

CONTENT

1. History
2. Measurement field and court
3. Rules of the game
4. Fundamental skills
5. Terminology
6. Important Tournament
7. Equipments
8. Physical fitness (AAPHER)
9. Senior Citizen fitness test for 5 elderly family members
10. Introduction of Yoga
11. Aasanas benefits and contraindication of each lifestyle diseases
12. Back pain - Vakrasana, Shabhasana
13. Obesity - Trikonasana, aradhyendrasana
14. Diabetes - Bhujangasana, pachimottanasana
15. Hypertension- Tadasana ,ardhchakrasan
16. Asthama - Chakrasana , Gomukhsana

History



1. HISTORY

The objective of the game is to make the ball to land in opponent court or make opponent to commit mistakes.

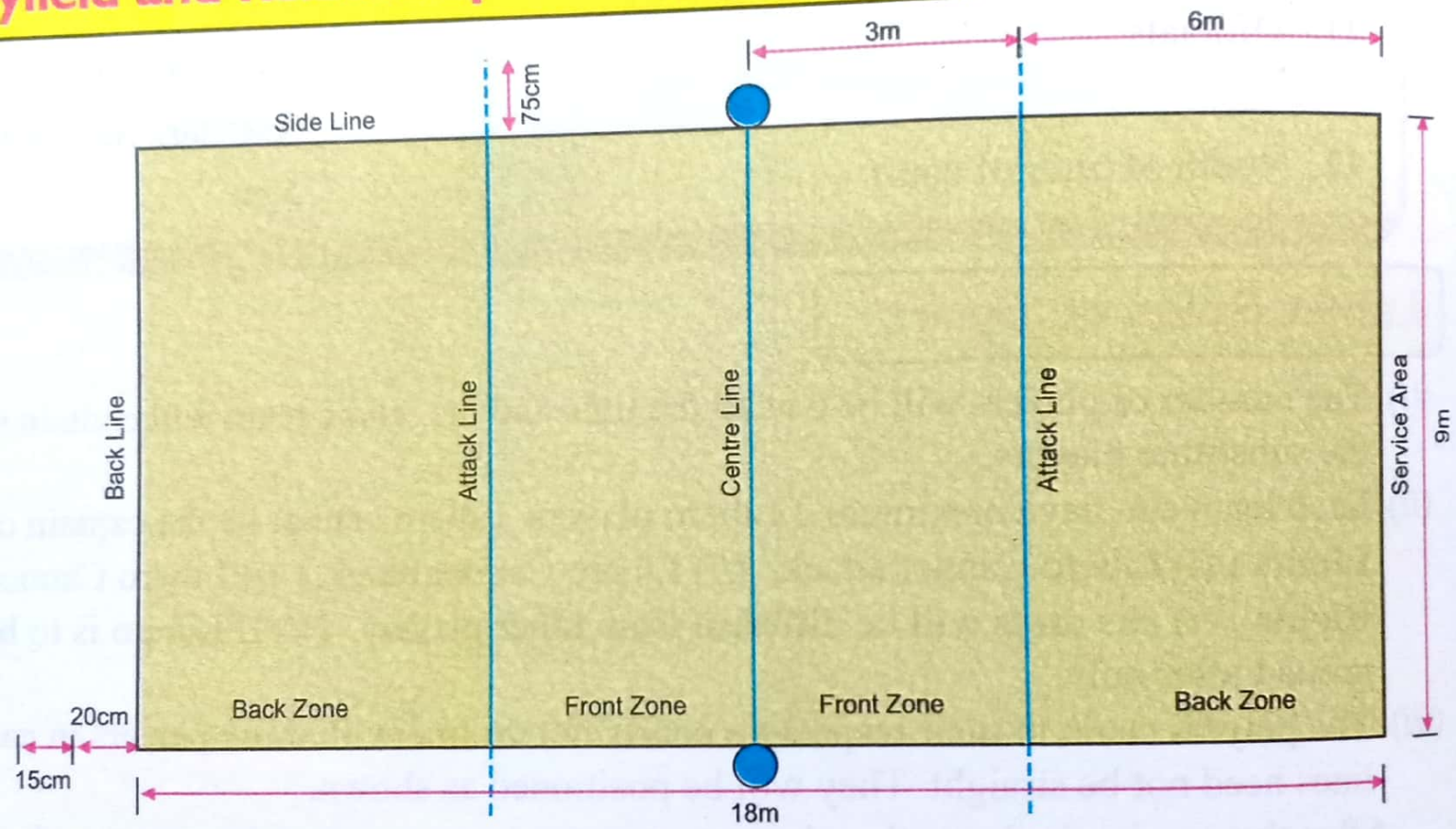
In 1895, *William G. Morgan (USA)* invented new indoor game, called "*Mintonette*", which became volleyball. Volleyball was a demonstration sport in 1924 Olympics (Paris) and became an official sport in 1947 when the *Federation Internationale de Volleyball (FIVB)* was founded. In 1949, first Men's World Championship was played in Prague (CHZ). Volleyball was part of the Olympic Games in Tokyo (1964). The Men's World League was set- up in 1990.

Today, a new form of volleyball is popular, it is known as *Beach Volleyball*. It is played by two-player team over sand playing field.

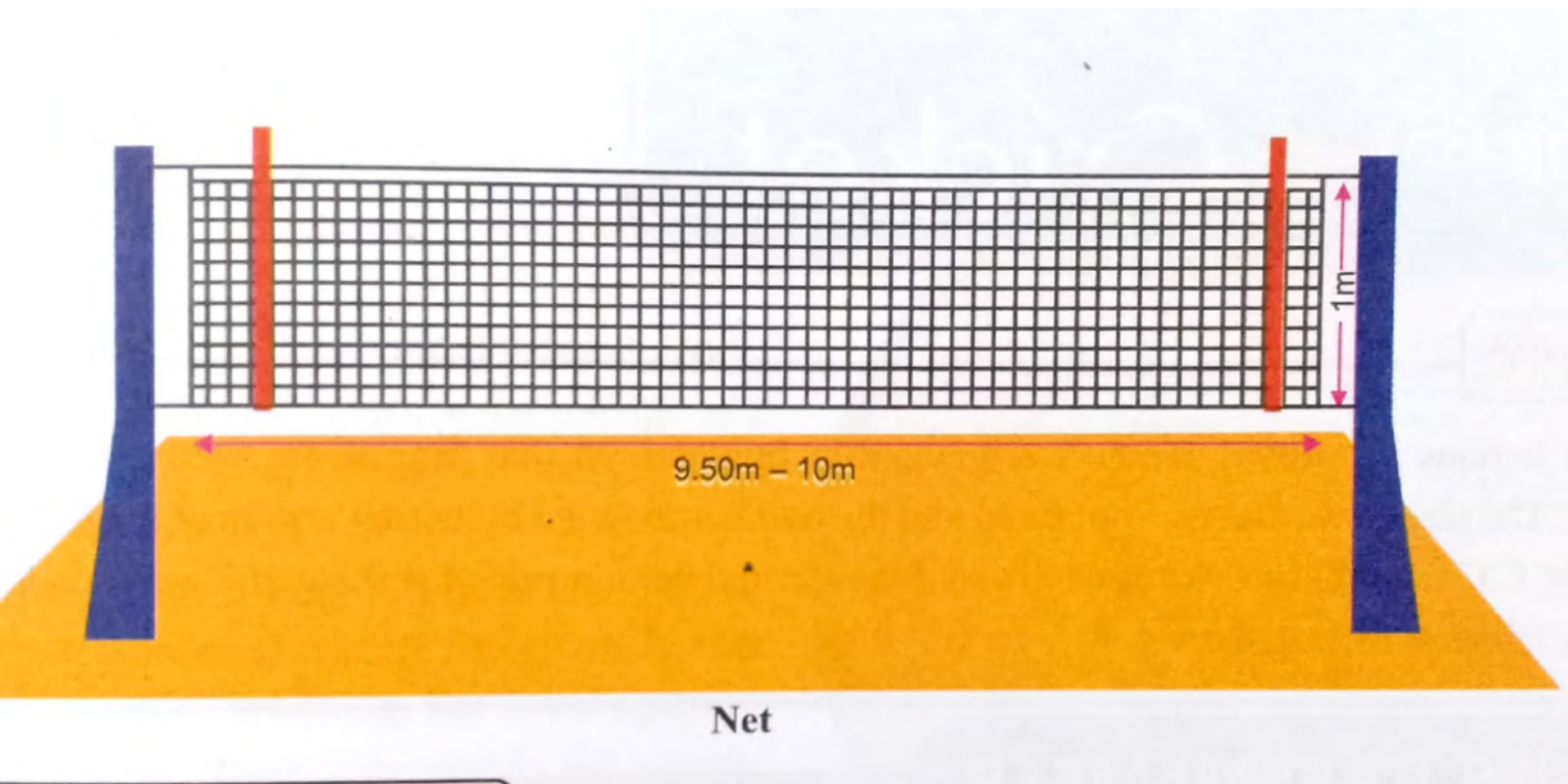
In India, volleyball came into vogue through YMCA and later *Volleyball Federation of India (VFI)* was formed in 1950. India won the gold in very first Asian Games.

Field

field and net



Volleyball Court



Tips to Remember :

- (i) Volleyball Playing Field = 18 m × 9 m
- (ii) Free Zone Area = 24 m × 15 m (minimum 3 m on all sides)
- (iii) Length of Service Line = 9 m
- (iv) Size of Net = 9.5 m × 1 m (width)
- (v) Height of Net = 2.43 m (Men), 2.24 m (Women)
- (vi) Pole to Pole Distance = 10 to 12 m
- (vii) Height of an Antenna = 80 cm above net (over sideline)
- (viii) Circumference of the Ball = 65 to 67 cm
- (ix) Weight of the Ball = 270 g ± 10 g
- (x) No. of Players = 12 (6 Playing and 6 Substitutes including Libro)
- (xi) Width of Line = 5 cm
- (xii) No. of Points in a Set = 25 points with lead of two points
15 points in Fifth set (M) or Third set (W)
- (xiii) Officials = 1 Referee, 1 Assistant Referee, 1 Scorer, 1 Table Official,
1 Commissioner of match, 4 Line Judges
- (xiv) Timeout = 1 Timeout in each set and 2 Timeouts in final set (of 30 seconds)
- (xv) Tie-Rule = At 24 point or 14 point (two consecutive points)

Latest

general

rules

ames.

LATEST RULES OF THE GAME

- (i) Volleyball involves two teams of 6 players who try to send the ball over the net to touch the ground on the opposing team's side.
- (ii) The team that wins a rally wins a point, moreover, wins the right to serve at the same point.
- (iii) A set is won by a score of 25 points.
- (iv) If there is a tie at 24 points or at 14 points (in final game) then game continues until one team has a 2-point lead.
- (v) A match is won by 3 sets (out of 5). Fifth set for men and third set for women is of 15 points.
- (vi) The ball is put in play by the back-row player on the right, who can serve anywhere along the 9 metre width of the service zone.
- (vii) The player has 8 seconds to make service in a single attempt to get the ball over the net (it may touch net).
- (viii) The rally ends when the ball touches the ground or when it is hit out of bounds or when the player does not return it legally.
- (ix) When a team wins service, the players rotate one position clockwise. This rule was instituted so that players would have to play in both the front and back zones.
- (x) Each team can touch the ball maximum of 3 times in addition to the block, before sending it into the other team's court. Once a player has touched the ball, he cannot touch it again until it has been touched by another player in either team.
- (xi) The ball can touch any part of the body and it must be hit (not held or thrown).

Fundamental Skills

FUNDAMENTAL SKILLS OF VOLLEYBALL

Tennis Service: There are various types of service in Volleyball like simple service, tennis service, round arm service, overhead floating service, jump service, etc. Of these, tennis service is one of the most common attacking services. In this, the server stands within the service area. One foot should be ahead of the other and the body should face the net. The ball should be held with the left hand and then tossed above the head. While the ball moves up, the server's body should bend backward. The right arm should swing back with a bent elbow and open palm. When the ball comes down, it should be struck with a forward swing of the arm.



Overhead Floating Service: In this the ball is tossed higher and slightly forward than in tennis service. The server takes one or two steps forward and jumps vertically. Then with a forward swing of the right arm, the ball is hit with an open palm. This service is difficult and requires a lot of practice.

Spike or Smash: This is a powerful attacking technique. Contact with the ball takes place above the net. Players who perform spikes are known to have excellent balance in air and can perceive and anticipate actions and positions of the opposing players. Players specialising in spikes are known as Spikers. Sometimes a 'Dump' (fake smash) is also practised by a Spiker to dodge the opponent blockers.

Tip or Lift: This is a rally technique. The tip is a transitory move between reception and attack. It is made with an upward movement of the arms and legs. Contact with ball is made with fingertips without palms touching the ball. A player specialising in this technique is known as Booster or Setter.



Bump or Underarm Lift: It is a defensive skill to keep the ball from falling. It provides a good chance to tip the ball to the Spiker. Bump is the first contact of the ball after service or the service reception.

One-hand Underarm Lift: This is an advanced technique to lift the far away ball towards the side. In this, the player has less chance to move to the place where ball is falling. Therefore, the player extends one arm to lift the ball, raising it up for further play.

Block: Block may be executed by one or three players and it is the first line of defence against a spike. Blockers reduce the floor space by acting as a screen. The tallest player is usually the blocker in a team.

Dive Lift: In this technique, the player dives to lift a fast coming ball with the underhand as there is less time to move forward or sideward.

Terminologies

TERMINOLOGY

Antenna: An antenna is fastened at the outer edge of each side band. The antennae are placed on opposite sides of the net. The top 80 cm of each antenna extends above the net and is marked with 10-cm stripes of contrasting colour, preferably red and white.

Assisted Hit: It is when a player takes the support from teammates or any other structure or object in order to reach the ball within the playing area.

Attack-line: This line lies 3 m away from the net. It is an extended line behind the centre line which restricts a libero to smash from the front area of the court.

Backline: A line at the back of court, 9 m from net. It is also known as service line.

Ball Out: The ball is 'out' when all parts of the ball which contact the floor are completely outside the boundary lines and it touches an object outside the court, the ceiling or a person out of play, the antennae, ropes, posts, etc. when it crosses the vertical plane of the net either partially or totally outside the crossing space.

Ball Out of Play: The ball is out of the play at the moment of the fault which is whistled by one of the referees; in the absence of fault, at the moment of the whistle.

Blocking: It is the action of players close to the net to intercept the ball coming from the opponent by reaching higher than the top of the net, regardless of the height of the ball contact. Only front-row players are permitted to complete a block.

Blocking Fault: When the blocker touches the ball in the opponent court either before or simultaneously with the opponent's attack, and/or the back-row player or a libero completes a block or participates in a completed block.

Bump-pass: To lift a low level coming ball with locked forearms.

Carrying the Ball: It is illegal for a player to hold the ball momentarily and keep it at rest on her/his hands.

Catch: It is when a ball is caught and/or thrown and does not rebound from the hit.

Change of Court: After each set, the teams change sides of the court. Their fellow team members have to change benches as well.

Collective Block: A collective block is executed by two or three players close to each other and is completed when one of them touches the ball.

Dig: A powerful smash near the attack line in opponent's court.

Dink: A gentle push to ball by fingertips.

Double Contact: Double contact is when a player hits the ball twice in succession or the ball comes into contact with any part of her/his body in succession.

Expulsion: A player or coach is expelled and not further allowed in the game if she/he repeatedly exhibits misconduct.

Four Hits: A team is entitled to a maximum of three hits (in addition to blocking) for returning the ball. If a team commits four hits, then it is a fault.

Free-zone Area: The area outside the boundary line of the court that can be used during a game. It is 3 m on all sides of the court.

Libero: A defensive specialist player in a team. She/he cannot serve, attack the ball above the height of the net, or block.

Penalty Area: A penalty area, sized approximately 1 × 1 m and equipped with two chairs, is located in the control area, outside the prolongation of each end line. They may be limited by a 5-cm wide red line.

Penetration Fault: A fault is given when the player enters into the opponent area in air, by crossing centre line by foot or by hands over the net during smash, block, or lift.

Positional-fault: During service, players must stay in their positions, i.e. diagonally opposite player must be in the same manner as in the beginning. Otherwise, advantage for positional fault is given to the opponent team.

Rotation: After every change of service, the players of the serving side should rotate clockwise; otherwise, it may be a foul.

Rotation Fault: It in which a wrong positional player performs the service.

Screening: A player or players of the servicing team must not prevent the visibility of service player. Collective screening of the service player or the flight of the ball is illegal.

Service Area: An area behind the backline, and between the extension of the two sidelines from where the ball may be served.

Service-zone: The service zone is a 9-m wide area behind each end line. It is laterally limited by two short lines, each 15 cm long, drawn 20 cm behind the end line as an extension of the side lines. Both short lines are included in the width of the service zone. In depth, the service zone extends to the end of the free zone.

Setter: Also known as booster, this is a player specialized to lift the ball for the smash. It is performed over the ball coming from one's own teammates.

Side Band: Two white bands are fastened vertically to the net and placed directly above each sideline. They are 5 cm wide and 1 m long and considered as part of the net.

Side-out: It is when an active ball touches the floor outside the boundary line.

Substitution: Replacement of one or more players from the listed substitutes, apart from the libero. The coach of the team will request for substitution to the assistant referee. When the referee signals for substitution, the player should move out and the substitute player should enter.

Substitution-zone: This zone is limited by the extension of both attack lines up to the scorer's table.

Technical Timeout: Timeout for 60 seconds in each non-tie breaking set when leading team reaches the 8th and 16th points. It may be requested by both teams.

Timeout: It is a temporary interruption asked by the coach during a game. Each team may request a maximum of two timeouts of 30 seconds each.

Important

Tournaments

IMPORTANT TOURNAMENTS, VENUES, PERSONALITIES AND AWARDS

Important Tournaments

Olympic Games, Men's World Championship, Women's World Championship, Men's World Cup, Women's World Cup, World Grand Champions Cup, Men's Nations League, Women's Nations League, National Games (India), Federation Cup (India), National Volleyball Championship (India), Indian Volley League.

Important Venues

India Gandhi Stadium (New Delhi), Sports Complex (Hyderabad), Railway Sports Complex (Mumbai), Sydney Entertainment Centre (Australia), Capital Indoor Stadium (China), Long Beach Arena (USA).

Sports Personalities

Yumilka Ruiz (Cuba), Logan Tom (USA), Jimmy George (India), Lorenzo Bernardi (Italy), Lang Ping (China), Yekaterina Gamova (Russia), Giba (Brazil), Saori Kimura (Japan).

.....

Equipments

- A Court of 18m × 9m dimension.
- A net or rope, placed at above head level height.
- A Ball weighing between 260-280gms.
- Lime powder for creating playing area.
- Jersey with numbers marked on them.
- All the players of the team will wear same dress except libero.

Aapher
Physical
Fitness Test

Aahper Test ...

It is a motor fitness test. Earlier the name of this alliance was AAPER i.e. American Alliance for health, physical edu. and recreation. but now it is known as AAPERD i.e.

"American alliance for health, physical education recreation and dance" and is one of oldest organisations of USA. The 1st test was published in 1958. This was revised in 1965 and in 1976 final test manual was prepared with following items.

- (a) Pull ups (for boys) & flexed arm hang (for girls)
- (b) Flexed leg situps
- (c) Shuttle run
- (d) Standing long jump.
- (e) 50 yard dash.
- (f) 600-yard run walk.

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.

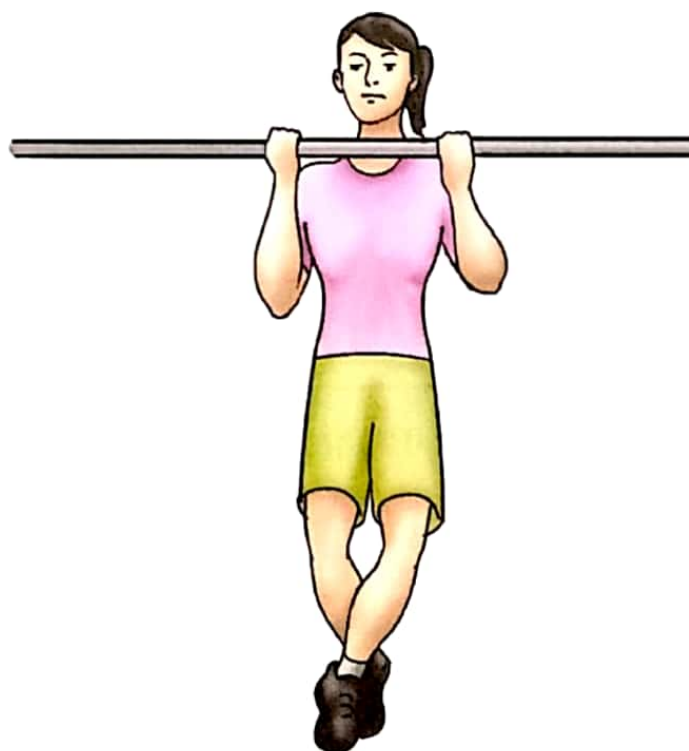
Procedure: The height of the bar is adjusted according to the height of the student. The student holds the bar

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

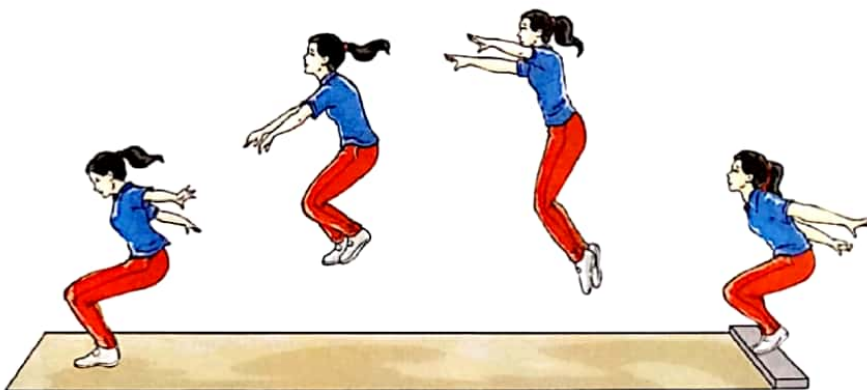
Purpose: To measure speed and agility.

Equipment: Two blocks of wood (2 × 2 × 4 inches) and a stopwatch.

Procedure: Two parallel lines are marked on the ground 30 feet apart, and two blocks of wood 2 × 2 × 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.

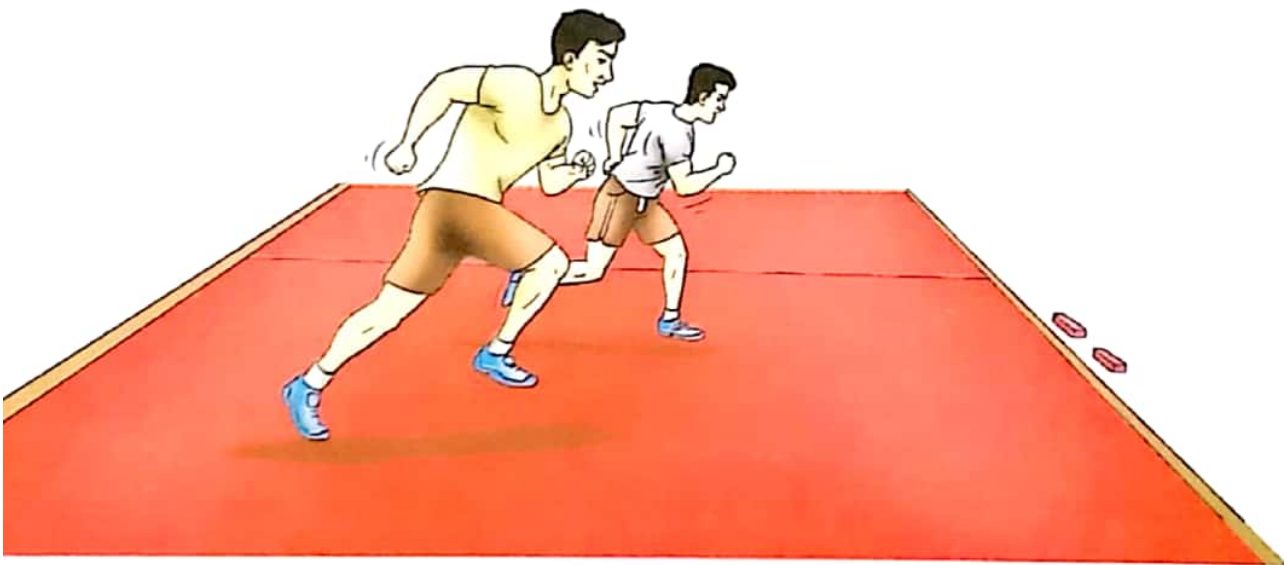
② Flexed leg Sit ups ...

The student lies on the back with legs in flexed posⁿ i.e. in bent knee position. One's hand should be behind the neck. Elbows must touch the knees while doing sit ups. The total number of repetitions are noted in 1 min.

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.

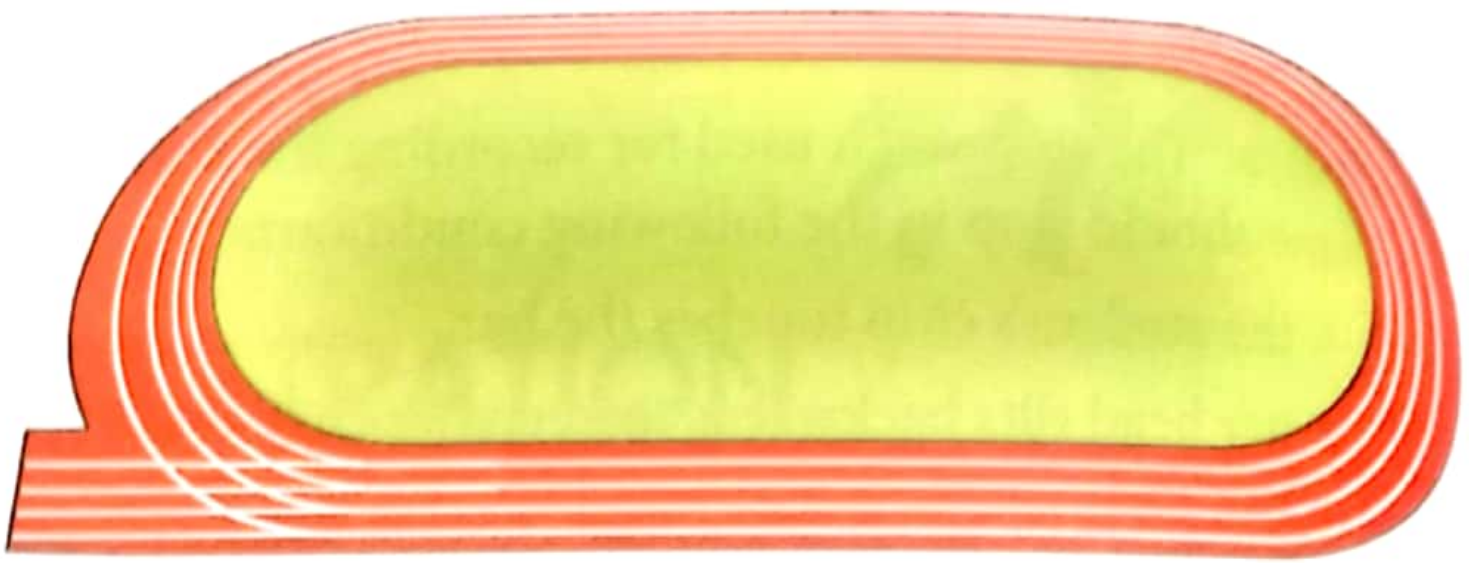
Equipment: Stopwatch

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

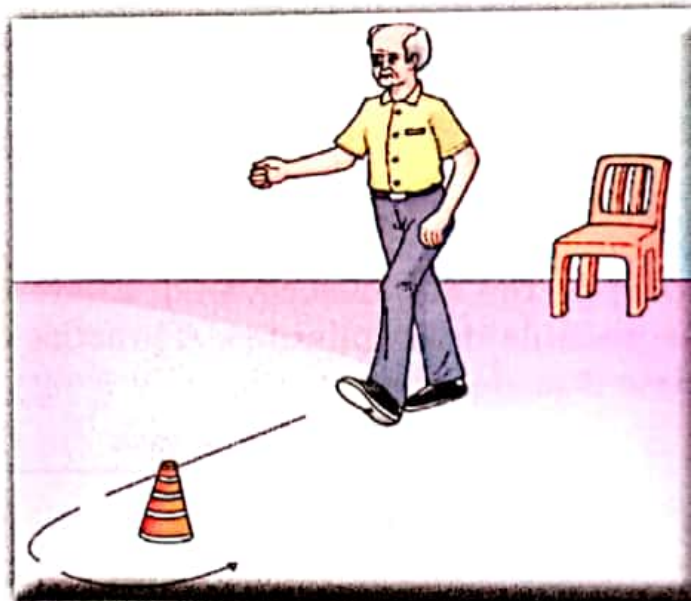
Norms for Men (in inches)				Norms for Women (in inches)			
Age	Below Average	Average	Above Average	Age	Below Average	Average	Above Average
60-64	>6.5	6.5 to 0	<0	60-64	>3.0	3.0 to 1.5	<1.5
65-69	>7.5	7.5 to -1.0	<-1.0	65-69	>3.5	3.5 to 1.5	<1.5
70-74	>8.0	8.0 to -1.0	<-1.0	70-74	>4.0	4.0 to 1.0	<1.0
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.



Eight foot up and go test

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.

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

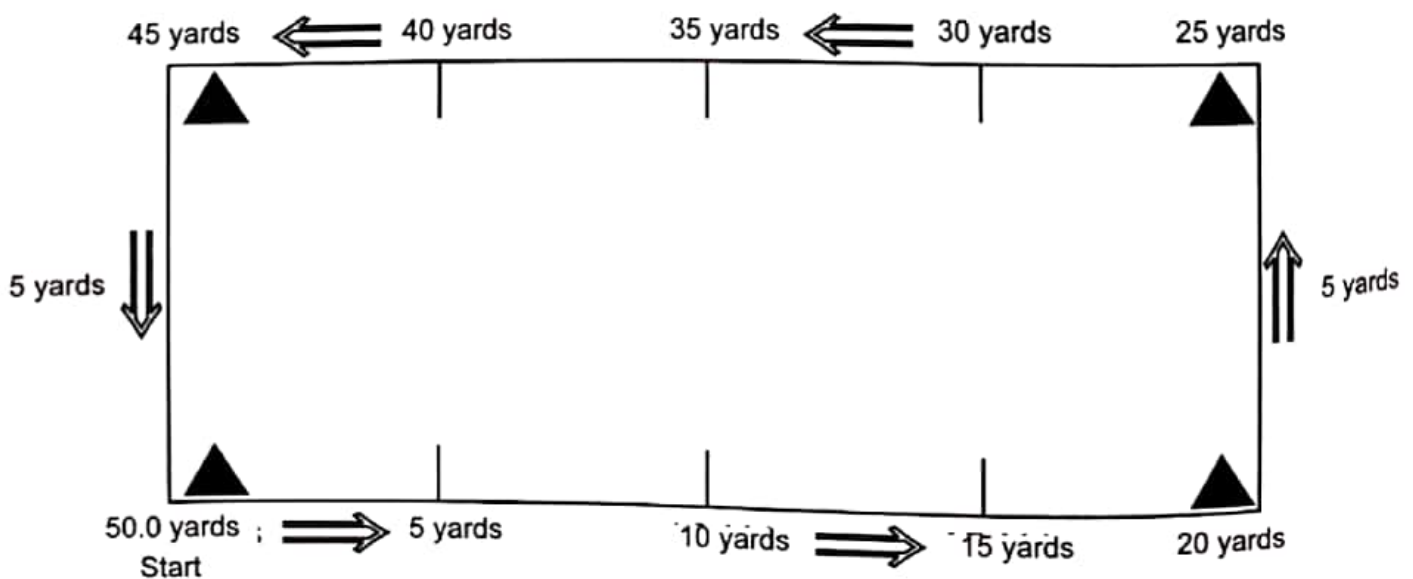
F. Six-minute Walk Test

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



HISTORY

The word '*yoga*' comes from the Sanskrit word '*yuj*' which commonly means 'to add', 'to join', 'to unite', or 'to attach'. Yoga can be called a spiritual discipline which focuses on bringing harmony between mind and body.

Yoga is believed to have historically existed in the pre-Vedic period (2700 BCE) of ancient India. Various sages and practitioners have contributed to preserving and developing yoga into the form we know today. The period 1700 to 1900 CE is considered as Modern Period in the history of yoga. Ramana Maharshi, Ramakrishna Paramhansa, Paramhansa Yogananda, Vivekananda, among others, contributed to the development of Raja Yoga during this period.

Yoga is now practised widely for physical fitness and mental well-being. It has been popularised in many countries through the teachings of Swami Shivananda, Shri T Krishnamacharya, Swami Kuvalayananda, Shri Yogendra, Swami Rama, Sri Aurobindo, Maharishi Mahesh Yogi, Acharya Rajneesh, K Pattabhi Jois, B K S Iyengar, and Swami Satyananda Sarasvati.

ASANAS FOR OBESITY

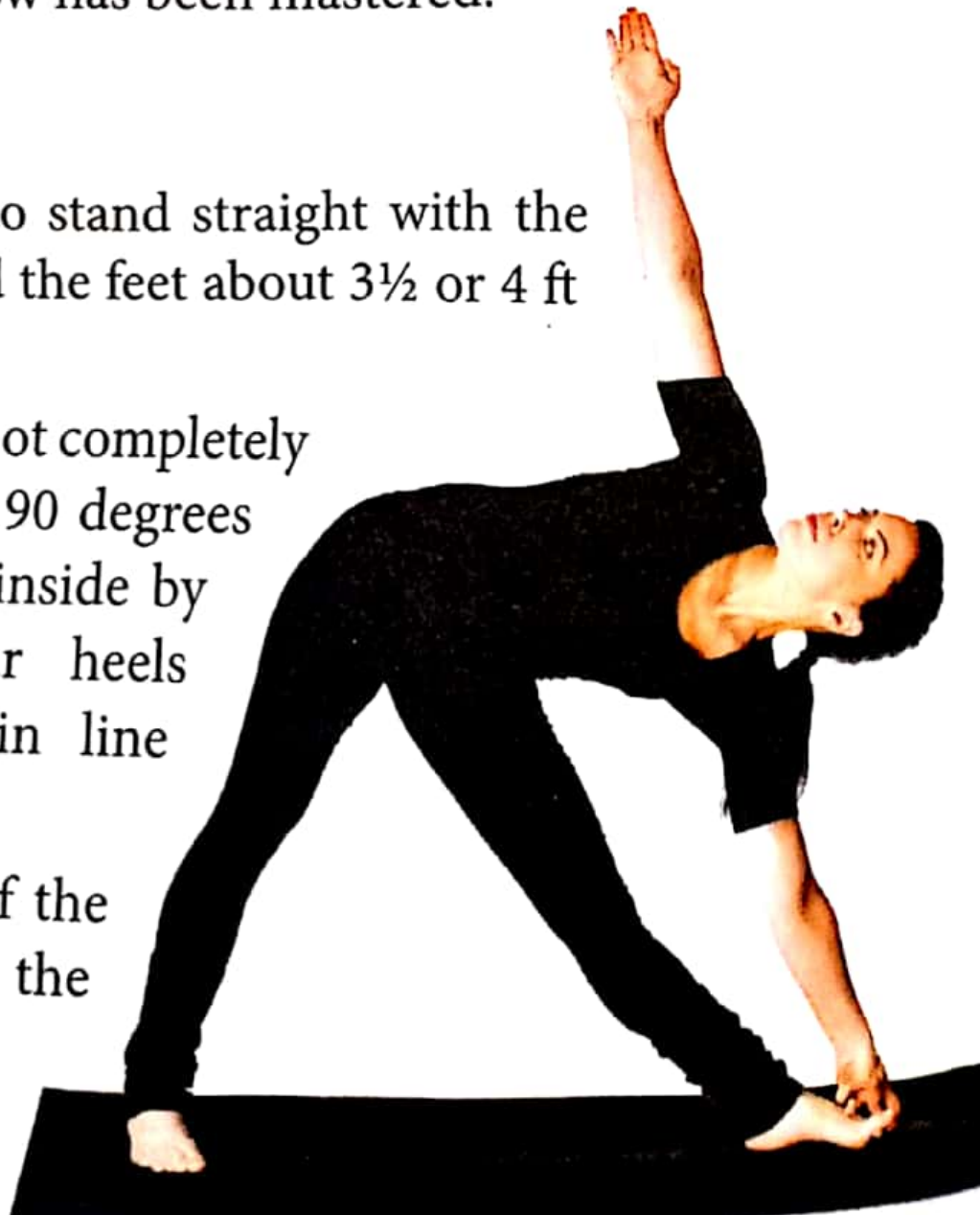
Obesity is a physical condition in which a person has accumulated so much body fat that it might have a negative effect on her/his health. Obese people are prone to several potential diseases, such as arthritis, hypertension, cancer, flat foot, respiratory disease, liver problem, diabetes, etc. Obesity can be caused by genetics, overeating, eating frequently, physical inactivity, and also psychological factors.

Trikonasana

Trikonasana, or the Triangle Pose (*'trikona'* for 'triangle'), is another standing yoga pose which those wanting to control their weight will find useful. It has three advanced forms: *utthita trikonasana* (extended triangle pose), *baddha trikonasana* (bound triangle pose) and *parivrtta trikonasana* (revolved triangle pose), which should be done only after the basic procedure given below has been mastered.

Procedure

1. The first step is to stand straight with the knees unbent and the feet about 3½ or 4 ft apart.
2. Turn your right foot completely to the outside by 90 degrees and the left foot inside by 15 degrees. Your heels should be kept in line with the hips.
3. Align the centre of the right heel with the centre of the arch of the left foot. Your feet should



- press the ground firmly and the weight of the body should be equally balanced on both the feet.
4. Spread your arms to the sides. They should be parallel to the ground with the palms facing down. Extend your trunk to the right.
 5. Drop the right arm so that the right hand reaches the front of the right foot.
 6. Now, extend the left arm vertically. Twist the spine and trunk gently in a counter-clockwise direction. This time, the spine should remain parallel to the ground.
 7. Stretch the arms away from one another. You may turn your head and look up to intensify the spinal twist.
 8. Hold this position for 5 to 10 breaths. Inhale deeply. Relax your body with each exhalation.
 9. Repeat the posture by switching the position of the legs.

Benefits

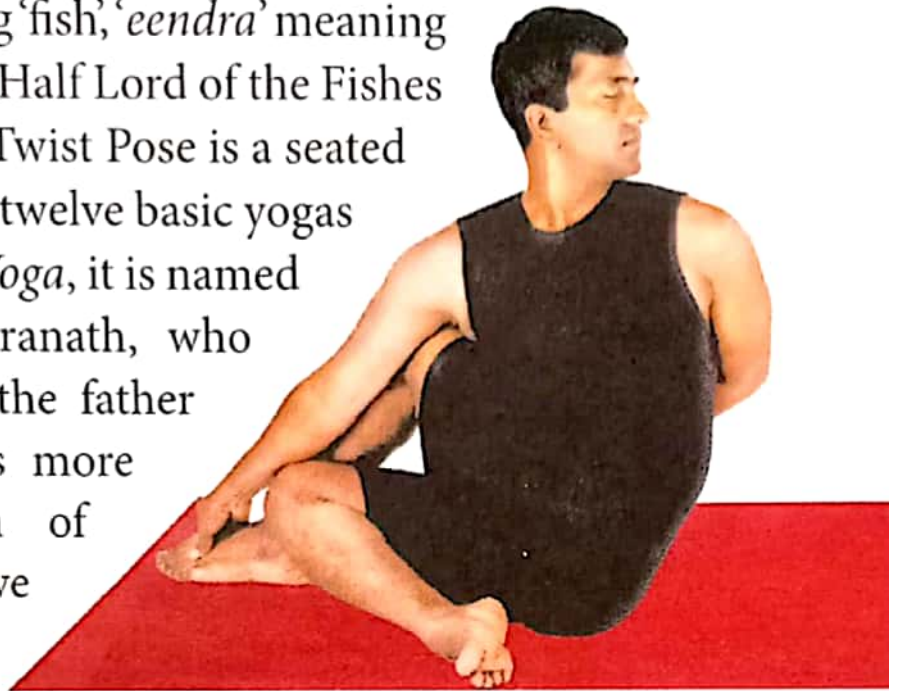
- ❖ It relieves gastritis, indigestion, flatulence, and acidity. Since it helps burn fat, it is highly recommended for those hoping to lose excess weight.
- ❖ It also improves flexibility of the spine and corrects the posture of the shoulders.
- ❖ It massages the pelvic organs and strengthens them.
- ❖ It reduces stiffness in the back, neck, shoulders and knees.
- ❖ It reduces anxiety and stress.
- ❖ It improves blood circulation and strengthens and stretches the hips, back, arms, thighs and legs.

Contraindications

1. This asana should be avoided by those who have migraine, diarrhoea, blood pressure problems or injuries of the neck and back.
2. Those with high blood pressure should not raise their hand overhead if they want to try this pose, as the stance may raise the blood pressure.
3. Beginners should practise this under the guidance of an expert.
4. Those with cervical spondylosis should not look up for too long.
5. Those with a heart condition should practise against a wall and avoid raising the arm. Rather the arm should rest along the hip.

Ardha Matsyendrasana

Ardha Matsyendrasana ('*Ardha*' meaning 'half', '*matsya*' meaning 'fish', '*eendra*' meaning 'king'), also known as Half Lord of the Fishes Pose and Half Spinal Twist Pose is a seated yoga pose. One of the twelve basic yogas performed in *Hatha Yoga*, it is named after Yogi Matsyendranath, who is considered to be the father of Hatha Yoga. It is more complicated version of *Vakrasana*, which we will read about later.



Procedure

1. First, sit up with the legs stretched out straight in front of you. Keep the feet together and the spine erect.
2. Bend your right leg. Place the heel of the right foot beside the left hip, and bring the left leg over the right knee.
3. Place the right hand on the left leg and the left hand behind you.
4. Gently twist your waist, shoulders and neck in this sequence to the left, looking over the left shoulder. Your spine should be erect.
5. Hold the position for a few seconds, keeping your breath steady.
6. Exhale and release the left hand first, followed by the waist, chest, and then finally the neck.
7. Sit up relaxed yet straight. Repeat with the other side.

Figure 12.4 Ardha Matsyendrasana

Benefits

- ❖ The twisting position massages the abdominal organs, increasing the release of digestive juices and improving the functioning of the digestive system.
- ❖ It brings relief from stiffness, stress and tension in the back.
- ❖ By opening up the chest, it greatly increases the supply of oxygen to the lungs.
- ❖ It also loosens up the hip and makes the spine more flexible.
- ❖ It improves the circulation of blood.
- ❖ It improves the flexibility of the back muscles, leg muscles, etc. and tones the muscles.

Contraindications

1. Pregnant and menstruating women should avoid this position as the twisting of the abdomen might be too strong for them.
2. People who have had heart, abdominal or brain surgeries, and those with spinal problems and slipped discs should not practise this asana.
3. People who have severe back or neck pain should practise carefully and under the supervision of an expert.

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.

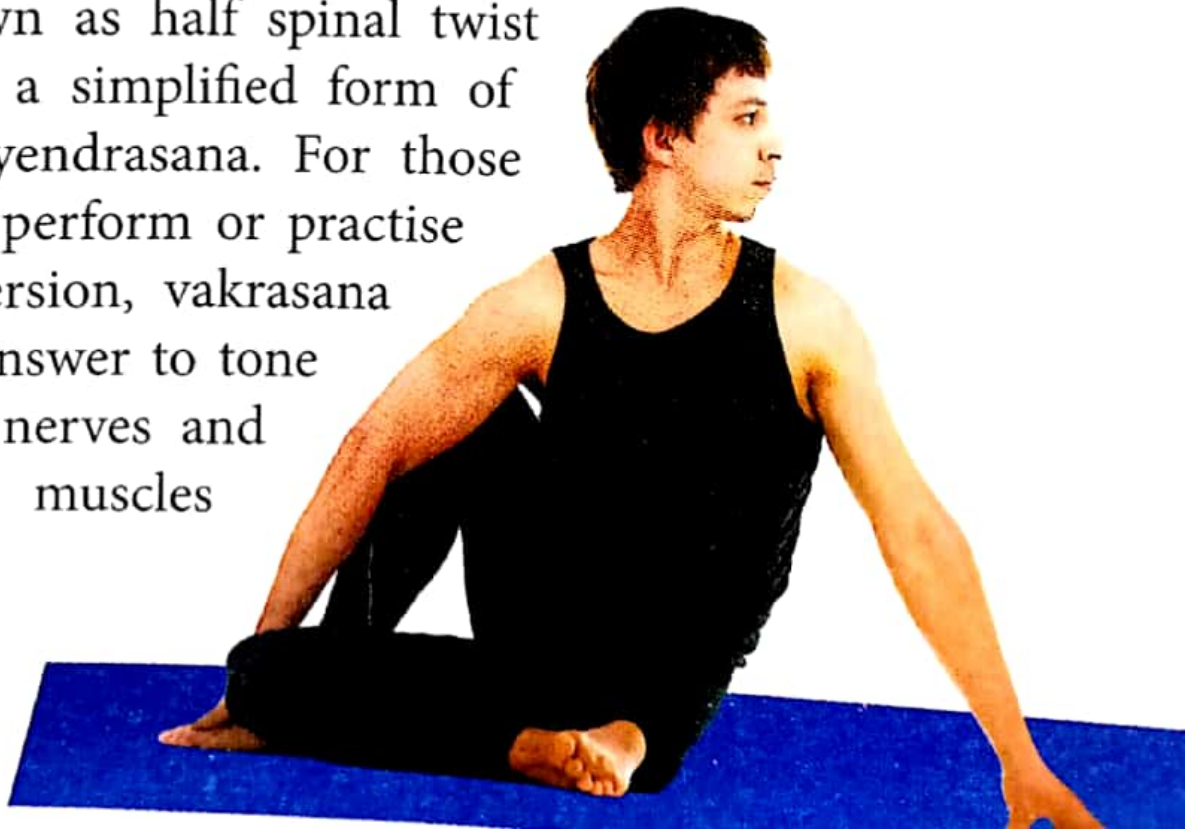


Figure 12.15
Vakrasana

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

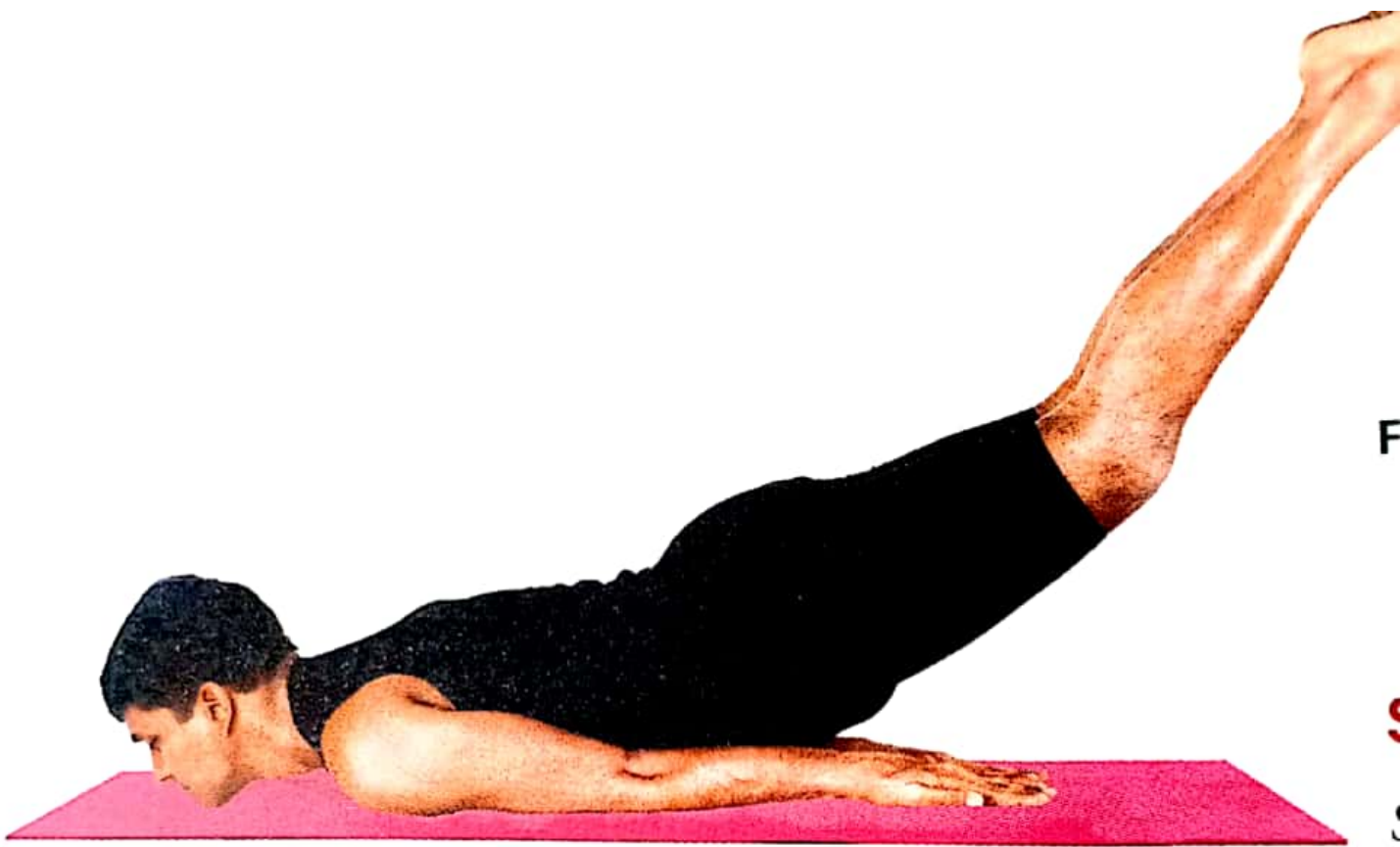
1. Lie down on your stomach and place both hands underneath the thighs.
2. Inhale and lift up your outstretched right leg. Rest your chin on the ground.
3. Maintain this position for 10 to 20 seconds. Then exhale and bring back your leg to its initial position.
4. Follow the same steps with your left 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.



F
S
S
a

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
- ❖ Unhealthy lifestyle
- ❖ Obesity
- ❖ 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 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

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.

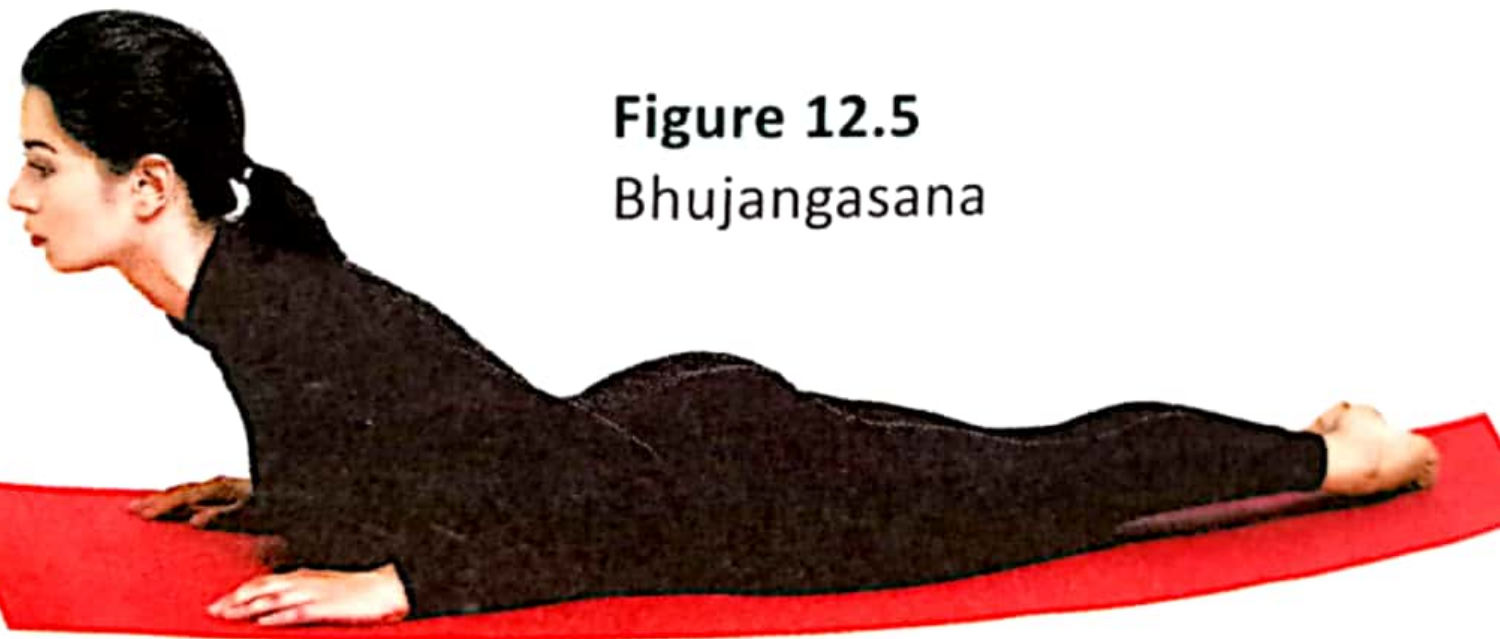


Figure 12.5
Bhujangasana



Figure 12.6 Paschimottasana

Paschimottasana

Paschimottasana ('*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.

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.



Figure 12.10 Gomukhasana

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.