

- CONTENTS -

1. History
2. Measurement of field and Court
3. Rules of the game.
4. Fundamental Skill.
5. Terminology
6. Important Tournament.
7. Equipment
8. Physical Fitness (AAPHER)
9. Senior Citizen Fitness Test For 5 elderly Family members.
10. Introduction of Yoga
11. Asanas, Benefits and Contraindication for each lifestyle disease.
12. Back Pain → Vakrasana, Shalabhasana
13. Obesity → Trikonasana, Ardhamatsyendrasana.
14. Diabetes → Bhujangasana, Paschimottanasana.
15. Hypertension → Tadasana, ArdhaChakrasana.
16. Asthma. → Chakrasana, Gomukhasana.

BASKETBALL

History

HISTORY

Basketball is a popular sport in many countries. It is as much fun to watch as it is to play. This fast-paced game requires the amalgamation of individual talent and skills into unselfish team play. It was invented by a Canadian named Dr James Naismith in Springfield, Massachusetts, USA. As a physical education teacher, he sought a rigorous indoor game that relied on skill rather than brute strength to keep his students occupied and fit during the long winters. The game was played for the first time in December 1891 at Springfield College.

Basketball has a very interesting origin. It used to be played in a gymnasium with 40 to 50 players in one team. A pair of peach baskets was nailed on the walls

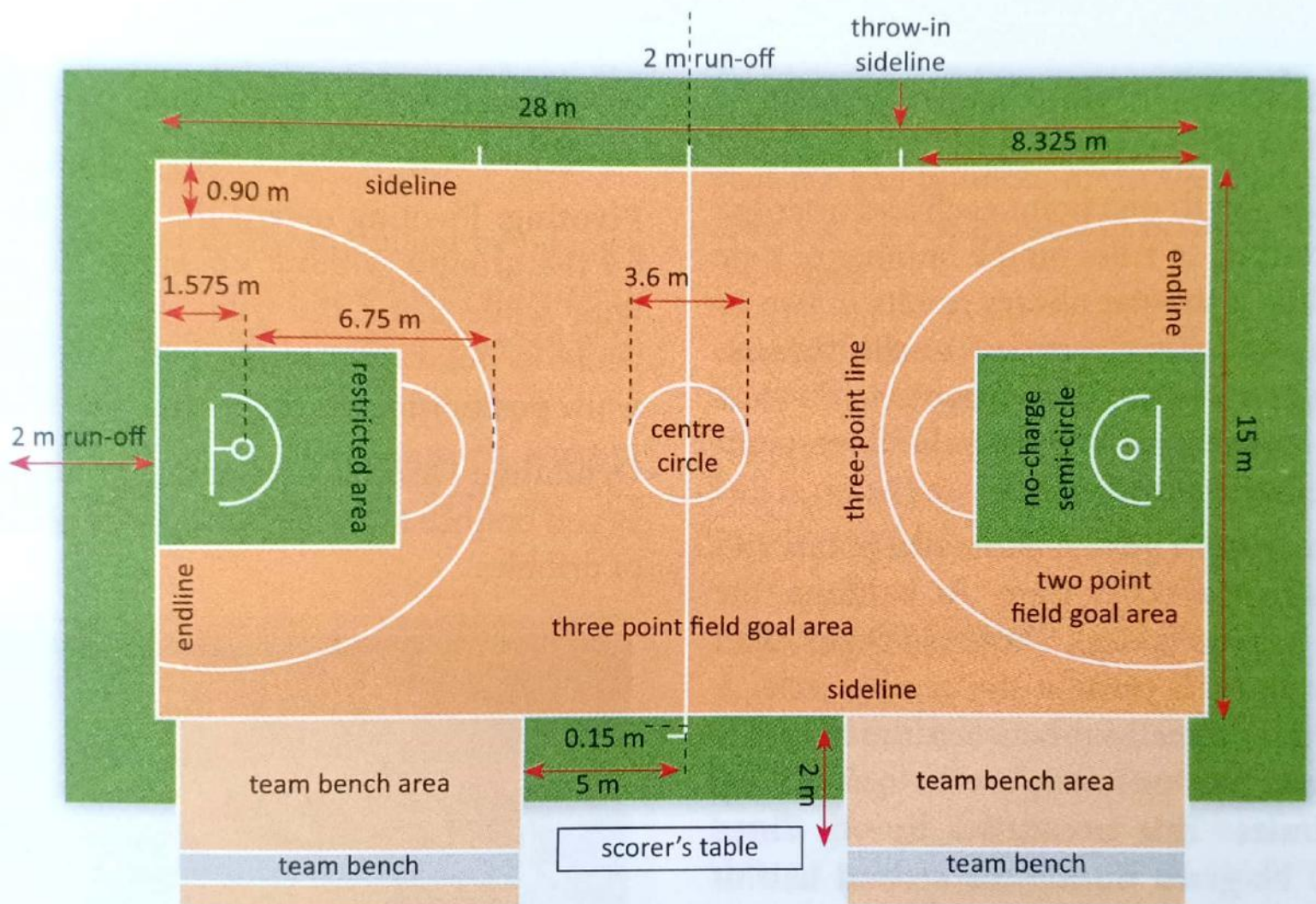
facing each other. In contrast with modern basketball nets, one had to climb up to get the ball out whenever a goal was scored. Dr Smith framed thirteen rules for the game, which dictated how the ball should be handled, where it should be thrown from, the types of fouls that would apply, etc.

From 1895 to 1900, a lot of amendments were made in the rules of the game. In 1906, the peach baskets were opened so that the ball would pass through the ring instead of hanging inside. Basketball was showcased as a demonstration sport at the 1904 St. Louis Summer Olympics. Men's basketball became a medal event at the 1936 Berlin Games, while women's basketball was added at the 1976 Montreal edition. The governing body of basketball, International Basketball Federation (FIBA), was constituted in 1932 in Geneva

by eight countries: Latvia, Switzerland, Czechoslovakia, Romania, Italy, Greece, Portugal and Argentina.

Basketball arrived in India in 1930. The Basketball Federation of India (BFI), which controls the game in the country, was formed in 1950.

BASKETBALL COURT LAYOUT



- ❖ Size of Basketball court = $28 \text{ m} \times 15 \text{ m}$
- ❖ Radius of the central circle = 1.80 m
- ❖ Breadth of boundary lines = 5 cm
- ❖ Thickness of the backboard = 3 cm
- ❖ Height of lower edge of board from floor = 2.90 m
- ❖ Circumference of the ball = 75 cm to 78 cm for men, and 72 cm to 74 cm for women. Leather balls are now used in Basketball competitions.
- ❖ Weight of ball = 600 g to 650 g for men, and 550 g to 590 g for women.
- ❖ Duration of Basketball game = Four durations of 10 minutes each
- ❖ Interval between two durations = $[10 - 2 - 10 - 10 - 10 - 2 - 10]$
- ❖ Number of teams = 2
- ❖ Number of court players in a team = 5
- ❖ Number of substitutes in a team = 7

- ❖ Total players = 12
- ❖ Officials = 5 [1 – Referee, 1 – Umpire, 1 – Scorer, 1 – Timekeeper, 1 – 24-second clock operator]
- ❖ These are according to FIBA regulations. Some aspects, like the court size, can be different for NBA and other country leagues.

RULES OF THE GAME

1. There are two teams of five players each in basketball. Each team tries to score by shooting a ball through a hoop that is kept 10 feet above the ground. Each team is assigned a basket or goal to defend. This means the other basket is their scoring basket. The team with the ball is called the offence while the team without the ball is called the defence. They try to steal the ball, prevent shots, hinder passes and garner rebounds.
2. The court is divided into two main sections by the mid-court line or central line. If the offensive team puts the ball into play behind the central line, it has ten seconds to get the ball over the central line. If it doesn't, then the defence gets the ball. Once the offensive team gets the ball over the central line, it can no longer have possession of the ball in the area at the back of the line. If it does, the defence is awarded the ball.
3. If a basket, or field goal, is made outside of the three-point arc, then that basket is worth three

points. The distance of the three-point line has been extended to 6.75 m from 6.25 m.

4. Free throws are worth one point each and awarded to a team according to rules on the number or type of fouls. Fouling a shooter always results in two or three free throws being awarded to the shooter, depending upon where the player was when she/he shot. If she/he was beyond the three-point line, then she/he gets three shots.
5. When a team scores a goal, it earns two points and the ball goes to the other team. At halftime, the teams switch baskets (sides). The game begins with one player from each team at the centre circle. A referee will toss the ball up between the two. The player who gets her/his hands on the ball will tip it to a teammate. This is called a tip-off. Three timeouts can be given during the second half of the game to each team, but in the first half only two timeouts are provided to each team.
6. The last 2 minutes' play before the end of the game should be played in real sense and not to pass the time.
7. A rectangular-shaped restricted area and no-charge semicircles have been introduced. The radius of the circle shall be 1.25 m from the point on the floor beneath the centre of the basket to the inner edge of the semicircle.

Terminologies

TERMINOLOGY

Held Ball: Held ball is used in two situations: (i) when players from opposing teams have their hands placed firmly on the basketball, neither is able to gain possession of the ball. The referee will intervene and toss the ball in the air, and (ii) when a player intentionally holds the ball and does not put it into play.

Jump Ball: To start or restart the game according to rules, the referee tosses the ball in the air between opposing players. This is known as jump start.

Multiple Foul: When more than one player of the same team commits a foul to a single player of the opponent team at approximately the same time, it is termed a multiple foul.

Personal Contact: It is an offensive foul that happens when a stationary player is impeded, pushed, charged or held by an opponent player. This can result in a change in possession of ball.

Set Shot: With knees crouched down in front of the basket, hands facing upward and elbows slightly bent, the wrist is flicked to make a shot. This type of shot is called a set shot. Since it is performed from a stationary position, it is usually executed when there are no opponents to block the shot.

Technical Foul: It refers to a violation of rules which qualifies as foul without involving any physical contact. It can be made by a player, team or coach for non-sportsman like behaviour or for infringement of the rules of the game.

Throw-in: Passing the ball from out of bounds to a teammate inside the ground is called a throw-in. A throw-in is required in several situations, for example, in a held ball, violation or foul.

AIR BALL -

A shot that misses the rim or backboard.

ASSIST - A pass to a teammate that results in a made basket.

BANK SHOT - A shot where the ball is first bounced or banked off the backboard at such an angle that it then drops into the basket.

BLIND PASS -

A pass from a ball handler who does not see their receiver but is estimating where they should be.

Blocking - The use of a defender's body position to legally prevent an opponent's advance. It is the opposite of charging.

Backboard - The flat surface directly behind the basket. The basket is connected to the backboard.

Charging - An offensive foul, which occurs when an offensive player runs into a defender who has established position.

- **Dunk :-**

A shot in which a jumping player slams the ball down into the opponent's basket from above.

- **Exhibition Game :-**

The act of playing another team and the outcome not being counted in any standings league.

- **Fake**

A movement made with the aim of deceiving an opponent. This can be done with either a pass or a shot fake.

- **Field Goal**

When the ball enters into basket from above the rim during play.
It is worth two points

- **Free Throw -**

The act of shooting the ball from the marked free throw line (ranging 10-15 feet) from the basket while the remaining players line up down the 'key'. shot is taken at the result of a foul or technical foul called.

- Give and Go -

An offensive play in which a player passes the ball to a teammate and cuts towards the basket for a return pass to score.

- Holding -

It is personal contact to opponent player that interfere the freedom of movement.

- Inside shooting

shots taken by a player near or under the basket.

- LOOSE Ball -

During jump ball is illegally tapped or officials place the ball for play at the disposal of free throw.

- LAY UP SHOOT -

A shoot executed by a player while moving two step with the ball and attempt a shoot.

Outside shooting -
shots taken from the perimeter, further away from the hoop.

PASS -

When a player throws the ball to a teammate to advance the ball during a possession.

Personal Foul

A foul committed by players with illegal body contact to the opponent's team player.

Cut In -

The fast movement of players towards the basket through two or more opponent to receive the ball.

DRIBBLING -

It is the jumping of a ball hard so that it bounces back by which the movement of ball takes place by the players

Fast Break

Ball is quickly passed to own teammate for scoring goal who is placed close to opponent. ring

Date [] [] [] []

It is moving the ball quickly down the court in order to score before defense can set up.

Extra - Time -

It is the addition in the playing time if score is equal during the one quarter. It is marked by raising red flag or try team foul indicator.

CHARGED Time out -

It is an interruption of game requested by coach. It lasts not more than 1 minute.

HELD BALL -

It occurs when two opponents have firmly gripped the ball and neither can gain possession without under roughness with new charges, throw-in is taken from nearest side or end line.

GOAL -

A credited basket scoring which raises score or points.

Referee -

The person(s) assigned to the game to maintain the flow and integrity of the game.

Substitute -

A player who comes into the game to replace a player on the court.

Throw - IN

The method by which a team with possession inbounds the ball

Three point--

The basket or goal securing which gives additional of three points in the score.

It should be thrown behind the three point line.

DOUBLE FOUL -

A situation in which opposing player commits contact foul against each other simultaneously.

DEAD BALL -

Ball land out of the bounds, the officials blows the whistle in case of violation of fouls etc. It's the temporarily stop the game.

MAN TO MAN MARKING -

It is the offensive skill where each player checks or guards or screens the opponent player.

Zone Defense -

It is the defence in own way, where player covers particular area for defense.

P-24 second Device -

It is the apparatus used to count twenty - four seconds which raises its alarm twenty - four seconds.

VIOLATION

An infringement of rules where opponent is awarded with throw in sidelines or end lines closest to infraction.

Penalty -

A foul committed by an offensive player while opponent is awarded with two or more attempts for scoring basket from free throw line. Number of free throws are judged by referee according to player's position rule which attempts to goal.

Jump Ball :-

Jump ball is a method used to begin or resume play in basketball. Two opposing team players attempt to gain control of the ball after an official tosses it into the air between them.

Fundamental Skills

PASSING -

Great passers can see the whole court and anticipate where a teammate will go and what a defender will do.

Mastering the basics is the place to start. Develop a two-hand chest pass, bounce pass and overhead pass so you can deliver the ball to your teammates in the best position for them to shoot or beat their defender.

Steve nash and or Derrick Rose can dazzle you with a behind-the-back- or a no-look pass. But those moves are not just for show, they provide a teammate the best chance to score.

DRIBBLING -

Dribbling is an important skill for all basketball players. This skill will allow you to move up and down the court, maneuver past defenders and execute plays. Proper dribbling requires ball-handling skills and knowledge of how to spread your fingers for ball control. It is also best if you know how to dribble equally well with both hands.

Low dribble.

High dribble.

Behind the back dribble.

Under the leg dribble.

SHOOTING

In order to score points in basketball, you need to shoot the ball into the hoop. This requires the ability to properly hold and throw the ball into the air toward the basket while avoiding defenders. A proper shot requires precise aiming, arm extension and lift from the legs.

There are different types of shots you need to learn, including

- * Jump shots
- * Hook shot
- * Lay-up shot
- * Dunk-shot
- * Tip in shot
- * Free throws
- * Set shot

RUNNING -

Running is a big part of sport as well as in basketball. In a full-court game, you will find yourself running back and forth as the game quickly

transitions between offense and defense. when you have the ball, running will help you to avoid defenders and get to the basket quicker.

On defense you often will find yourself needing to run after the opponent, especially during fast breaks.

JUMPING

Jumping is another skill that can define how good a basketball player is.

Jumping is involved in offense during the jump ball in the beginning, while taking shots and sometimes while trying to catch a pass. On defensive you will need the ability to jump when trying to block a shot or a pass. Being able to jump your opponent for a rebound is also important.

1

DEFENSE

Even the best scorers go into shooting slumps. But you can always play a good defense if you hustle and understand both individual and team defense.

When you are defending a player, keep your head lower than his. Stay close enough to the offensive player to bother him - but not so close he can blow by you with one step.

know your opponents tendencies so you can dedicate the direction you want him to move. Be aware of the others players on the court, so you can play help defense when a teammate loses his man.

- Zone Defense
- Man to Man Defense
- Match up defense
- Press defense

REBOUNDING

Although it helps to be tall and have jumping ability, rebounding is a matter of desire as well as ability.

Charles Barkley was relatively - small for a forward, but he was an outstanding rebounder. He had the ability to determine where an errant shot was likely to fall, the willingness to crash the boards relentlessly and the taller strength to block out taller opponents. Blocking out your opponent - also called boxing out - is one of the keys to good rebounding. To do it effectively maintain your concentration and focus.

TIME RULES

PLAYING TIME — The playing time period is of 40 min. duration which is extended into 4 quarters. The rest period in between I to II and III to IV quarters is 2 min. whereas, in half (II to III) is 5 min. to 10 min. i.e. 10-2; 10-5/10; 10-2; 10. The game clock starts when the ball reaches the highest point on a toss during a jump ball is tapped by the first player.

Page No. 15
Date / / 20

EXTRA TIME : In case of tie during normal time period of 40 min. the game is extended for 5 min. play.

'24' - SECONDS RULE : Whenever, team gains possession of ball, they are supposed to attempt the basket within 24 seconds.

'8' - SECONDS RULE : After the score or due to foul or any other reason if team gets the possession of ball they are supposed to move the ball in the front of the court within 8 seconds.

'5' - SECONDS RULE : A player cannot hold the ball without bounce for more than '5' seconds.

'3' - SECOND RULE : Any offensive player can not stay inside the opponents restricted area consecutively for more than 3 seconds apart from attempts, rebounds or tries for making basket.

CHARGED TIME OUT : Each team can ~~have~~ take one time-out maximum in I, II, III quarters and can take two time-out in

Teacher's Signature

IV quarter. The duration of timeout is 1 min. maximum. It is only granted when ball is not in play. Game is continued from side pass (as per possession before the time-out).

IMPORTANT TOURNAMENTS AND VENUES

Important Tournaments : Olympic Games, World Championship, NBA (League), Asian League, Federation Cup, National Games, All India Inter University Championship, CBSE National, Baba Farid Invitational Tournament, Om Parkash Memorial Tournament, Prithvi cup.

Important Venues :

Guru Nanak Stadium (Ludhiana)

Indira Gandhi Indoor Stadium, New Delhi

Tata Steel Sports Complex (Tata Nagar)

Indoor Stadium (Hyderabad)

Katoch Stadium (Jalandhar)

Tal Katora Stadium

Railway Sports Complex (Mumbai, Varanasi)

Sports Complex (Chandigarh) Nehru Sports Complex (Lucknow)

NIS Complex (Patiala, Bangalore)

SPORTS AWARDS

(a) Arjun Award Winners



Sarabjit Singh	1961	Khushi Ram	1967
Gurdial Singh	1968	Hav Hari Dutt	1969
Abbas Moontsir	1970	Pilot Man Mohan Singh	1971
Surender Kumar Kataria	1973	Anil Kumar Punj	1974
Hanuman Singh	1975	T. Vijaya Raghwan	1977-78
Om Parkash	1979-80	Ajmer Singh	1982
Radhey Shyam, Suman Sharma	1983	Sajjan Singh Cheema	2000
Parminder Singh	2002		

(b) Dhyan Chand Award Winners

Ms. Aparna Ghosh	2002	Mr. Ram Kumar	2003
------------------	------	---------------	------

Equipments

Match Equipments :

- (i) Two or three standard specified basketballs.
- (ii) One game clock for overall game duration of playing time, one stopwatch for small breaks in-between the playing time.
- (iii) One 24-second alarm device.
- (iv) Alarm or bell or whistles
- (v) Two team foul indicators, number markers and two free-throw flags.
- (vi) One to five number personal foul cards.
- (vii) Throw-in indicator (Jump-ball replacement)
- (viii) Score sheet
- (ix) Score board.

MOTOR FITNESS TEST AAPHER

Meaning of Motor Fitness

Motor fitness is a person's ability to perform physical activities. Motor fitness refers to the potential of an athlete to perform effectively at his/her sport.

AAPHER Motor Fitness Test

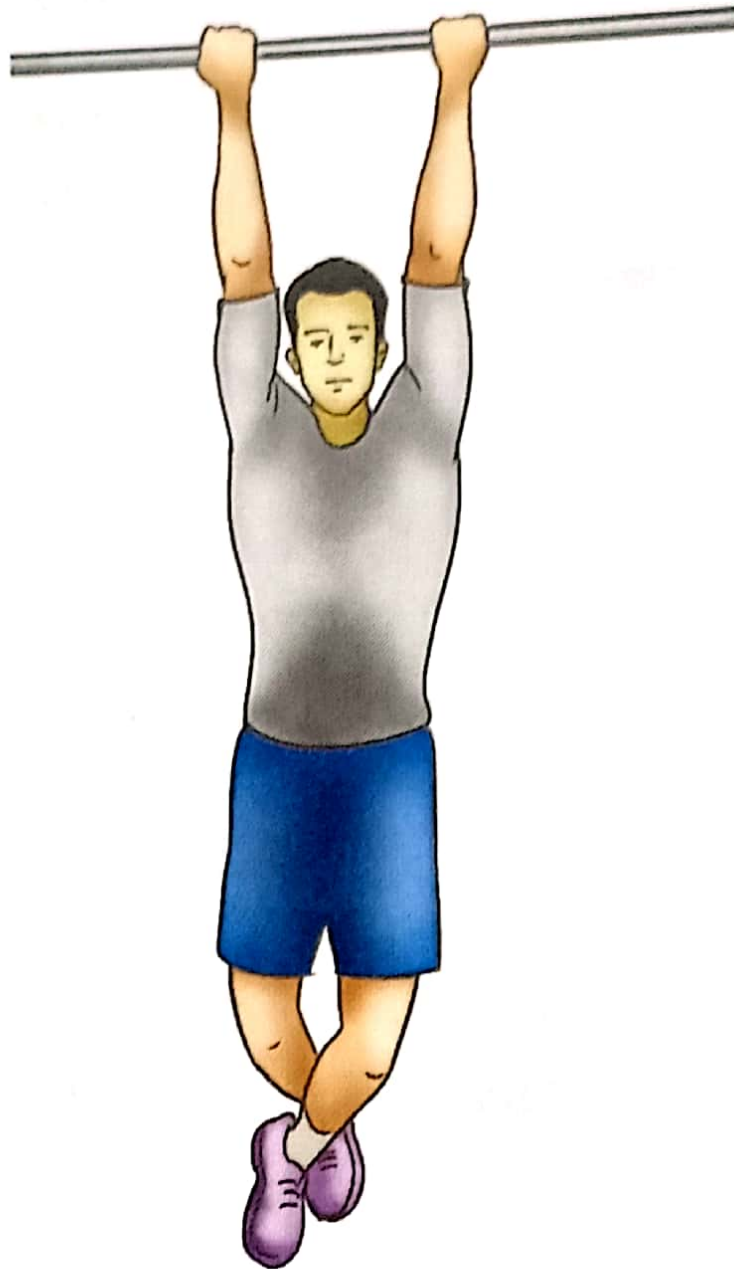
In the beginning, its name was AAPHER i.e. American Alliance for Health, Physical Education and Recreation but now it is known as AAPHERD i.e. American Alliance for Health, Physical Education, Recreation and Dance. It is one of the oldest professional organisations in the U.S.A. Its motor fitness in American school children for over 50 years. The first version of this test was published in 1958 and then revised in 1965 and after that many changes in the test battery were made in 1975 in AAPHERD Youth Fitness Test. In this test, the following items were included :

In 1976, the final test manual was prepared. The following items were finalized in this test battery :

1. Pull-ups (For boys) and Flexed-arm Hang (For Girls)
2. Flexed-leg sit-ups
3. Shuttle Run
4. Standing long jump
5. 50-yard dash
6. 600-yard run-walk.

MODIFIED AAHPER ADMINISTRATION

PULL-UPS FOR BOYS



Purpose: To measure arms and shoulder strength.

Equipment: A metal or wooden bar approximately 1½ inches in diameter and a stopwatch.

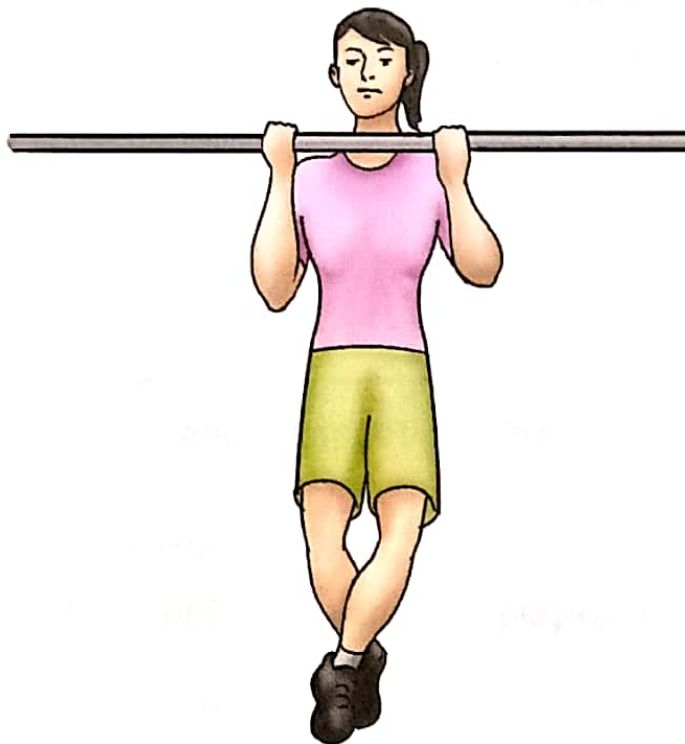
Procedure: The height of the bar is adjusted according to the height of the student. The student holds the bar

with his palms facing away from him and raises his body so that the chin reaches above the level of the bar. This test measures the total number of repetitions without taking rest by noting the number of pull-ups done. One score is awarded for every pull-up.

Rules: The student should not swing his body. The pull should not be a snap movement. In case this happens, the guide should extend his arms across the front of the student's thighs.

Scoring: The number of completed pull-ups is recorded to the nearest whole number.

FLEXED ARM HANG FOR GIRLS



Flexed arm hang for girls

Purpose: To measure arms and shoulder strength.

Equipment: A metal or wooden bar approximately 1½ inches in diameter and a stopwatch.

Procedure: The height of the horizontal bar is adjusted approximately equal to the standing height of the

Scoring: The score is counted as the maximum number of sit-ups done in 1 minute.

SHUTTLE RUN



→ Shuttle run

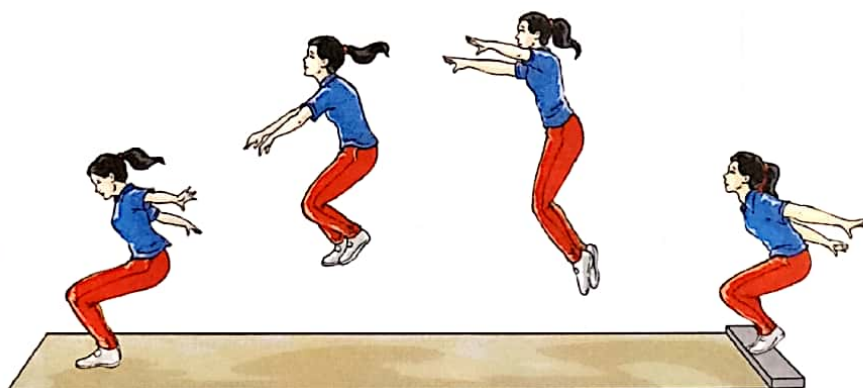
Purpose: To measure speed and agility.

Equipment: Two blocks of wood ($2 \times 2 \times 4$ inches) and a stopwatch.

Procedure: Two parallel lines are marked on the ground 30 feet apart, and two blocks of wood $2 \times 2 \times 4$ inches are placed behind one of the lines. The student stands behind the other line. On start, the student runs towards the wooden blocks, picks one of them and runs back to the starting line, places it behind the starting line. They then run back and pick up the second block and carry it to the starting line. Two trials are allowed.

Scoring: The time taken in both trials are noted down and the best one is taken as final score.

STANDING LONG JUMP



→ Standing long jump

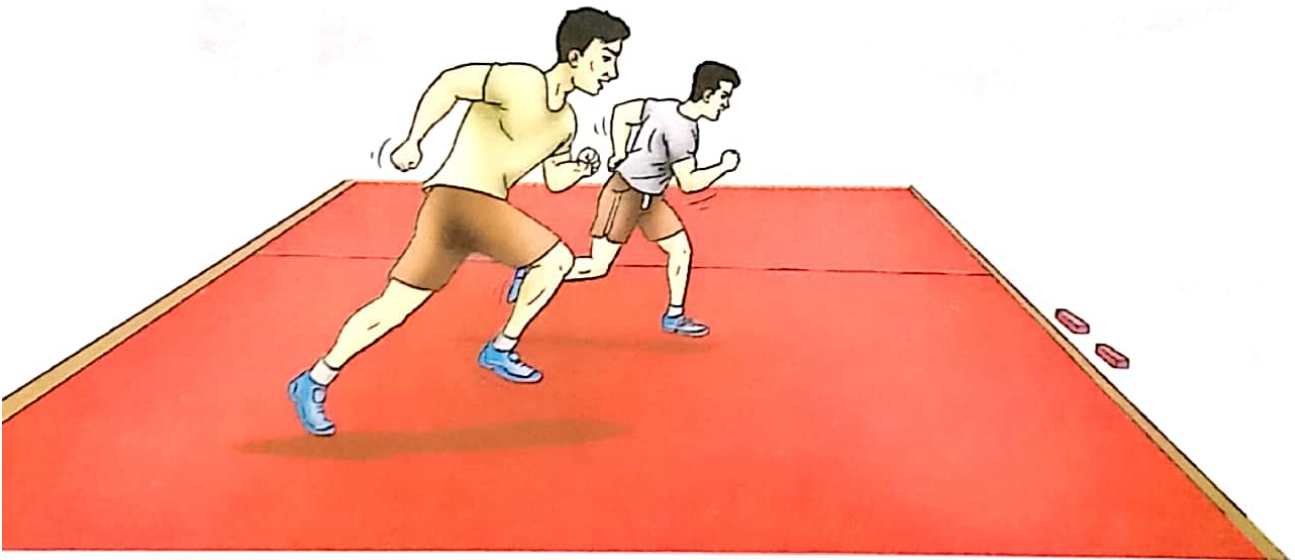
Purpose: To measure power.

Equipment: A mat or clean floor and a measuring tape.

Procedure: A take-off line is marked on the ground and the student stands behind this line with both feet apart. The student then swings the arms and bends the knees, and then jumps into the long jump pit. The distance from the take-off line to the heel or other part of body that touches the ground nearest to the take-off line is measured and noted in feet and inches. Three trials are given.

Scoring: The best score of the three is recorded as the final score.

50-YARD DASH



- 50-yard dash

Purpose: To measure speed.

Equipment: Stopwatch

Procedure: The students are asked to run 50 yards.

Scoring: The time taken is recorded as the score in seconds to the nearest tenth of a second. The time

taken is the amount of time between the starter's signal and the instant the student crosses the finish line.

600-YARD RUN



- 600-yard run/walk

Purpose: To measure endurance.

Equipment: Stopwatch.

Procedure: The students are asked to run or walk for a distance of 600 yards from a starting line.

Scoring: The time taken is recorded in minutes and seconds.

*Senior
Citizen
Fitness Test*

Even in old age, people want to be fit and be able to continue to do their work without pain as long as possible. It requires proper fitness regime during old age. In the beginning, there were not enough tests to assess functional fitness. This test is also known as **Fullerton Functional Test** of senior citizens. **Rikli and Jones** developed the Senior Citizen Fitness Test in 2001. This test has proved to be beneficial for senior citizens. It helps the early identification of at-risk participants. Along with this, it is significant to plan safe and effective physical exercise programmes for senior citizens because individual's health and fitness level can be known better with the help of this test. The Senior Citizen Fitness Test includes the following test items.

A. Chair Stand Test

Purpose. The main purpose of this test is to measure the lower body strength, particularly the strength of legs which is usually required for various tasks such as climbing stairs, getting in and out of vehicles, bath tub or chair.

Equipment Required. A chair with a straight back and a seat of at least 44 cm and a stopwatch.

Instructions for Participants

1. The participant should sit in the middle of the chair.
2. He should keep his hands on the opposite shoulder crossed at the wrists.
3. The feet should be flat on the floor.



Chair stand test

4. His back should be erect.

5. Repeat standing up and sitting down for 30 seconds.

Administration of Test: Keep the chair against the wall. The participant sits in the middle of the seat. His feet should be shoulder width apart and flat on the floor. The arms should be crossed at the wrists and held close to the chest. From the sitting position, the participant should stand up completely and then sit down completely at the start of the signal. This is repeated for 30 seconds. Count the total number of complete chair stands. In case the participant has completed a full stand from the sitting position when the time is finished the final stand is counted in the total.

Scoring. The score is the total number of completed chair stands during the given 30 seconds. The following table shows the recommended ranges for this test for different age groups.

Recommended Ranges for Chair Stand Test

Norms for Men			
Age	Below Average	Average	Above Average
60-64	<14	14 to 19	>19
65-69	<12	12 to 18	>18
70-74	<12	12 to 17	>17
75-79	<11	11 to 17	>17
80-84	<10	10 to 15	>15
85-89	<8	8 to 14	>14
90-94	<7	7 to 12	>12

Norms for Women			
Age	Below Average	Average	Above Average
60-64	<12	12 to 17	>17
65-69	<11	11 to 16	>16
70-74	<10	10 to 15	>15
75-79	<10	10 to 15	>15
80-84	<9	9 to 14	>14
85-89	<8	8 to 13	>13
90-94	<4	4 to 11	>11

B. Arm Curl Test

The arm curl test is a test to measure the upper body strength. It is a part of the senior citizen fitness test. It is designed to test the functional fitness of aged people.

Purpose: The main purpose of this test is to assess the upper body strength and endurance which is required for performing household and other activities involving lifting and carrying things.

Equipment Required: A 5-pound weight for women and a 8-pound weight for men, a chair without arms and a stopwatch.

Procedure: The aim of the test is to find out the maximum number of arm curls that one can complete in 30 seconds. Arm curl is performed with the dominant arm side. The participant sits on the chair, holds the weight in the hand using a suitcase grip. It means the palms should be facing towards the body. The arm should be in



a vertically downward position. The upper arm should not move but lower arm should move freely. Curl the arm up through a complete range of motion gradually keeping the palm up. When the arm is lowered through the complete range of motion, gradually return to the starting position. The arm should be completely bent and then completely straightened at the elbow. This complete action should be repeated by the participant as many as times as possible within 30 seconds.

Scoring. The score is the total number of arm curls performed within the given 30 seconds duration. The following table shows the recommended ranges for the test for different age groups.

Recommended Ranges for Arm Curl Test

Norms for Men			
Age	Below Average	Average	Above Average
60-64	<16	16 to 22	>22
65-69	<15	15 to 21	>21
70-74	<14	14 to 21	>21
75-79	<13	13 to 19	>19
80-84	<13	13 to 19	>19
85-89	<11	11 to 17	>17
90-94	<10	10 to 14	>14

Norms for Women			
Age	Below Average	Average	Above Average
60-64	<13	13 to 19	>19
65-69	<12	12 to 18	>18
70-74	<12	12 to 17	>17
75-79	<11	11 to 17	>17
80-84	<10	10 to 16	>16
85-89	<10	10 to 15	>15
90-94	<8	8 to 13	>13

C. Chair Sit-and-Reach Test

Purpose: To assess the lower body flexibility, which is important for good posture, normal gait patterns and various mobility tasks such as getting in and out of bath tub or car.

Equipment required: Ruler, a chair with straight back approximately 44 cm high.

Procedure: The participant sits on the edge of the chair (kept against a wall for safety purpose). One foot should remain flat on the floor while the other leg should be extended forward with the knee in straight position.

Heel should be on the floor and ankle should be bent at 90°. Place one hand on the top of the other with tips of the middle fingers at the same level. Instruct the participant to inhale and then as he exhales, reach forward towards the toes by bending at the hip. His back should be straight and head up. Avoid any jerk or bounce and never stretch too much. Keep the knee straight and hold the reach for 2 seconds. The distance is measured between the



Chair sit-and-reach test

tip of the finger tips and the toes. If the finger tips touch the toes then the score is zero. If they do not touch, measure the distance between the fingers and the toes (negative score). If they overlap, measure the distance (positive score).

Scoring. The score is noted down to the nearest 1/2 inch or 1 cm as the distance reached either a negative or positive score. The following table shows the recommended norms in inches for this test for the different age groups.

Recommended Ranges for Sit-and-Reach

Norms for Men (in inches)				Norms for Women (in inches)			
Age	Below Average	Average	Above Average	Age	Below Average	Average	Above Average
60-64	<-2.5	- 2.5 to 4.0	>4.0	60-64	<- 0.5	- 0.5 to 5.0	>5.0
65-69	<-3.0	- 3.0 to 3.0	>3.0	65-69	<- 0.5	- 0.5 to 4.5	>4.5
70-74	<-3.5	- 3.5 to 2.5	>2.5	70-74	<- 1.0	- 1.0 to 4.0	>4.0
75-79	<-4.0	- 4.0 to 2.0	>2.0	75-79	<- 1.5	- 1.5 to 3.5	>3.5
80-84	<-5.5	- 5.5 to 1.5	>1.5	80-84	<- 2.0	- 2.0 to 3.0	>3.0
85-89	<-5.5	- 5.5 to 0.5	>0.5	85-89	<- 2.5	- 2.5 to 2.5	>2.5
90-94	<-6.5	- 6.5 to 0.5	>- 0.5	90-94	<- 4.5	- 4.5 to 1.0	>1.0

D. Back Scratch Test

Purpose: This test helps to assess the upper body (shoulder) flexibility, which is essential for a person to perform various jobs such as combing hair, putting on overhead garments, reaching for a seat belt, etc.

Equipment Required: A ruler.

Procedure: This test is performed in a standing position. Keep one hand behind the head and lower it down gradually over the shoulder and reach as far as possible at the middle of your back. Your palm should touch your body and the fingers should be downwards. Then carry your other arm behind your back with palm facing outward and fingers facing upward and try to reach up as far as possible in order to touch or overlap the middle finger of the other hand.

Fingers should be aligned. Measure the distance between the tips of the fingers. If the finger tips touch then the score is zero. If they do not touch measure the distance between the fingertips (negative score). If they overlap measure the distance (positive score). Let the participant practise twice and then two trials be conducted.



Back scratch test

Scoring. Record the best score out of the two trials to the nearest centimetre or 1/2 inch. The following table shows the recommended norms (in inches) for this test for different age groups.

Recommended Ranges for Back Scratch Test

Norms for Men (in inches)				Norms for Women (in inches)			
Age	Below Average	Average	Above Average	Age	Below Average	Average	Above Average
60-64	>6.5	6.5 to 0	<0	60-64	>3.0	3.0 to 1.5	<1.5
65-69	>7.5	7.5 to -1.0	<-1.0	65-69	>3.5	3.5 to 1.5	<1.5
70-74	>8.0	8.0 to -1.0	<-1.0	70-74	>4.0	4.0 to 1.0	<1.0
75-79	>9.0	9.0 to -2.0	<-2.0	75-79	>5.0	5.0 to 0.5	<0.5
80-84	>9.5	9.5 to -2.0	<-2.0	80-84	>5.5	5.5 to 0	<0
85-89	>10.0	10.0 to -3.0	<-3.0	85-89	>7.0	7.0 to -1.0	<-1.0
90-94	>10.5	10.5 to -4.0	<-4.0	90-94	>8.0	8.0 to -1.0	<-1.0

E. Eight Foot Up and Go Test

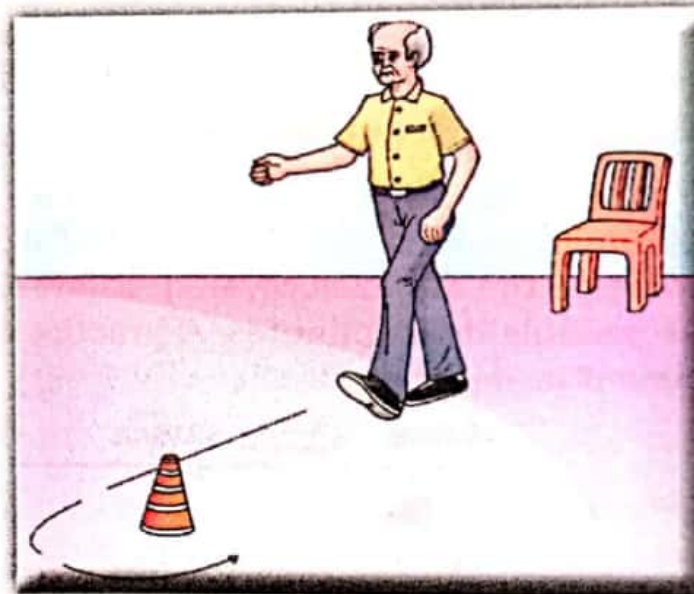
This test is conducted to assess coordination and agility in aged people.

Purpose: This test helps to evaluate speed, agility and balance of a person while moving. These are important factors in performing jobs which require quick manoeuvring, such as getting off a bus in time, to answer the phone, etc.

Equipment Required. A chair with straight back (about 44 cm high), a stopwatch, cone marker, measuring tape and an area without any hindrances.

Procedure: Keep a chair next to the wall and place the cone marker 8 feet away in front of the chair. The participant is initially completely seated, hands resting on the knees and feet flat on the ground. On the command 'Go', stopwatch is switched and the participant stands and walks (no running at all) as quickly as possible towards the cone, turns around and returns to the chair to sit down. Time is noted as he sits down on the chair. Two trials are given per participant.

Scoring. The best trial is recorded to the nearest 1/10th second. The table shows the recommended norms or ranges in seconds for this test for different age groups.



Eight foot up and go test

Recommended Ranges for Eight Foot Up and Go Test

Norms for Male (in Seconds)			
Age	Below Average	Average	Above Average
60-64	>5.6	5.6 to 3.8	<3.8
65-69	>5.7	5.7 to 4.3	<4.3
70-74	>6.0	6.0 to 4.2	<4.2
75-79	>7.2	7.2 to 4.6	<4.6
80-84	>7.6	7.6 to 5.2	<5.2
85-89	>8.9	8.9 to 5.3	<5.3
90-94	>10.0	10.0 to 6.2	<6.2

Norms for Female (in Seconds)			
Age	Below Average	Average	Above Average
60-64	>6.0	6.0 to 4.4	<4.4
65-69	>6.4	6.4 to 4.8	<4.8
70-74	>7.1	7.1 to 4.9	<4.9
75-79	>7.4	7.4 to 5.2	<5.2
80-84	>8.7	8.7 to 5.7	<5.7
85-89	>9.6	9.6 to 6.2	<6.2
90-94	>11.5	11.5 to 7.3	<7.3

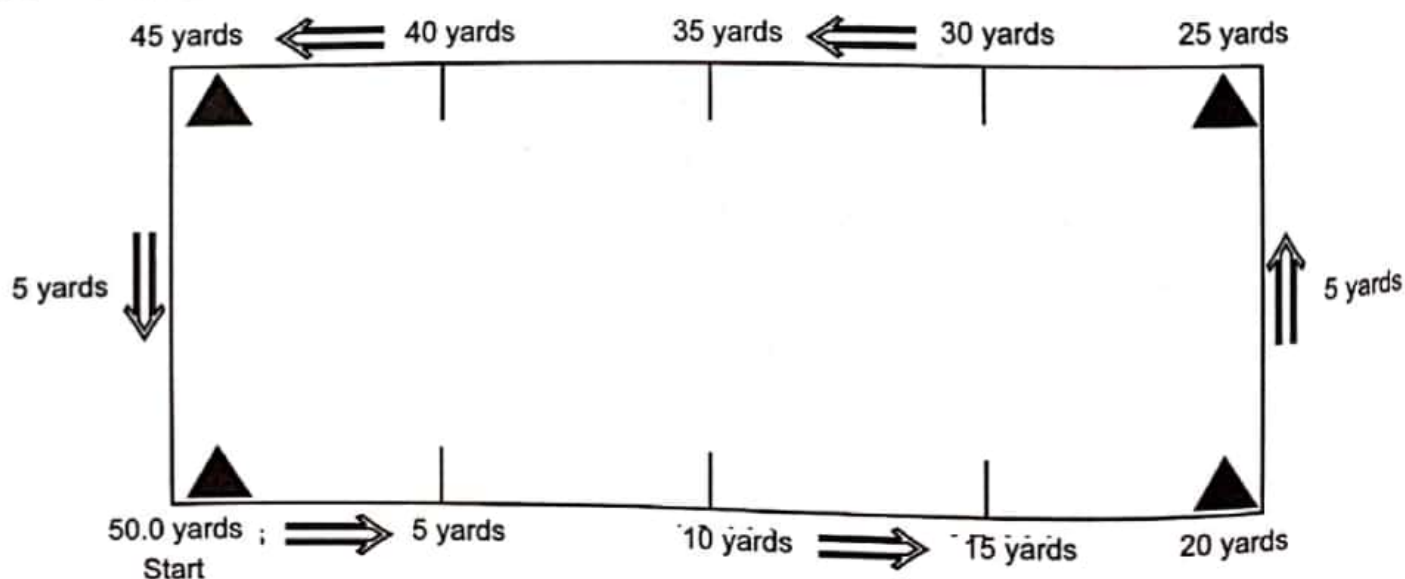
F. Six-minute Walk Test

The six-minute walk test is designed to test the functional fitness of senior citizens.

Purpose. This test helps to assess the aerobic fitness or aerobic endurance of a person which is an essential component for walking distances, stair climbing, shopping, sightseeing, etc.

Equipment Required. A measuring tape, a stopwatch.

Procedure: The walking distance or course is marked i.e., 45.72 m or 50 yards in a rectangular area (20 × 5 yards) of 5 yards with cones placed at regular intervals to indicate the distance covered. Efforts are made to walk maximum distance as quickly as possible in six minutes. A practice trial is given to the participant. He may stop any time if he desires so.



Six-minute Walk Test

Scoring. The total distance covered in six minutes is recorded to the nearest metre.

Recommended Ranges for Six-Minute Walk Test

Norms for Male (in yards)				Norms for Female (in yards)			
Age	Below Average	Average	Above Average	Age	Below Average	Average	Above Average
60-64	<610	610 to 735	>735	60-64	<545	545 to 660	>660
65-69	<560	560 to 700	>700	65-69	<500	500 to 635	>635
70-74	<545	545 to 680	>680	70-74	<480	480 to 615	>615
75-79	<470	470 to 640	>640	75-79	<430	430 to 585	>585
80-84	<445	445 to 605	>605	80-84	<385	385 to 540	>540
85-89	<380	380 to 570	>570	85-89	<340	340 to 510	>510
90-94	<305	305 to 500	>500	90-94	<275	275 to 440	>440



Yoga—part of Indian culture

Tulsidas and **Surdas** had mentioned about yoga in their writings. Yoga is the main part of Indian culture.

The history of yoga is indeed very old. Nothing can be said firmly about the origin of yoga. Only it can be alluded that yoga was originated in India. The available evidences show that history of yoga is related to the Indus Valley Civilisation. At that time, people used to do yoga. Usually, we depend on secondary sources to know about the history of yoga. On the basis of various sculptures and scriptures, we reach the conclusion that yoga was a part of this civilisation. Yoga is also mentioned in Mahabharata, Ramayana and Upanishads. **Patanjali** also wrote about yoga in 147 BC. During this period, yoga had been developed significantly. Even **Kabir**,

ASANAS FOR LIFESTYLE DISEASES

ASANAS FOR DIABETES

Diabetes Mellitus, or diabetes, is a disease that causes sugar to build-up in our blood. Our body uses a hormone called insulin to control the level of sugar in our blood. When the body fails to produce sufficient amount of insulin or when insulin does not work properly, diabetes occurs. This disease, also known as 'blood sugar', is characterised by hyperglycaemia (high blood sugar level), glucosuria (glucose in the urine), polydipsia (excessive thirst) and polyphagia (excessive appetite). Tiredness, blurred vision, poor immunity, slow recovery from wounds, excessive weight gain or loss are other common symptoms.

There are three main types of diabetes:

1. **Type 1 (insulin dependent):** The pancreas gland does not produce insulin.
2. **Type 2 (insulin independent):** An inherited variety that normally appears after the age of 40 years in which cells fail to respond to insulin properly. The primary cause is excessive weight and lack of physical activity.
3. **Type 3 (gestational diabetes):** It occurs when pregnant women without a history in diabetes suddenly develop a high blood sugar level.

Bhujangasana

Bhujangasana ('*bhujang*' meaning 'cobra'), also known as cobra pose is a back bending pose which forms the eighth pose of the twelve poses of *Surya Namaskar*. It should be practised on an empty stomach; you should have taken your meals at least four to six hours before practising this pose. The best timing for performing this asana is early morning.

Procedure

1. First, you must lie flat on your stomach with forehead touching the floor. Place your hands on the side of your thighs.

2. Move your hands to the front, keeping them at the shoulder level, and place your palms on the floor.
3. Balancing your body's weight on the palms, breathe in and slowly raise your head and trunk. Your arms should be bent at your elbows at this stage.
4. Work towards arching your neck backward. This is done to assume the pose of a cobra with a raised hood. It is important that your shoulder blades remain firm and that your shoulders are away from your ears.
5. Press your hips, thighs and feet to the floor.
6. Hold the position for 15–30 seconds while breathing normally.
7. To undo the pose, slowly bring your hands back to the sides. Rest your head on the ground by bringing your forehead in contact with the floor. Place your hands under your head. Then, slowly rest your head on one side and breathe.

Benefits

- ❖ It puts the abdominal muscles and shoulders to work, increasing the circulation of the blood and oxygen in those regions, which in turn raises the body temperature and boosts the body's metabolism to levels that are beneficial at controlling diabetes.
- ❖ It fights acidity, indigestion and constipation, and helps the practitioner lose weight.
- ❖ It enhances the function of the liver, kidney, pancreas and gall bladder.
- ❖ It strengthens the arms and shoulders.

Contraindications

1. Those with severe back problems, neck problems, hernia and carpal tunnel syndrome and pregnant women should avoid this *yoga* pose.
2. Those suffering from stomach disorders like ulcers and intestinal tuberculosis should perform this under the guidance of a trained expert.



Figure 12.5
Bhujangasana



Figure 12.6 Paschimottanasana

Paschimottanasana

Paschimottanasana ('*paschim*' meaning 'west', or backside of the body, and '*uttana*' meaning 'stretch'), also known as seated forward bend pose is a sitting pose used for stretching the spine. It is particularly beneficial for diabetic people.

Procedure

1. The first step is to lie down on your back on a mat. Your legs should be straight.
2. Stretch your hands upward, keeping your fingers straight. Inhale deeply.
3. With your arms still stretched, slowly raise your body and sit. Your spine should be erect and toes flexed towards you. Breathe normally.
4. Slowly raise both the arms straight above your head and stretch your back. This should be done while inhaling.
5. With slow exhalation, bend forward from the hip joint. Move your chin towards the toes keeping the spine erect.
6. Place your hands on your legs without over-exerting them.
7. If you can hold your toes, pull on them to help you go forward. If not do not put undue pressure trying to achieve this step. The trick is to start with what you are comfortable with.
8. Stay in this position as long as possible. Then breathe in and rise, stretching your arms above your head.
9. Exhale and bring your arms down, placing the palms on the ground.

Benefits

- ❖ While practising paschimottanasana, the intestine and gall bladder are smoothly pressed and stimulated, enhancing their functions.
- ❖ It massages and tones the abdominal and pelvic organs and improves blood circulation.

- ❖ It also reduces belly fat and brings relief from constipation.

Contraindications

1. Pregnant women and those who have had stomach operation should avoid this asana.
2. In case of a damaged and enlarged liver and/or spleen, or if you have a herniated disc or acute appendicitis, it is advisable not to practise this asana.

take it up only under the guidance of a trained expert.

2. The same caution applies to patients of hernia, intestinal ulcers and other diseases of the small and large intestines.
3. It might cause severe stiffness in the feet, ankles and knees.
4. Beginners should take care not to overexert themselves to avoid straining the joints and breath.

ASANAS FOR BACK PAIN

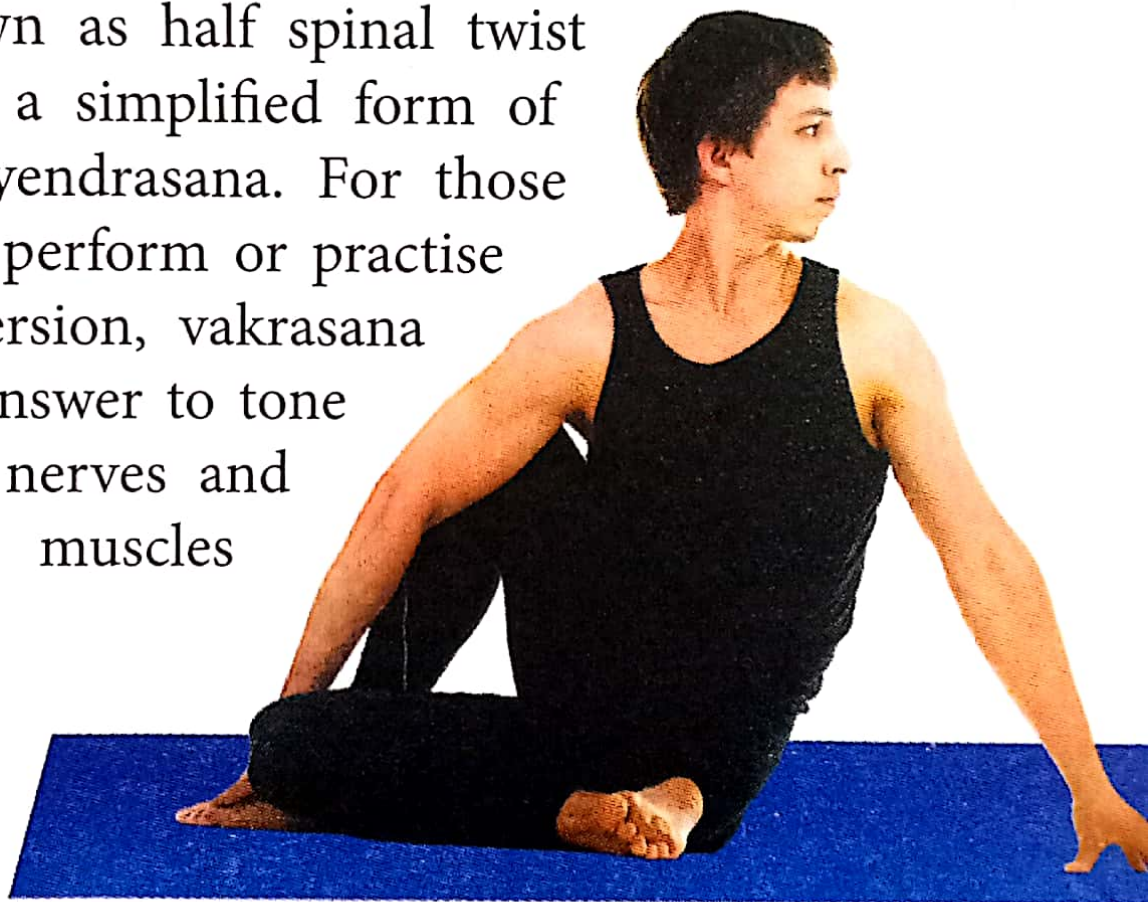
Back pain is pain felt in the back and may be neck pain (cervical), middle back pain (thoracic), lower back pain (lumbar), or coccydynia (tailbone). It may differ in intensity or duration. Sometimes, it may extend to the hands and feet.

The common causes of back pain are incorrect body posture resulting from poor build of the body or slouching due to use of electronic gadgets, accidents, excessive weight, muscle strains and/or spasms, sports injuries, lack of exercise, etc.

Vakrasana

Vakrasana (*'vakra'* meaning 'twisted') is also known as half spinal twist pose and is a simplified form of Ardha Matsyendrasana. For those who cannot perform or practise the fuller version, vakrasana can be the answer to tone their spinal nerves and abdominal muscles and organs.

Figure 12.15
Vakrasana



Procedure

1. Sit down and stretch out your legs. Rest your hands beside your thighs or buttocks.
2. Keep your right leg straight and stretched.
3. Place your left foot beside the right knee as you keep your left knee raised upward.
4. Inhale and straighten your elbows by raising the shoulder. As you exhale, twist your body to the left by placing the right arm by the outer side of the left knee and with your right hand, hold on to the left ankle. Then place the left hand behind the back by resting the palm on the floor.
5. Turn your head backward from the left side. The final position of each stage should be held while breathing naturally. Hold the position as long as it is comfortable.
6. Next, inhale and straighten the elbow of your right arm by raising your shoulder. As you exhale, release your body that is twisted towards the left by placing your right hand by the side of the right buttock and left hand by the side of the left buttock.
7. Relax as you take a deep breath. Repeat the same steps on the other side.

Benefits

- ❖ It helps to reduce abdominal fat, which can cause back pain. It also improves the function of the spine.
- ❖ It massages the abdominal organs and enhances digestion by regulating the secretion of digestive juices.
- ❖ Among other things, it strengthens the kidneys and prevents enlargement of the liver and spleen.

Contraindications

This asana should not be performed by individuals who have ulcer and liver problems.

Shalabhasana

- *Shalabhasana* ('shalabh' meaning 'locust'), also known as locust pose because the body looks like a locust or a grasshopper, is simple to do and suitable for everybody. This asana is especially beneficial for the spine.

Procedure

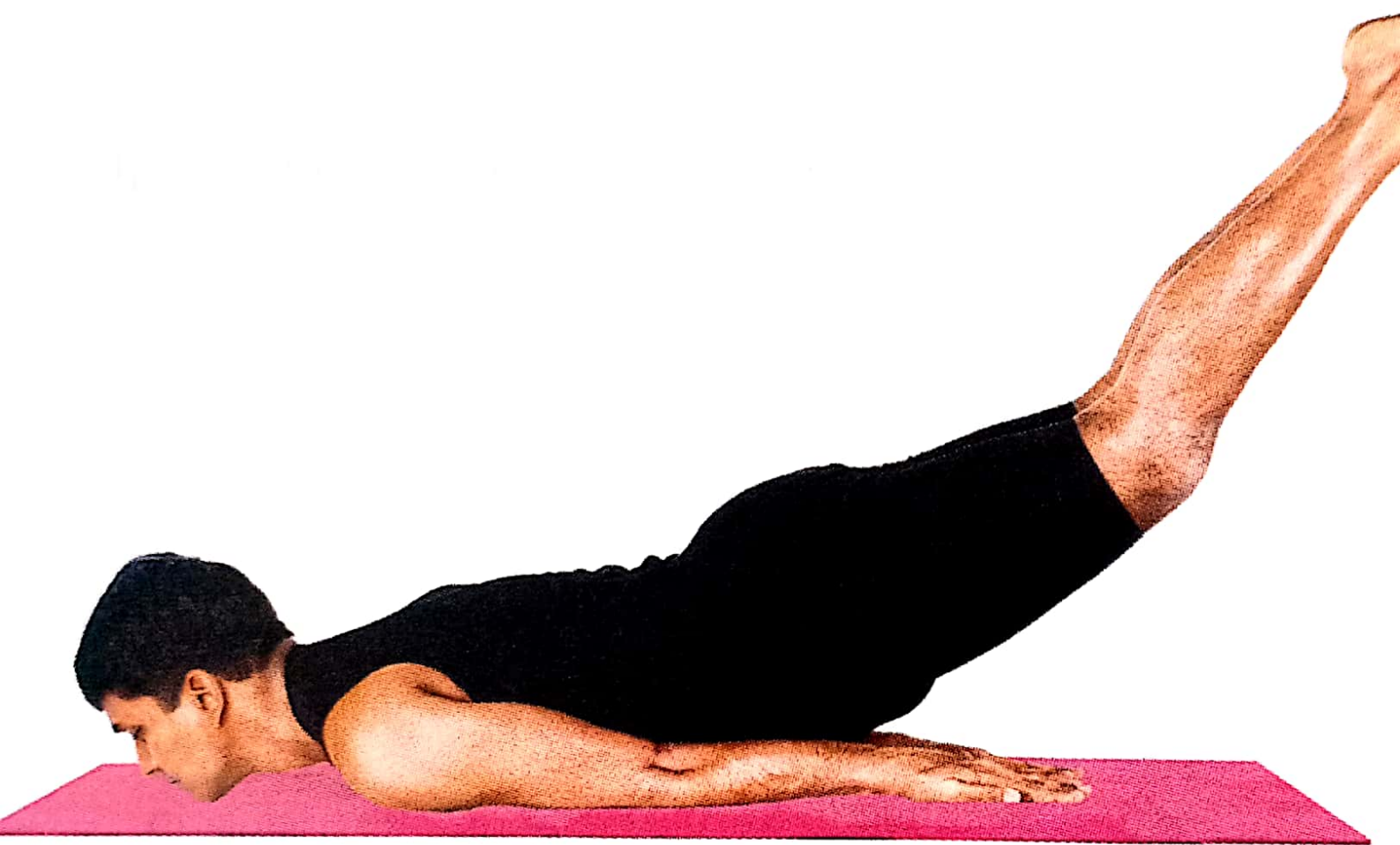
1. Lie down on your stomach and place both hands underneath the thighs.
2. Inhale and lift up your outstretched right leg. Rest your chin on the ground.
3. Maintain this position for 10 to 20 seconds. Then exhale and bring back your leg to its initial position.
4. Follow the same steps with your left leg and repeat the cycle 5 to 7 times.
5. Inhale and lift up both your legs without bending the knees. Repeat the same process for both your legs 2 to 4 times.

Benefits

- ❖ It is beneficial for the disorders of the lower end of the spine, especially backache and sciatica.
- ❖ It helps in reducing extra fat around the abdomen, waist, hips and thighs.
- ❖ It has the ability to cure cervical spondylitis and spinal cord ailments if practised daily.
- ❖ It strengthens the muscles at the back.

Contraindications

1. Do not practise this asana if you have injured or weak knees.
2. Also, avoid this pose if you have an injured ankle.



ASANAS FOR HYPERTENSION

An increase in blood pressure beyond normal level is called hypertension. The main function of the heart is to supply purified blood to various parts of the body through the arteries. When the heart contracts, it pushes the blood through the blood vessels and consequently the blood pressure increases in the arteries. This pressure is called systolic blood pressure. When the heart muscle is relaxed between beats, it is said to be in diastolic mode. The systolic and diastolic pressure represent the maximum and minimum pressure respectively. Normal blood pressure at rest should be within the range of 100–140 mm/Hg systolic (which is the top reading), and 60–90 mm/Hg diastolic (bottom reading).

Hypertension may lead to strokes, aneurysms, arterial diseases and even chronic kidney diseases. It is a major cause of death throughout the world.

Causes of Hypertension

- ❖ Genetic causes
- ❖ Obesity
- ❖ Unhealthy lifestyle
- ❖ Lack of exercise

Tadasana

The prefix '*tada*' means 'palm', so this asana is also referred to as palm tree pose. Alternatively, it is also called the mountain pose. It is a simple preparatory asana which can be used to warm-up before taking on complicated poses. Though it can be performed at any time of the day, it is recommended that you do it 4–6 hours after taking your meals.

Procedure

1. Stand erect with your feet together and your arms at the sides. Breathe steadily.
2. Distribute your body weight evenly on the feet. Then lift and spread your toes and the balls of your feet. Lay them gently on the ground.
3. Make your thigh muscles firm and lift your knee caps. This should be done with the relaxation of the abdominal muscles.
4. Lift your inner ankles to strengthen the inner arches.
5. Turn your upper thighs slightly inward.
6. Elongate your tailbone towards the floor and lift your pubis towards your navel.
7. Now breathe in and stretch your shoulders, arms and chest upwards. Raise your heels. Your weight should be balanced on the toes.
8. Feel the stretch in your body right from your feet to your head.
9. Hold the pose for a few seconds and exhale.
10. Make sure that while doing this pose, you don't tuck your tailbone and flatten your lumbar spinal curve. Doing this pushes your hips forward and prevents you from forming a long line from your feet to the top of the head.

Benefits

- ❖ It strengthens the chest and improves respiration, and opens up the heart and spine. The flow of blood in the arteries thus becomes more fluid and smooth.



- ❖ It enhances the nervous system, strengthening your ability to focus.
- ❖ It improves posture, and makes the buttocks and abdomen firmer.
- ❖ It strengthens the thighs, knees, and ankles, in addition to increase their flexibility.

Contraindications

1. Tadasana should be carried out with caution by those suffering from headaches, insomnia or low blood pressure.
2. Hyper extension of the knee can cause knee problems.
3. This asana should be avoided during pregnancy.

Pavanmuktasana

Pavanmuktasana ('pavan' meaning 'wind', and 'mukta' meaning 'free'), also known as wind removing pose or wind liberating pose, is a bending pose in which the practitioner lies supine to release tension in the abdomen and back area.



Figure 12.7 Pavanmuktasana

Procedure

1. Ideally, this asana should be performed in the morning in order to get rid of gas inside your body. It is particularly effective to do it as the first step of your morning routine since it will make other poses easier. If not, then allow at least four to six hours to pass after your meal.
2. Lie on your back on a smooth and flat surface and keep the legs straight and relax.
3. Inhaling slowly, raise your legs and bend the knees. Bring them gradually towards the chest till your thighs touch the stomach.
4. Clasp your hands around your legs to hug your knees. Lock your fingers to secure the position.
5. Next, try to touch the knee with the nose tip.
6. Hold this position for 20 to 30 seconds.
7. Exhale slowly and undo the pose after you roll from side to side about three to five times. Relax.
8. Practise 3 to 5 cycles daily.

Benefits

- ❖ It strengthens the abdominal muscles and massages the intestines and internal organs of the digestive system. Consequently, trapped gases are released and digestion is enhanced.
- ❖ It helps burn fat in the thighs, buttocks, and abdominal area, thereby contributing to loss of weight.
- ❖ It also brings relief from menstrual cramps and pain in the lower back.
- ❖ It boosts blood circulation in the hip areas.

Contraindications

1. Those who have had abdominal surgery recently or are suffering from hernia or piles must avoid this asana.
2. Pregnant women must avoid this asana in order to avoid causing stress to the body or causing complications.
3. It should also be avoided by patients of heart problems, hyper-acidity, high blood pressure, slipped disc, hernia, back and neck problems, or a testicle disorder.
4. An individual with a neck injury should practise this asana with her/his head resting on the floor, and only with the approval of a doctor.

ASANAS FOR ASTHMA

Asthma is a respiratory disease in which the airways become blocked or narrowed, resulting in breathing difficulty. Symptoms include extra production of mucus, excessive coughing, wheezing and shortness of breath. Asthma tends to occur in the mornings and nights – especially during the colder hours. For some people, asthma can be a serious and debilitating condition. They have to carry a nebuliser (breathing machine) around to help them recover from the attacks. It is an incurable disease, but one that can be

controlled. The causes of asthma are as follows:

1. It can be allergic or non-allergic. In the former case, attacks are often triggered by allergens in the air, including smoke and fumes, perfumes, scented soaps, etc.
2. Genetic factors are also known to cause asthma.
3. Respiratory infections such as cold, flu, sore throat and sinus infections, exercising in cold temperature, and certain medications like aspirin and non-steroid anti-inflammatory drugs are also found to be causes of asthma.

Chakrasana

Chakrasana ('chakra' meaning 'wheel') also known as *Urdhva Dhanurasana* or upward facing bow pose, is a back-bending pose commonly referred to as 'back bridge' in acrobatics and gymnastics. It is one of the final sequences in *Ashtanga Vinyasa* Yoga, the modernised version of classical yoga popularised by K Pattabhi Jois.

Procedure

1. You may begin this asana with a performance of *bhujangasana*.
2. Lie on the back with the feet parted, bend the knees and bring your feet closer to the buttocks.
3. Fold your arms and bring the palms under the shoulders. The two elbows should have a shoulder width distance between them.

Figure 12.9
Chakrasana



4. Inhale and press your palms firmly against floor.
5. Lift your shoulders using your elbows as levers. Both your palms and feet should be firmly pressed against the floor as you do this.
6. Now, raise your hips so that your spine is arched in a semicircular fashion.
7. Stretch your arms and legs as much as possible so that the hips and chest are pushed up. Hold this position for at least 15–30 seconds.
8. To release yourself from this pose, lower your head and shoulders to the floor by bending the elbows. Then bend your knees and lower your spine and hips. Breathe normally.

Benefits

- ❖ Chakrasana opens up our lungs and stretches our chest and shoulders. As this refines the act of breathing, this asana is highly advantageous for asthma patients.
- ❖ Additionally, it makes the shoulder blades, wrists, arms, legs, spine, buttocks, the heart and the muscles of the hips stronger.
- ❖ It also stimulates the thyroid and pituitary glands.

Contraindications

1. This asana is not recommended for those with carpal tunnel syndrome, back injuries, blood pressure problems, headache, diarrhoea, hernia or heart problems.
2. Pregnant women too are advised against taking up this asana.

Gomukhasana

Gomukhasana ('go' means 'cow' and '*mukha*' means 'mouth' or 'face') is also known as cow face pose. It is so named because the overall position of the thighs, calves and feet of the person has the appearance of the face of a cow when viewed from above. This position must be practised on an empty stomach and after bowel movements. It is best to do it in the morning.

Procedure

1. Sit on the floor with your legs stretched out in front of you. Your spine should be erect.
2. Gently bend your left leg and bring it under your right leg so that the calf rests beneath the right hip. Fold your right leg and position the calf above the left thigh.



3. Stack your right knee on top of the left one.
4. Now fold your left arm and place it behind your back. The elbow should point downwards. Fold your right arm and bring it behind the shoulder with the elbow pointing upwards.
5. Stretch your arms till the two hands are touching each other. Do not worry if you cannot achieve this the first time.
6. Still keeping the spine straight, open up your chest, then lean back slightly.
7. Hold this pose for as long as you can, taking deep and slow breaths.

Benefits

- ❖ This asana strengthens the chest and eases breathing. It also gets rid of stiffness in the shoulders and the back.
- ❖ It also trains an individual to breathe correctly by making her/him focus on her/his own breathing.
- ❖ Additional benefits include relaxation, stretching of muscles, and bringing relief from frequent urination.

Contraindications

1. This asana should be avoided by those who have ailments of the knee, back and neck.
2. Overweight individuals should start slowly and not exert themselves beyond comfortable limits.

Officials

Official

Total No. of Officials	=	07
Referee-1, Umpire-1, Scorer-1, Asstt Scorer-1, Time Keeper-1, 24 Sec. Operator-1, Table Commissioner-1		
Duration of Game	=	4 Quarters of 10 minutes [10-2-10 (10) 10-2-10], [10-2-10 (10) 10-2-10]
Time Out	=	1 minute
