In any case the knees, should into touch the ground.

6. Keep the sitting erect posture left the hands be resting on the thighs, in 'cin mudra' and bend the elbows.
Special Hints:
1. Seat in an erect posture.
2. During the practice keep the eyes closed and concentrate on the body.
3. Take care not to strain / reduce the body pressure.
4. This is practiced in a relaxed manner.
5. Here good results are obtained, the more we learn to concentrate on breathing.
6. Keep the body fixed in this position.
7. In case of surgery, or any other problem, first consult the doctor before practicing this Asana.

Advantages & Limitations:
1. It also exercises for the spine to be erect. It is the simplest meditative posture most often used and biggest plus point, is that it makes your mind stable.
2. There are no disadvantages.

3. Brahma mudra (Head Turning):

(Dr. M. L. Gharote. (2013) Guidelines for yogic practices. pg. 20)
Place the fists of both the palms with the thumbs tucked in and place them on either side of navel, now with palms face upwards and let the knuckles touch each other.

**Technique**

1. Select a comfortable position. Slowly turn the head in the left direction and on the left shoulder place the chin.
2. After some time return to the original position. Try the same sequence on the right direction and the chin now lies on the right shoulder.
3. Return to previous position, raise chin slowly up and head backward.
4. Again returning to the previous position. Let the head be bend forward, at the same time try to contract throat muscles and press the chin to chest.
5. Return to the previous position.

**Special Hints :**

1. The practice is repeated for 3 to 5 times.
2. Feel as much relaxed as possible.
3. Keep the shoulders fixed, don't turn during practice.
4. Each stage is retain for few seconds and feeling of stretch is felt.
5. Keeping the eyes closed during practice is an added advantage.
6. Take care not to bend forward in cervical spondilysis.

**Advantages:**

1. The neck region rigidity is lost.
2. Best for complaints related to lervical spine.
3. The feel of relaxation is felt more and tension is removed.
Parvatasana:-

(Dr.M.L.Gharote.(2013) Guidelines for yogic practices.pg.26)

Fig.3.14

Parvatasana has its word derivation from "Parvat" meaning hill. In this Asana the body forms in a hill shape. Parvatasana is not found a location in the old texts but it is old in tradition and very simple to follow.

**Technique:**

1. Sit on the ground with your legs stretched (Take the form of Padmasana)
2. Now first bend the right leg in the knee and then place the right foot in left grain.
3. After this bend the left leg and place the left foot in the right grain.
4. Slowly in hale (breath taken in words) and raise both the arms side wards, then join the hands above the head with hands stretched. (Palms face each other and up in the sky)
5. The position is retained till we feel comfortable. Now slowly lower the arms. Start exhaling as the arms come down, then place the arms on the knees.
6. When repeatedly practiced a couple of times, we feel a stretching sensation in the abdomen muscles.
7. Feel relaxed and looser the position of the cross legged lock.

**Special Hints:**
1. Any comfortable sitting position is also allowed, if the foot lock is uncomfortable in some fat people.
2. Take care to stretch the arms straight overhead.
3. Remember the combination of arms raising is inhalation and lowering the arms with exhalation.

**Advantages & Limitations:**
1. This Asana is best for office, students, players as it removes the stiffness in the neck and shoulder region.
2. Flexibility in the rib cage and the spine region is increased.
3. This is a good breathing exercise as respiration is enhanced.
5. Constipation or passing of stools patients are benefitted & helps in removing seminal weaknesses.
6. Please note that patients with reeling sensation will not practice.
7. If still someone persist to do this simple Asana their physician is better consulted.

5. **Vakrasana:**
(Dr.M.L Gharote.(2013) Guidelines for yogic practices.pg.52)

![Fig.3.15](image-url)
Vakarsana is an easy way of doing Ardha-Matsyendrasana. People finding it difficult to do Ardha Matsyendrasana should do Vakrasana as the same benefits are obtained. Swami Kuvalayaanandji first founded it.

**Technique:**
1. Sit on a flat surface with the leg in extended position.
2. New the left foot is placed by side of right knee.
3. Left hand is kept at the backside for support.
4. The right arm is passed over the left knee and then place it on the ground.
5. The right arm is pressed against the knee and turn slowly to the left.
6. Sit in this twisted position for a comfortable time then revert to the initial pose.
7. The same procedure is now started for the other side that is right foot is placed by side of left knee.

**Special Hints:**
1. Always see that when the leg is extended at this knee place the opposite foot by its side (on other side)
2. Then raised knee is pressed by the crossed upper arm.
3. Take care to keep the spine and back hand in the same line.
4. Keep the back stretched, don't lean back.

**Advantages & Limitations:**
1. The spine flexibility is enhanced and spinal nerves get a good exercise and remain in serviced manner.
2. Asana, helps to remove decongestion of abdominal organs and functions are also streamlined.
3. It helps to remove a nervous breakdown, liver weakness and also acts on problems like constipation and flatulence.
4. Stiffness of spine is brought to control by this Asana.
5. All kidney and Stomach diseases get removed.
6. For diabetic patients this is a boon, it stimulates pancreatic activity.
7. This Asana is performed by all ages.
8. The Lung capacity is boosted, this the source of supply of oxygen to the cells and hence very important.
9. Please note, people who have undergone abdominal surgery recently may please consult the doctor.

6. **Bhujangasana (Cobra pose):**

(Dr. M. L. Gharote. (2013) Guidelines for yogaic practices. pg.44.)


![Bhujangasana Image](image)

Fig.3.16

"Bhujanga" means cobra in Sanskrit. Here the lower body part i.e. toes upto the naval touch the ground. The palms are placed on the either side and slowly the head is raised like a cobra. Hence the Final position of the Asana looks like the "Hooded Snake", therefore "Bhujangasana."

**Technique:**

1. Lie on the ground with face towards the ground, keep the legs and toes together, let the hands point outward by the body side. The fingers are together and palm is facing upward and the forehead rests on the ground.
2. Now on both sides of the chest place the arm.
3. Slowly raise the chin and look up and now slowly raise chest.
4. Also lift the abdomen part upto the naval.
5. Retain in this Final position for 1-2 minutes.
6. Return to the start position.

**Special Hints :-**

1. The body muscles get a good toning and exercising.'
2. The dorsal spinal is made supple.
3. Back body muscles are made stronger.
4. Back ache and loins pain is relived.

**Advantages & Limitations :**

1. Respiration of the body improves.
2. Problems such as bronchitis etc can be remove
3. General problem of tummy fat lab do men fat) is reduced by doing this asana regularly.
4. Swami Kuvalayanandji advises this asana to remove out problems like "flatulence after meal."
5. For patients of Cervical Spondylosis care be taken to stay away from this asana for at least 2 months. Even patients who have undergone abdominal surgery not to do this Asana.

7. **Ardha Halasana:-**

*(Dr.M.LGharote.(2013) Guidelines for yogic practices.pg 28,29)*

![Fig.3.17]
This Asana is developed through the tradition. There is no mention in the original texts.

**Technique:**

1. Lie on the ground with face upwards and feet together hands straight by the side and the palms be on the ground.
2. Now slowly raise the left leg slowly upto a $90^\circ$ angle without bending the knee and then lower it.
3. Repeat the procedure for the right leg upto $90^\circ$ and return to the normal.
4. Now raise both the legs slowly such that they form $90^\circ$ with the body after a little while bring them down.

**Special Hints :-**

1. Legs are raised alternately and don't bend the legs in knees.
2. Legs can also be raised in stages i.e. $30^\circ$ then stopping, $60^\circ$ then stopping for a while and finally achieving the $90^\circ$ angle.
3. After a session of 2 weeks, raise both the legs with halts.
4. It is important in Yoga Asanas as it is necessary to be very natural for one's own body. Repeat raising of legs according to capacity and without any discomfort to any part.
5. Do not give jerk while raising legs.

**Advantages & Limitations :**

1. Abdominal muscles and organs are exercised and well maintained.
2. The hip joints are made elastic and the lumbar region is given a steady pull.
3. People with a stiff spine and chronic cervical spondilitis are advised to perform under proper supervision.
8. **Ardha shalbhasana :-**

(Dr.M.LGharote.(2013) Guidelines foryogic practices.pg.46.)

(O.P.Tiwari.(2011) Asana Why and How.pg17)

![Fig.3.18](image)

Some improvements and simple form of Shalabhasana Swami Kuvalayanandji has first devised this. Thus for beginners who are unable to reach to Shalabhasana can start with the Ardha Shalabhasana.

**Technique :**

1. Take the lung down body position with face towards ground, legs together, fingers of legs pointing outward, soles upward, hands on either body side and firsts are closed with for head on the ground.

2. The chin is brought forward and placed on the ground with arms fully in stretched position along the body.

3. Without bending the knee, slowly raise one leg & maintain in this position for a comfortable period.

4. Bring the leg down slowly in the resting position.

5. Now start with the other leg &slowly maintain the position.

6. Bring it down to the original position. Thus one full sequence of "Ardha Shalabhasana" is over.

**Special Hints :**

1. Do not bend the knees when raised.

2. Take care not to raise the legs too high.

3. The pelvis need not be tilted when legs are raised.
Advantages & Limitations:

1. Abdominal Organs are given a good exercise.
2. The lower abdomen (loins) are made stronger.
3. Pain in the lumbar region is removed.
4. There is proper coordination in the lower extremity and removes viceroptosis.
5. Strictly people suffering from lumbar spondilities are advised not to practice.
6. People with problems of muscle cramps are advised to perform with the help of a proper Yoga Practitioner.

9. Shalbhasana- 1 (Locust pose) :-

((Dr.M.L.Gharote.(2013) Guidelines for yogic practices.pge.48.)
(O.P.Tiwari.(2011) Asana Why and How.pge121)
(Dr Nagarathna,Dr H.R. Nagendra.(2008) pg.59)

Fig.3.19

"Shalabha" is Locust in Sanskrit. Here the body lies with face, facing the ground and pressing, the palms placed on either side of chest. Now raise the legs upto 9 inches high in air. This is termed by the sages as Shalabhasana as the body takes the shape of locust.
**Technique:**

1. Lie down with face towards the ground and also the chin is pressed. Keep the hands along the body. The fingers closed and palm upward, legs are together, and take toes of legs slowly towards the sky. Maintain the forehead touching the ground.

2. Take breath in and hold it inside. Now pressing or putting full pressure on wrists we raise the legs to a comfortable or natural limits. Both the hands are folded at elbow and brought down under the shoulder (ref. Bhujangasana) Finger together, pointing forward.

3. Shift slowly both the legs upward without bending at the knees and maintain it.

4. Bring down the legs and also exhale simultaneously.

5. This position is achieved as per individuals capacity with normal breathing.

6. Now take to Makarasana and feel relaxed.

**Special Hints:**

1. It is important to keep the legs in one place.

2. Care taken not to bend the legs.

3. Any jerky action in Yoga while performing raising legs be avoided.

4. Slightly inhaling before raising the legs is good.

5. The final posture is kept for a comfortable or a 10 secs. maximum.

6. If there is any infection of abdomen organs or a weak cardio respiratory system, then it is advised not to perform this asana.

**Shalabhasana-2 (Second Technique):**

The traditional practice of Shalabhasana and this is in the placement of hands. We keep the legs raised, the hands are kept side by side and the firsts and fingers are closed and pointing to the sky. The remaining procedure is the same.
Special Hints:

1. At the start (second technique) the hands are kept directly under the thing, so legs raising is much easier.
2. Let the knees part in the legs be not bend.
3. Take care to lower the legs slowly when returning to the original position.
4. Respiratory efficiency is increased.
5. A facet more advantages for players is the strength, this is obtained by burning of calories, which in turn is dependent on the lungs in take capacity.
6. People with high blood pressure, heart disease or asthama problems are advised not to perform this.
7. 'Take help and perform with caution and care who have low back pain problem.
8. The posture is corrected when a proper pull up of the knee caps and the buttocks are squeezed.

10. Naukasana

-(Dr.M.LGharote.(2013) Guidelines foryogic practices.pg.30)
(O.P.Tiwari.(2011) Asana Why and How.pg32)

Fig.3.20
It is tradition found Yoga, but not found in the original Yoga texts. In the final yoga posture of this Asana the body takes the form of a boat, hence it is called "Naukasana".

**Technique:**
1. Lie on the ground with body back and hands on either side.
2. Now raise both the legs to make $45^\circ$ with the ground.
3. Raise the trunk & head part also to $45^\circ$ angle.
4. The hands are stretched forward and maintained in his position for a comfortable time.
5. Bring the hands on both the side.
6. Slowly lower the trunk and head back to the ground.
7. Then lower the legs to the ground.

**Special Hints :-**
1. Take care not to bend leg at the knees.
2. As per convenience the asanas can be repeated.
3. Don't stretch any Asana form till we get pain in abdomen muscle.

**Advantages:**
1. A proper exercise of longing abdomen muscles is achieved through this.
2. Similarly a proper care and servicing of the abdominal organs is also done through this improving their efficiency.
11. Halasana:–

(- (Dr. M. L. Gharote. (2013) Guidelines for yogic practices pg. 42.)


(Dr Nagarathna, Dr H. R. Nagendra. (2008) pg. 63)

Fig. 3.21

**Technique:**

1. Take a flat body posture facing upwards, place both the hands straight on both sides of thighs and rest the palm on the ground.
2. Now slowly lift the legs together and without bending the knees and by keeping the hands firmly pressed on the ground 1st at an angle of 30°, 3rd at an angle of 60° and then 90° for a few time in this position
3. Now contract the abdomen muscles raise the buttocks off the ground.
4. The legs are slowly taken towards the head and made to touch the ground just above the head.
5. Comfortably retain this position at step 4. To return to original position, take the legs at 90° posture, stay for some time. Slowly withdraw the extended hands and form a finger lock and keep it closer to the head and slowly push the feet further with ease.
6. Lastly remove the hands off the head & extend them to the previous normal place.
7. The legs are then pulled along the ground and return to $90^\circ$ angle.
8. The legs are slowly returned to original ground position.

**Special Hints:**
1. Before performing this Asana, it is essential to start with Ardha Halasana
2. In case the feet do not touch the ground above the head, take the hand support at the back and press to allow the feet to touch.
3. Take the back support and see that the legs are not kept hanging.
4. Let final position be reached through various stages.
5. Gradually increase the stretching and see the comfortness.
6. Take care not to touch the legs near the head with a jerk.
7. Take a comfortable positive from the previous practice and only then withdraw the hands and place them at the head.
8. In Asanas avoid all the jerks, this is achieved slowly.
9. To practice regularly will improve the capability of moving and thus flexibility is also improved.

**Advantages & Limitations:**
1. This Asana stretches the entire spine, thus it is a benefit to practice in stages.
2. The organs in the abdominal cavity function smoothly due to this asana, removes congestion, it also improves the stature.
3. A special type of diabetes shows pronounced improvement due to practice of this Asana.
4. A word of caution for people suffering from Spine Stiffness and Cervical Spondilitis, to take care while performing this asana.
12. Viparit Karani

(-(Dr.M.LGharote.(2013) Guidelines for yoyic practices.pg.32.)
( O.P.Tiwari.(2011) Asana Why and How.pg53)

Fig.3.22

Lie flat on the ground with the head and hands support raise the legs up and maintain this steady position. This is the "Viparit karani".

**Technique:**

1. Lie flat on the round with head placed upward.
2. Now raise both the legs slowly to 90° angle, in steps of 30° each.
3. Slowly raise the lower part of the body, taking support of hands raise the buttock.
4. This position is kept till we feel relaxed.
5. The feet are lowered to the head, then slowly withdraw support of hands at buttocks and lower them to the ground.
6. The legs are then lowered.

**Special Hints :**

1. The Viparitkarni is started only after Ardhalasana practice with both legs is over.
2. Bend the legs and raise the buttocks, and support it with forms.
3. Take care not to spread elbows and maintain upper arm parallel.
4. The final possesses the feet and elbows in vertical line.
5. The breathing is kept normal in this practice.
6. Do not jerk in any position.

**Advantages & Limitations:**

1. Blood circulation speed is improved. Thus properly maintaining the body parts.
2. Abdominal organs are decongested and efficiency is improved.

**13. Padmasana**

( O.P.Tiwari.(2011) Asana Why and How.pg104)

![Fig.3.23](image)

In the traditional book Padmasana is found as Baddha-Padmasana.

The simple Padmasana is described as follows:

**Technique:**

1. The first pose is the same as in (Swastikasana)
2. Now the sole of right leg is hold by the left hand and ankle from the right and place it on left thigh.
3. In the same manner the sole of left leg by right hand and ankle from the left is held firmly.
4. Place it well on right thigh.
5. In the Gyanmudra the hands are placed on respective knees. The eyes are kept closed or the gaze fixed at the tip of nose or straight.
6. Stretch your left leg, then return to the prime position.
7. After this stretch the right leg and now feel relaxed.

Special Hints:
1. Maintain a straight spine in the final position, as this is a meditation pose. Energy feel is observed rising.
2. First practice Ardha Padmasana before practicing Padmasana

Please Note:
1. After resting one leg on the other thigh and similarly if placing the other leg on the other thigh is difficult then do not use force to do it.

Advantages & Limitations:
1. Patients of chronic knee pain are advised not to practice this pose of folded legs.
2. Those people who get cramps in calf muscles should practice regularly.

14. Gomukhasana
"Gomukh" in Sanskrit means cow's mouth. Gomukhasana posture also can be seen as the mouth of cow. In this asana both the feet are placed on the ground by the side of opposite buttocks.

**Technique:**
1. Sit on the ground with both the legs stretched, together, hands are kept by side, let the palm rest on the ground, the fingers are together.
2. Now take right leg, fold it and place it on the ground by the side of left buttock.
3. The above procedure can be repeated in bringing the left leg above the right leg and place it by the side of right buttock, see the 2 soles remain outward on the left side and right side.
4. The palms remain on the knee one above the other and sit in erect position.
5. Keep gazing in front. Take the right palm above the left sole and left palm above the right sole. This typically will take the cow's ear shape.
6. Return to the original position. Practice by change in the legs position that is right knees above the left.

**Advantages & Limitations:**
1. Place the right leg by the side of buttock and then left above the right.
2. Keep the hips in straight position.
3. It is simple to keep one knee over the other knee.
15. Paschimottanasana

(-Dr.M.L.Gharote.(2013) Guidelines for yogic practices.pg.56.)
(O.P.Tiwari.(2011) Asana Why and How.pg 67)

"Paschima" is back and "tana" is to stretch. Paschimottanasana is stretching of the back. Sit on the ground with legs straight, now hold the arms with the big toes and stay in this position with head placed on the knee.

**Technique:**

1. Extended your legs and sit comfortably.
2. Slowly bend at the trunk and with both hands catch the toes.
3. The elbows are bend and the forehead is at the knees.
4. Achieve a comfortable position.

**Special Hints:**

1. Take care not to bend the knees.
2. Try to slowly bend the trunk and head and go to a comfortable position.
3. In this position get a relaxed feeling.
4. If it is not possible to hold the toes, then place the hands on the legs and get the comfort.
5. Do not do any shaky and fast actions while forward bending.
Advantages & Limitations:

1. Back muscles and thigh muscles get toning and stretching.
2. Lumbar pain and back pain is recovered.
3. The spine suppleness is improved.
4. This asana makes mind peace, and energizes abdomen thus improving digestion.
5. Sciatica or such pains are removed from the roots.
6. Abdominal ulcer patients please do not practice this.
7. Regular practicing of this asana will strengthen the abdominal muscles as stated by Swami Kuvalayanandji.
8. In addition to the above this asana is a boon for people suffering from constipation, dyspepsia, and Seminal Weakness.

16. Ushtrasana:

(Dr Nagarathna, Dr H.R. Nagendra. (2008) pg53.)

Fig.3.26

Technique:

1. Take a Vajrasana sitting pose.
2. Now stand on the knees.
3. Slowly catch the waist with the palms and the fingers point forward.
4. Slowly bend the trunk backward and in hale, now place the palms on the heels.

5. Remain in this pose for a minute and breath normal. Exhale 5-8 times coming to initial position through steps 3-2 & 1.

6. Now take the Dandasana and relax.

**Special Hints:**
1. Do not move or shift from asana.
2. Keep the thighs perpendicular to the ground.

**Advantages & Limitations:**
1. This is the best exercise for an elastic spine. It also increases blood circulation towards the head.
2. A word of caution for people. Patients of hernia or operated for chest and abdomen please consult the doctor.
3. Similarly people with severe hypertension and low back pain have to also take care.
4. Thyroid patients can get good relief from this.

17. **Chakrasana -1:-**

( O.P.Tiwari.(2011) Asana Why and How.pg 141)

(Dr Nagarathna,Dr H.R. Nagendra.(2008) pg64.)
"Chakra" means wheel, this asana has come by tradition. The entire body takes the shape of a wheel or half wheel and so the name "Chakrasana" Swami Kuvalayanandji first explained the benefits to the world.

**Technique:**

1. Stand firm on the ground with the legs together, lay the hands by the side and keep the gaze in front.
2. Now raise the right hand slowly and bring it parallel to the shoulder, keep the straight palm facing downward, close to the ear.
3. In this position face the palm sky wards.
4. Slowly raise hand upwards and touch the ear by the arms. Let fingers point to the sky.
5. Carefully bend laterally towards the left side. Let the body on the left part be loose and the left hand will go slope down from thigh with the body.
6. Maintain this pose and then slowly return the hands and stand erect.
7. Now practice for the other side. One round of Chakrasana is over.

**Special Hints :**

1. This asana is performed with one's own flexibility.
2. The feet are placed apart from start. Later they are separated.
3. Do not try to bend forward or backward. Observe that part above the waist bends in lateral place towards left or right.
4. Keep in bending position to get stretched feeling.
5. Bend only after the hand goes straight upward completely.

**Advantages & Limitations :**

The spine is made flexible in lateral part and the related nervous system is made to relax Again imparting power to the elasticity. Respiratory system also functions efficiently. Strength is imparted to the
side muscles. Spondititis patients, please practice this under the observation of a yoga practitioner.

**Chakrasana – 2 (Supine posture):**

Chakrasana as originally derived from tradition.

**Technique :**

1. Standing straight and the legs on both sides of the thigh Keep gazing in front.
2. Slowly raising the hands from in front towards sky and place the palms facing front.
3. The body's total weight lies on the ankles and thighs, slowly bending backwards touch the ground with the hands. The body now takes the form of above and abdomen faces the sky.
4. Return to original position after 4-5 secs. in this pose.

**Special Hints :**

1. A proper balance on the ankles and thigh is maintained when turning backwards take care not to fall.
2. Slowly come back to the starting point.
3. When coming to original position, first place and the back of head to the ground, followed by the neck and the back maintain the balance.

**Advantages & Limitations :**

1. Abdominal muscles get strength by this asana & digestive system comes in order.
2. The half calf muscles and biceps are toned to become stronger.
3. Spine is made flexible and if any waist pain exists due to gas ailments it is corrected.
4. Patients suffering from high blood pressure, spondilitis or informed of backward bending problems should not practice it.
5. All body parts get stimulated and activated. Arms, shoulders and legs become stranger.

18. Tadasana:-

(O.P.Tiwari.(2011) Asana Why and How.pg 22)

Fig.3.28

Tadasana is a traditional posture and in the final position resembles a palm tree. Like a palm tree which is erect. Thus benefits of this asana are obtained when one stands straight and erect.

**Technique:**

1. Keep legs a feet apart and stand straight. Be as natural as possible, keep the hands by side of thighs. Maintain a gaze in front.
2. Now slowly raise your hands straight in front up arms and make them face each other.
3. Pull the hands now towards the sky, fingers pointing up.
4. Raise the heels slowly and stand on tips of toes. Again stretch the heels to your limits and feel the body stretched.
5. Return to the original position by bringing heels on ground.
6. Now slowly bring down the hands.

**Special Hints:**
1. One also improves balancing in this pose.
2. Haste is avoided to loose control of balance.
3. In the initial position let the legs be apart.

**Advantages & Limitations:**
1. This asana is performed to improve height.
2. A flexible spine has multiple benefits.
3. Backbone pain and Visceroptosis patients are cured quickly.

**Please Note:** Patients with reeling sensation should not practice.

3.6.4 Description of Pranayama

i. Kapalbhati :-

((Dr.M.L.Gharote.(2013) Guidelines for yogenic practices.pg.86.)
(O.P.Tiwari.(2011) Asana Why and How.pg 162))
Kapalam bhati it, Kapalabhati, Kapalbhati is that which shines the Kapala (brain). The brain cells are stimulated by this Kriya. In hathayoga pradipika this particular technique of cleansing and purification is defined as Bhastrav all ohakarasya recapuraus Sasambhramau. Kapalbhatirvikhyata Kaphadosavisosani (H.Y.P. 2.35)

"Kapalam bhati" is Kapalbhatti. The kapala (brain) shines that is Kapalbhati. Brain cells are made more active by this Kriya (Action). Hathayoga Pradipika defines it as a particular technique of cleaning and purifying. Kapalbhati Vikhyata Kaphadosavisosani (HYP 2-35)

The inhalation and the exhalation is so fast performed like bellows, mucus disorders are destroyed. Inhalation is active process and Exhalation is passive in normal breathing. When Kapalbhati is done the practice reverses and here exhalation is active and inhalation is passive.

First Rechaka (exhalation) in fast form and puraka (inhalation), like the bellows of a blacksmith, emptying and fillings is Kapalbhati. Thus phlegm disorders is destroyed.

Note:

Hathayoga is first of the six cleaning processes. The respiratory system is cleaned and energized. Asnas - Sitting in comfort position (Material selected for asana is blanket, deer skin, kusha or towels.

Performing Hathayoga take a comfortable posture Like Padmasana, Samasana, Svastikasana or simple comfort posture. Sit firmly in Kapalbhati and take care the body doesn't shake or jerk. Similarly as the bellows of block smith draw air in and t with a sound just along the same lines hence we practice inhaling through nostrils and exhaling forcibly soon. Mouth is kept closed, and draw the navel inside in each exhaling and bulging in inhalation. Repeated practicing rapidly so exhalation is prominent and inhalation in automatic.
**Technique:**

1. Sit with your leg in extended position take care that body is erect.
2. Take the form of any comfortable Asana like Padmasana (Samasana)
3. Now put the hands on the knees with ease.
4. Sit in on erect posture, when chest is slightly raised.
5. Exhalation is done with force and repeated by giving an inward stroke at the navel.
6. The abdomen is now relaxed and breathe drawn in.
7. The exhalations and inhalations are repeated for a several times.
8. The chest is lowered.
9. Come out of the Asana pose.

**Special Hints:**

1. Do not move the upper part of the body above novel and abdomen.
2. In Kapalbhati, take care to keep the chest at one place.
3. Increase in speed of exhalations - Exhalation sequence can break sync, hence maintain coordination between respiration and abdominal muscles.

**Advantages & Limitations:**

1. Biggest advantage is cleaning of respiratory tract.
2. Blood circulation is improved throughout the body.
3. Nasal congestion and sinus problems are removed.
4. Throat diaphragm is strengthened.
5. A for people suffering from asthma cold and constipation.
7. **Please Note:** Diabetes Patients need not practice this.
8. Patients whose bite in abdomen, or any ulcer complaints need not do it.
9. High B.P. or gas in abdomen should never do. Similarly people suffering from Heart disease, Vertigo, epilepsy, hernia and gastric ulcer, slip disc etc. may not do this.

10. In case of advance pregnancy and women in menses period may avoid it.

ii. Ujjayi Pranayama :-

(Dr.M.L.Gharote.(2013) Guidelines foryogic practices.pg.98)
(O.P.Tiwari.(2011) Asana Why and How.pg 152)

"Ujjayi" in Sanskrit means Victorious, Ujji is the root which means to conquer or acquire by conquest. Hence this is termed as Psychic breath. The flow of air is through trachea and a narrow path, when the epiglottis is closed partially, this makes the air rub through surface and produce a hissing sound in this Pranayama. Above pranayama is also used for building awareness. This pranayama is explained according to Hathayoga pradipika as under:

In Hathayoga pradipika, this pranayama is explained thus:

Mukham samyamya nadibhyamakrasya pavanam sanaih.
Yatha lagati kanthattu hrdayavadhi sasvanam (H.Y.P.: 2.51)
Purvatkumbhayet pranam recayedidaya tatha,
Slesmadosaharam Kanthe dehana lavivardhanam (H.Y.P. 2.52)

The air is taken in through both nostrils, the mouth is closed and a small sound is generated such that it touches throat to chest.

When Kumbhaka is completed, exhalation occurs through left nostrit, this removes throat diseases caused due to phlegm and helps to activate stomach muscles for digestion.

**Note**: Ujjayipranayama" verses as taken from original Hatha Yoga text explains the technique of merging "Pranayama" with "Kumbhaka".

**Technique**:

1. A cool and comfortable sitting erect position is selected, care taken to maintain erect spine pose.
2. With slow inhalation, produces a sound due to friction of partial contraction of the glottis.
3. A slow exhalation also produces frictional sound from glottis.
4. A time ratio of 1:2 for inhalation and exhalation is chosen
5. With comfort a series of inhalation and exhalations one after the other.

**Special Hints**:

1. Frictional sounds are generated throughout.
2. Abdominal movements are well managed. In any case take care that abdomen does not bulges in inhalation,
3. When exhaling (air touches throat), contract the abdomen.
4. Keep the eyes closed and focus attention to the frictional sound.
5. Using both nostrils we practice Ujjayi pranayama inhalation and exhalation.

**Advantages & Limitations**:

1. The respiration efficiency & increases.
2. Tension is released and mind becomes peaceful.
3. Circulation is streamlined and removal of excretion also done easily.

3.6.5: Description of Meditation

Breathe Meditation:

(Dr. M. L. Gharote. (2013) Guidelines for yogic practices. pg. 100)

Technique:

1. Select a comfortable sitting pose.
2. The trunk and head in erect.
3. The eyes are kept closed.
4. Deep inhalation through both nostrils.
5. Similarly exhalation also happens through both nostrils.
6. When inhaling a cool breath takes place and when exhaling a warmth is felt.
7. Keep inhaling and exhaling for a couple of times and focus on the breath.
8. When it is hard to inhale and exhale just stop. Now continue to breath normal and now concentrate on this breath for as long as is possible.
Special Hints:
1. Make sure that eyes are closed in this process.
2. Body posture remains erect.
3. There is no strictness, continue the practice till a restless feeling draws in.

Advantages & Limitations:
1. The thought process seems to fade out slowly
2. This tones the mind and calmness is maintained.
3. Thus we always see a tranquility and synchronisation in organic functions.

3.6.6 : Description of Shanti Mantra
(Dr.M.L.Gharote.(2013) Guidelines for yogic practices.pg.102)

Om Shanti Mantra 3:

Fig.3.32

Technique:
1. Choose a suitable pose.
2. The trunk and head in erect position.
3. Eyes are closed,
4. With deep inhalation.
5. Recite 'O' in a soft tone and prolong the sound 'M'
6. Now inhale and keep on repeating the "OM" recites.
7. Slowly increase the pause after "OM" recitation.
8. Take care also to listen to "OM" throughout practice session.

**Special Hints:**
1. Take care not to recite "OM" loudly. The sound is heard for oneself.
2. Maintain closed eyes throughout session.
3. Even when the "OM" sound is stopped, try mentally to hear the sound. This has a good effect.

**Advantages & Limitations**
1. A Psychophysical rhythm is generated in the whole body.
2. Distraction of the mind is reduced and also the random thoughts are stopped.
3. Psychophysical tensions are cleared.
4. Mind achieves more peace and there is equanimity to deal in various situations.

**3.7 Procedure of the Study**

The experimental study was conducted in considering five phases-

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<th>Phase I</th>
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<th>Both group</th>
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<tr>
<td>Phase II</td>
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<td>07 to 09 week</td>
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<td>Phase V</td>
<td>10 to 12 week</td>
<td>Post test</td>
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A) Group ‘X’ – is Experimental Group - 12 week Yogic Practices Training Schedule.
   Morning at 9.45A.M.

B) Group ‘C’ – Control Group - No Any practice/ Treatment
   Both Groups are given test after 3 weeks. “X” group was only given Yogic training programme and “C” group was not given any
treatment. Tests were conducted on the basis to measure the effect on the physical fitness factors & Volleyball Skills.

Test - 1) Flexibility test - 1) Sit and Rich Test
2) Bridge-up Test

Test - 2) Agility test - 1) Shuttle Run Test
2) SEMO Agility Test

Test – 3) Strength test - 1) Pull-ups Test
2) Standing Broad Jump Test

Test – 4) Volleyball Skills- 1) Service Test
2) Passing Test.

Training program was administered for 12 weeks and after every 3 weeks, tests were administered e.g. One pre test, three mid test and post test. Suryanamaskar - Practice of every stage in static manner 10 to 12 minutes

Yogic Practice for different days given in the table as per Individual capacity and as per the Guiding principles of Yogic Exercises. After the three weeks we conduct the test.

Before conducting the test the subject were explained the various Test items in which they are to participate Researcher got permission from principle C.K. Goyal, Jr. College and Tikaram Jagannath College Khadki (Pimpri Chinchwad) conduct this study for a period of 12 weeks from 7 Dec. 2012 to 16th March 2013. Morning 1 hour 40 minutes daily.
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✓ = The activity conducted on that day

Total 1hr40min
After each Training session including (Shavasana)

4 to 6 weeks Training Programme

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Total duration 1hr 40 Min.
## 7 to 9 Weeks Training Programme

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Total duration: 1hr 40 Min.

✓ = The activity conducted on that day.
### 10 to 12 Weeks Training Programme

**Morning 1hr 40 Min.**

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**Total duration** 1hr 40 min

✓ = The activity conducted on that day

1. After each training session including Shavasana.
2. 4 to 6 week training Programme
3. 7 to 9 week training Programme
4. 10 to 12 weeks training Programme.

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153 | P a g e
### 3.8 Scoring of the Test

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### 3.9 Facilities Utilized

**Equipment Ground Marking and score sheet, Yoga Hall-**

Based on the nature of variables and criterion measures stated above, the researcher collected the Following Equipment, uniform, after thoroughly checking their working condition and accuracy.

1) Volleyball ground - 02
2) Yoga Hall - 01
3) Electronic split time watches - 05
4) 50.M. Measuring Tape - 02
5) Whistles - 10
6) Pens - 10
7) White powder (kg) - 100kg
8) Volleyball and Net - 2 dozen
9) Cones - 06
10) Bar and Dori - 0
11) Sit and Reach Box - 01
3.10 Statistical Tools and Techniques Used.

Descriptive Analysis:

When generalization is restricted to a particular group of individuals, then a descriptive statistical analysis is performed. The conclusions drown are pertaining to this group only and cannot be strictly used to other groups. Simple action research takes place in descriptive analysis, and provides valuable information about nature of a particular group of individuals. Descriptive statistics helps assessment studies.

Main features of Descriptive Statistics:

1) Mean
2) Median
3) Standard deviation

Inferential Analysis:

When a small group is assumed to be related to the population, then the process of inferential analysis is used. Sample thus is termed as small group and population the large group. Inferential into consideration & draws the conclusions there upon about populations.

Individuals are chosen in such a way that the small group or sample approximates the larger group or population. A small margin of error is kept, then using appropriate statistical techniques, approximation is assumed thus making it possible to estimate population characteristics of the sample.

When the data are derived from a group and no sampling procedures done, the researcher makes it clear that findings then apply
only to the group observed and do not describe other individuals. Statistical theory of sampling is a complex procedure involving estimation of error of inferred measurements, this is the error which is used to estimate a relation of random sample & population.

**Repeated measure ANOVA use in Inferential Statistics**

Now we see how training program along with pretest, past test and three mid tests have affected

I. Physical fitness components

II. Volley ball skill components

III. Quasi experimental design

Data was analyzed by repeated measure ANOVA technique by using spss. Then Mauchlys sphericity test, test the Assumption of sphericity. Different tables are used like descriptive statistics (Overall, Group wise, factor wise and group & factor wise) Mauchly’s test of within-subject contrasts.

Test of between subject effects and pair wise comparisons. We place the data in such tables, then a factor wise line graph was also provided for estimating marginal means for experimental and control group for better understanding of interaction effect.

Then a conclusion is drawn upon by discussing the performance with proper reasoning.
References:


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5. Dr. V. Hubert Dhanaraj, (1991) "Modern Volleyball" Published by Sports Authority of India Netaji Subhash National Institute of Sports, Patiala (India) Pg No. 37 to 45, 63, 103, 104

6. Kaivalyadhama Ashram, Lonavala, Pune "Prayer and Mantrajapa" Pg 6 to 8, 30

7. Dr. R. Nagarathna, Dr. H. R. Nagendra (2008) "Yoga Breathing Practices, Asanas, Pranayama, Mudras, Bandhas, and Kriyas, Meditations" Published by - Vivekananda Yoga Research Foundation, Swami Vivekananda Yog Prakashana" Pg No. 33 to 37, 69, 78, 54, 58., 59, 63, 53, 64

Lonavla Yoga Institute (India) Lonavla. Pg. 80, 20, 26, 28, 30, 42, 56, 52, 44, 46, 48, 32, 98, 100,