

5

Let us learn about athletics

Activities such as walking, running, jumping and throwing have naturally been connected with man's life throughout the process of evolution. These activities gradually developed and resulted in the creation of modern athletic events. It is considered that organized athletic events were first started in Greece during the Greek era. Athletics was introduced to Sri Lanka by the British. Gaining theoretical knowledge and practical experience in athletics will contribute immensely to successful performance of day-to-day activities and also pave the way to a healthy life.

In the previous grades we gained theoretical understanding and practical experience related to some athletic events like walking, running, jumping and throwing.

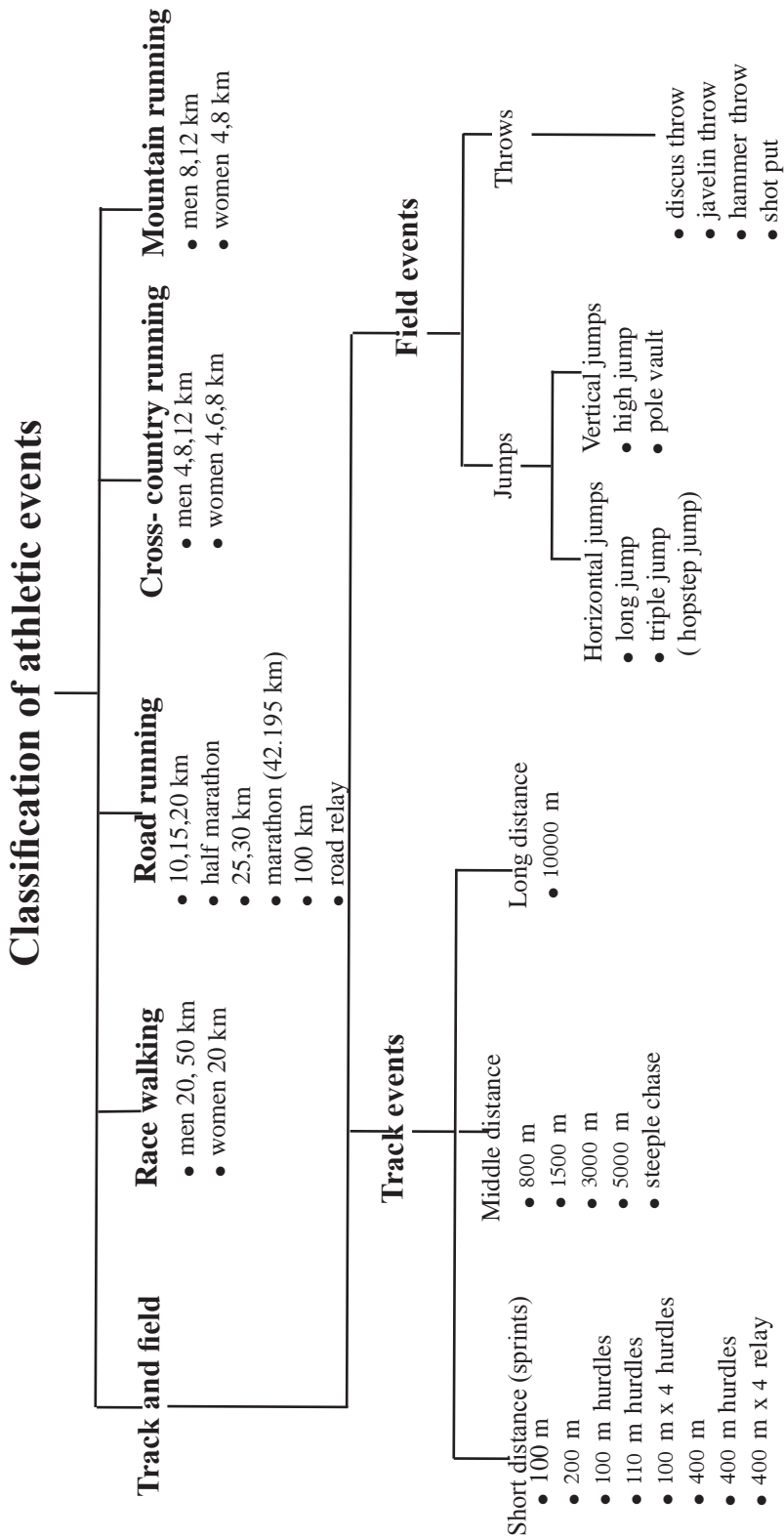
In this chapter, we will discuss the classification of athletic events, techniques of competitive walking, running, Hang technique in long jump, Fosbury Flop technique in high jump, Parry O'Brien technique of shot putt, technique of discus throw and rules and regulations related to athletics. You can gain practical experience in each of these different events, by engaging in the described activities related to them. **Engage in them in the playground with your physical education teacher.**

Classification of athletic events

Of these athletic events, walking and running events have been classified based on the distance of the race; jumping events have been classified based on the way of taking off; and throwing events have been classified based on the process of throwing and the type of equipment used. All events identified under athletics have been classified into five groups.

1. Track and field
2. Race walking
3. Road running
4. Cross - country running
5. Mountain running

Diagramme 5.1



Combined events

Combined events have several athletic events combined together and performed by a single athlete. They are, pentathlon (5 events), heptathlon (7 events) and decathlon (10 events).

Pentathlon is held in one day while heptathlon and decathlon are held over two days.

Pentathlon (Men's)

Long jump, javelin throw, 200m running, discus throw and 1500m running.

Heptathlon (Women's)

100m hurdles, 200m running, 800m running, high jump, shot put, long jump and javelin throw

Decathlon (Men's and Women's)

100m running, 400m running, long jump, high jump, shot put, 110m / 100m hurdles, discus throw, pole vault, javelin throw and 1500m running.

Race walking

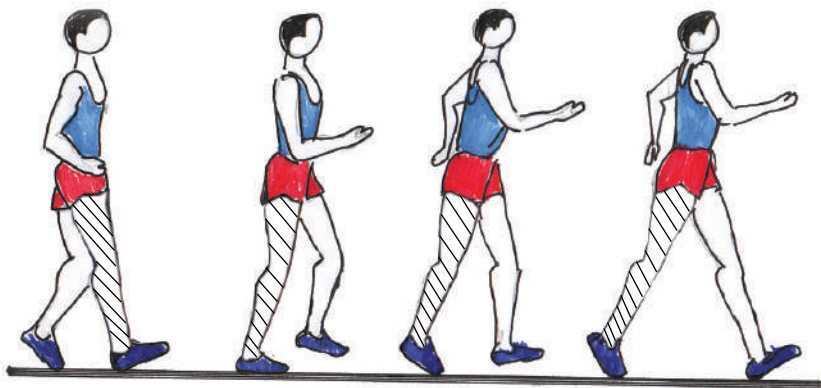


Figure 5.1 – Race walking.

Walking is an activity naturally performed by everybody. It is a motor skill that man naturally possesses. However, with the passage of time it also evolved into a racing event.

Although race walking differs from the way we naturally walk, there are some common features between the two.



Activity

Get into groups and make a list of similarities and differences between walking and running.

Every step of race walking consists of two stages.

Single-support phase:

- The stage in which the race walker makes contact with the ground with one supporting sole is called the single-support phase.
- In this stage the speed necessary for forward movement is generated and the free leg makes the next stride.

Double-support phase:

- The stage in which the race walker makes contact with the ground with both soles is called the double-support phase.
- This stage is necessary to maintain continuous contact with the ground.

Foot work in race walking

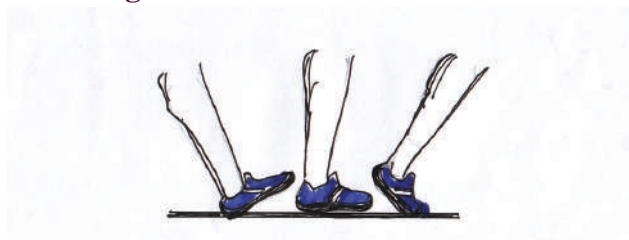


Figure 5.2- Footwork in race walking

When walking, the sole of the foot makes contact with the ground at three points- the heel, the ball and finally the toes.

- The back foot gives a powerful and rapid push for the forward movement.
- The toes and the knee joint of the front foot are directed straight forward.
- The walker steps along a straight line.
- The back foot lies erect anchored to the ground until the front foot lands.

Hand movement

- Shoulders are kept relaxed.
- The arms are bent by about 90° at the elbow and move forward and backwards rapidly from the shoulder.

Hip movement

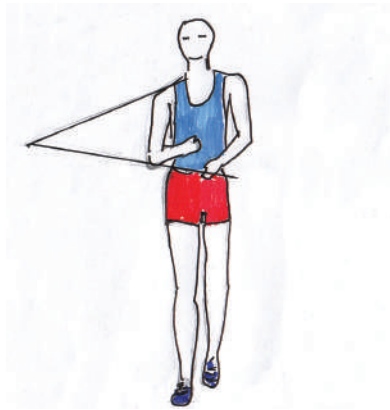


Figure 5.3 - Hip movement

The axis of the shoulders and the hip move upwards and downwards alternately as shown in the figure, i.e. the hip of the leg which lies straight moves upward while the shoulder of the same side moves downward.

Rules and regulations related to race walking

Two rules apply with regard to stepping in race walking:

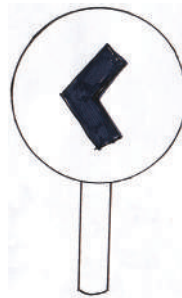
- ★ In race walking, stepping is done in such a way, that one foot is always kept in contact with the ground, i.e. the front foot should come into contact with the ground before the back foot has been taken off the ground.
- ★ The front leg should lie straight without bending the knee from the moment it first touches the ground until it becomes erect.

If race walkers violate the above rules, the following signals will be given to them.



Lack of contact with the ground

a



Bending the knee

b

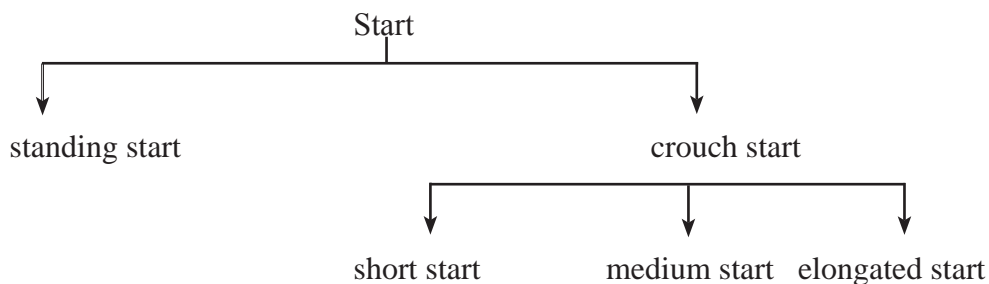
Figure 5.4

Running events

Start in running events

Start is crucial in sprint events. The slightest delay in the start of a sprinter could lead to defeat.

There are two main styles of start in running events.



1. Standing start

- Standing start is used in running races of over 400 m.
- Two commands are given for the standing start:
 - i). on your marks
 - ii). go (sound of the starting gun)

Stages of the standing start

(i) 'On your marks' stage

- Stand keeping the foot of the dominant leg very close to the starting line and the other leg behind in an easy manner.
- The arm opposite the front leg should be bent at the elbow and placed

in front. The other arm should be placed behind.

- The front knee should be slightly bent with the body leaning forward.

(ii) **‘Go’ stage (sound of the starting gun)**

- As the sound of the starting gun is emitted, the back leg should immediately move forwards and running should begin.

2. Crouch start


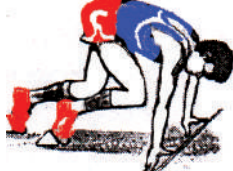

It is compulsory that the crouch start is used in 400 m races and all other races less than 400 m. Starting blocks are not used at school level and races below national level but is compulsory to use at national and international races.

There are three stages of command for crouch start:

1. On your marks
2. Get set
3. Go (sound of the starting gun)

Stages of the crouch start

Table 5.1

| stage and the command | on your marks | get set | go |
|-----------------------|---|---|--|
| postures |  |  |  |

(i) On your marks

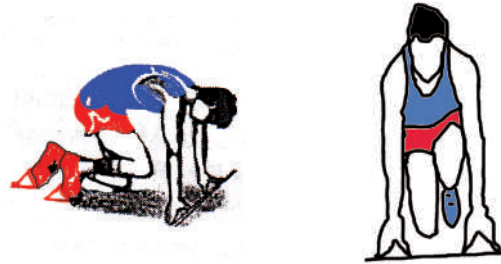


Figure 5.5 - On your marks stage

- Both hands should be straight on the ground just behind the starting line.
- Both feet should be placed on the starting block.
- The knee of the back leg should be placed making contact with the ground.
- The hands should be kept on the ground with a gap of a distance that is slightly greater than the width of the shoulders apart.
- Tips of the fingers should touch the ground forming an arch between thumb and other fingers.
- The head should lie at a level that is parallel to the level of the back.
- Eyes should be focused on the ground about 20 – 30 cm ahead of the starting line.

(ii) 'Get set' stage

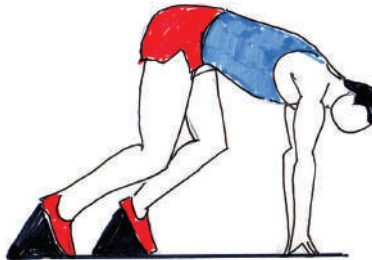


Figure 5.6 - 'Get set' stage

- Both knees are kept raised above the ground. The front knee lies with an angle of 90° and the back knee lies at an angle between $110^{\circ} - 130^{\circ}$.
- The hip lies above the level of the shoulders.
- Body weight lies on the two hands.

(iii) Forward push stage

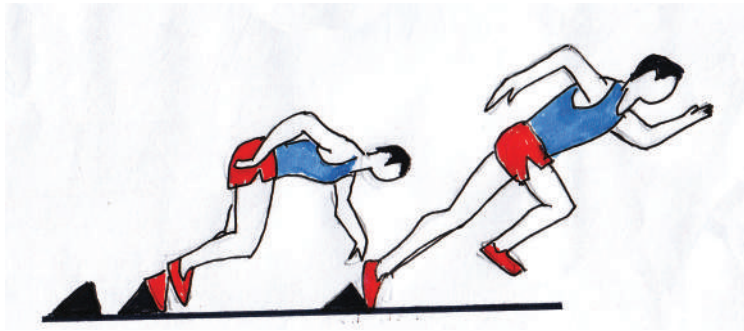


Figure 5.7 - Forward push stage

- The body is taken off as the starting block is pushed backwards with the two legs.
- The two hands are taken off the ground and the hand that is opposite to the leg in the front swings forward and the other hand quickly swings backwards.
- As the trunk is pushed forward, the back foot is quickly moved to the front.
- When moving forward, the hip and the knee are not bent.

The crouch start is divided into three styles based on the gap between the starting line and the front foot and the gap between the two legs.

| | | |
|-----------------|---|---------------------------------|
| short start | - | a small gap between the feet |
| medium start | - | a moderate gap between the feet |
| elongated start | - | a big gap between the feet |

Offences committed at the start of a race

- ★ A runner takes too long to complete ‘on your marks’ or ‘get set’ stages.
- ★ Making the start so that the other runners are disturbed either with some noise or by any other means.
- ★ Changing the posture and starting before the sound of the starting gun is heard.

If any of the above offences are committed, the runner will be removed at the first instance. The starting officer shows the red card to remove a runner who has committed an offence.

Finishing the race

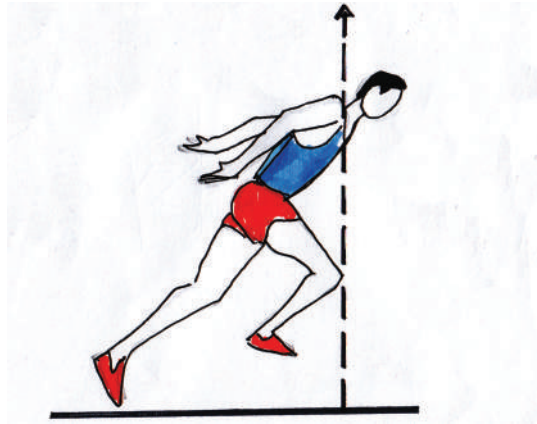


Figure 5.8 - Finish of the race

- The finish of the race is marked with a line that is 5 cm wide and perpendicular to the running direction. The finish is taken by the edge of this line that is closest to the runners.
- The winners are selected according to the sequence that the torso (the body except the head, hands and legs) of the runner reaches the vertical plane of the inner edge of the finishing line.
- It is a good finishing technique to lean the body forward with the last step before the finishing line.

Running exercises (Running drills)

Running exercises and correct running techniques are important in increasing the running speed. The following can be achieved by doing running exercises:

1. Increasing power through the correct movement of arms and legs.
2. Gaining the correct motion and the rhythm of a running step.
3. Maintaining the correct body postures while running.
4. Maintaining efficient nerve – muscle co-ordination
5. Increasing the efficiency of the muscles and joints worked in running.
6. Increasing the speed
7. Improving physical fitness.

Table 5.2 -Running exercises

| | |
|-------------|---|
| Running - A | <ul style="list-style-type: none"> ● The sole of the supporting leg is in complete contact with the ground. ● Then the sole of the foot is raised well from the heel, ball and up to tip of the toes. ● The supporting foot is not completely taken off the ground. ● Arms are bent at the elbow at an angle of 90⁰ and swung with a movement similar to that which is made in running. ● Footwork is continued in this manner. |
| Running - B | <ul style="list-style-type: none"> ● The supporting leg lies well stretched. ● The opposite leg is bent at the knee at an angle of 90⁰ and is lifted so that the thigh is parallel to the ground. ● The knee is raised forward and a forward move is made with alternate steps according to a rhythm. ● Arms are bent at the elbow at an angle of 90⁰ and swung with a movement similar to that which is made in running. |
| Running - C | <ul style="list-style-type: none"> ● Arms are bent at the elbow at an angle of 90⁰ and swung with a movement similar to that which is made in running. ● Both legs are bent at the knee alternately and a forward run is made while hitting on the buttocks. ● Running is continued making steps forward alternately. |

Relay

Baton change

Baton change can be classified in relation to the side of the body of the receiver.

1. Inside change
2. Outside change
3. Mixed change

In the inside change, the runner receives the baton with his/her left hand (the inside hand in relation to the running track). The runner carrying the baton holds it with his/her right hand and runs close to the left edge of his/her lane.

In the outside change, the runner receives the baton with his/her right hand (the

outside hand in relation to the running track). The runner carrying the baton holds it in his/her left hand and runs close to the right edge of his/her lane.

When runners use both these baton changes alternately in a relay it is called the mixed change.

Mixed change

This is how each of the runners carry the baton and how it is changed in the mixed method.

1. The first runner carries the baton in the right hand and passes it to the left hand of the second runner (inside pass).
2. The second runner carries the baton in the left hand and passes it to the right hand of the third runner (outside pass)
3. The third runner carries the baton in the right hand and passes it to the left hand of the fourth runner (inside pass).

Receiving the baton with the left hand by the runners in the first and the third zones called the inside change while receiving the baton with the right hand by the runner in the second zone is called outside change. Accordingly, the alternate use of the inside change and the outside change is called the mixed change. The mixed change is more suitable in 100m x 4 relay races held in a 400m track.

Rules and regulations related to relay races

- ★ The baton should have the following specifications.
 - length : 28 – 30 cm
 - circumference: 12 – 13 cm
 - weight: should be less than 50g
- ★ Baton change should take place only within the changing zones.
- ★ Runners should carry the baton throughout the race.
- ★ The baton should be changed from hand to hand only.
- ★ The baton should not be passed to the receiving runner by way of throwing.
- ★ If the baton falls down while it is being changed, the runner who is giving the baton should pick it up. It is illegal for the runner who is receiving the baton to pick it up.
- ★ It is illegal to block the lanes after changing the baton so that the other runners are obstructed.

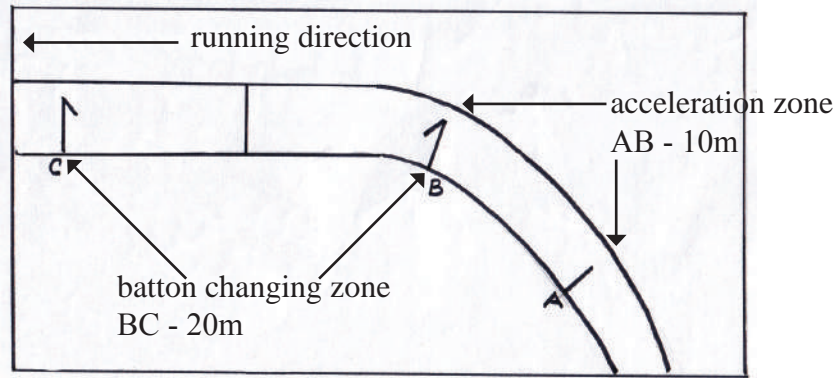


Figure 5.9 - Baton changing zone

Jumping events

There are four jumping events in athletics.

- | | | |
|----------------|---|------------------|
| 1. long jump | } | horizontal jumps |
| 2. triple jump | | |
| 3. high jump | } | vertical jumps |
| 4. pole vault | | |

Long jump

There are three major flight techniques for the long jump.

These techniques differ from one another according to the jumper's movements during flight.

1. Hang Technique
2. Sail Technique
3. Hitch-kick Technique / walking on the air

Whatever the technique adopted by the jumper, long jump is completed in four stages:

- i. Approach run
- ii. Take-off

- iii. Flight
- iv. Landing

The hang technique of long jump

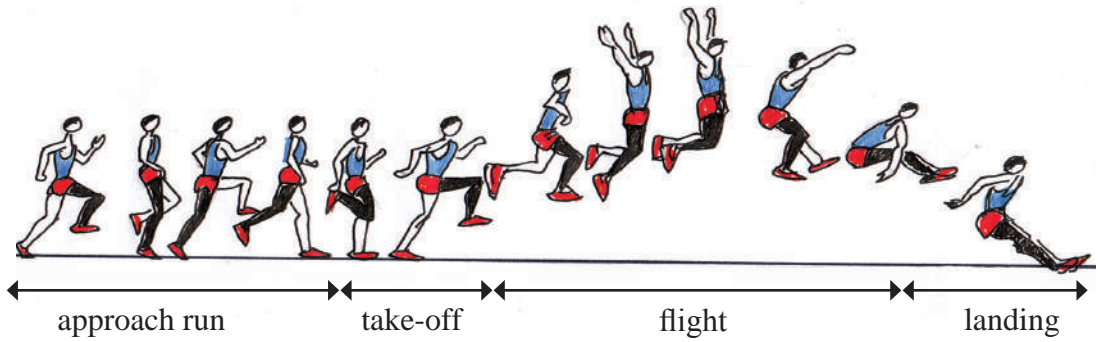


Figure 5.10 - Hang technique of long jump

Let us study these four stages under the hang technique of long jump.

Approach run

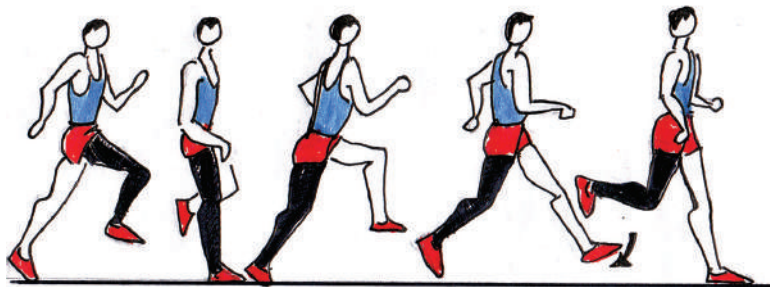


Figure 5.11 - Approach run

The approach run is crucial in the long jump. Generally sprinters are very good at long jump, too. The reason for this is that they possess the skill to control their speed and take off correctly from the take-off board. The standing start is used for the approach run.

Take-off

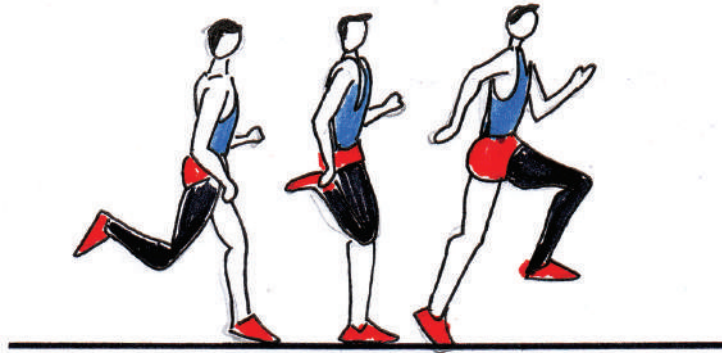


Figure 5.12 - Take-off

The phase from the moment the foot of the take-off leg touches the take-off board until the body is straightened for flight is called take-off.

- When taking off, the ankle, knee and the hip joints are well straightened.
- The free leg driven forward quickly reaches the horizontal level.
- The leg with which the approach run should be started has to be determined so that the dominant leg can be placed on the take-off board.

Flight

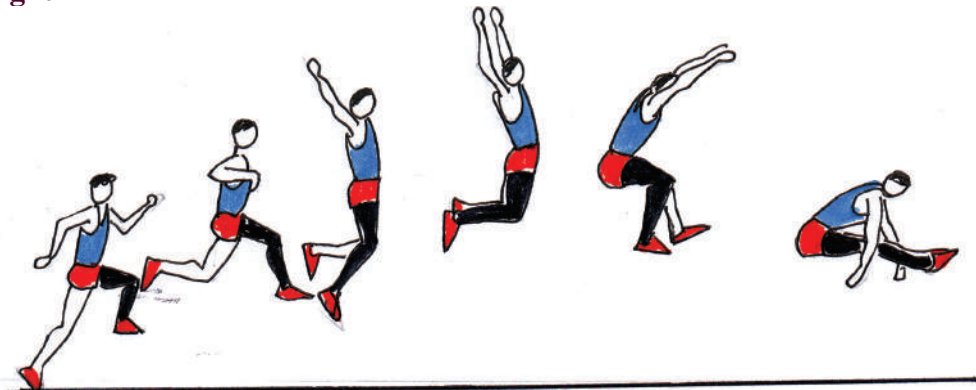


Figure 5.13 - Flight

- After taking off, the jumper lowers the free leg in front and brings it down to the level of the take-off leg.
- At this stage, the two hands are directed backwards.
- Then the jumper directs his legs forward and raises them up.
- At the same time, the hands which have been directed backwards are brought to the front.
- Before landing, the legs are straightened forwards.

Landing

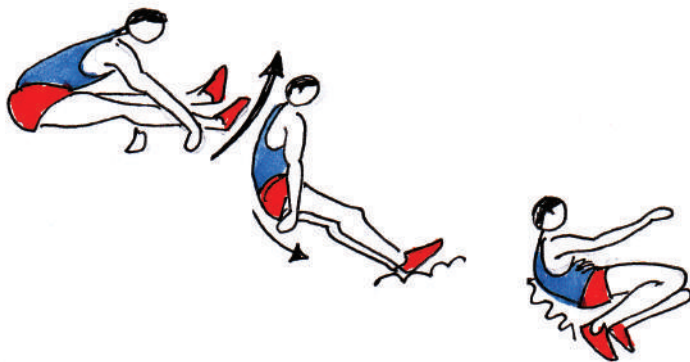


Figure 5.14 - Landing

- The body and the hands are pulled forward.
- The body leans forward.
- The legs are well straightened.
- As the feet touch the ground the knees are bent and the whole body is pushed forward along the ground in a sitting position.

Rules and regulations related to long jump

- ★ In terms of the rules and regulations of long jump, the following jumps are considered to be foul:
 - When taking off, touching the area beyond the take-off line with any part of the body.
 - When taking off stepping on the ground on either side of the take-off board.
 - Touching the ground between the take off line and the landing area while jumping.
 - Using summersaults while running or jumping.
 - When landing, touching the ground outside the landing behind the closest landing point with any part of the body.
 - Taking more than one minute to start the attempt after the jumper's number has been announced.

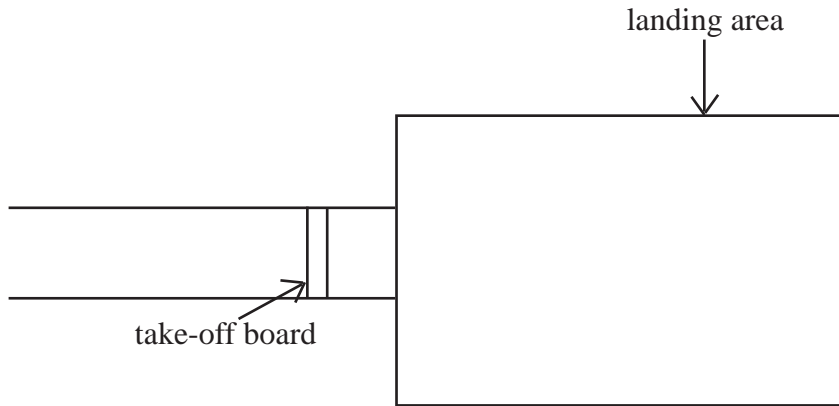


Figure 5.15 - Long jump pit

- ★ When measuring the distance of long jump, the perpendicular distance from the take-off line to the closest landing mark is measured in centimeters.

High jump

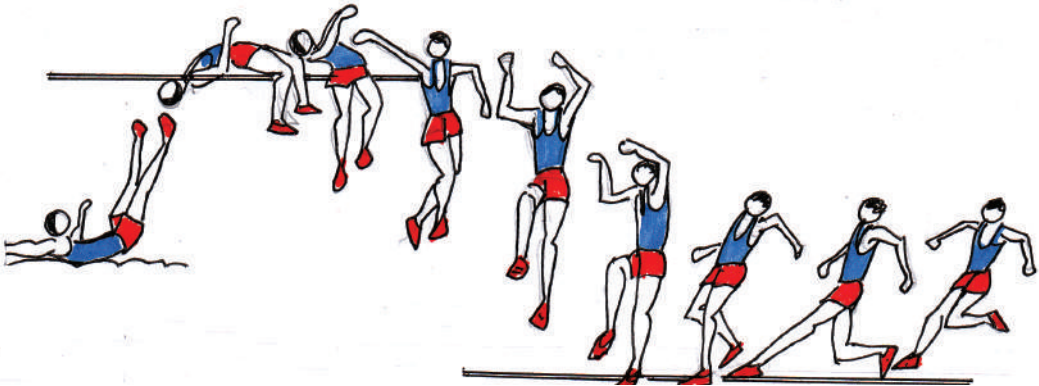


Figure 5.16 - High jump

High jump is a vertical jump. Various techniques have been used for high jump since ancient times. There are five techniques of high jump based on the position of the body during bar clearance.

1. Scissor jump
2. Eastern cut off
3. Western roll

4. Straddle
5. Fosbury flop

With the development of technology, Fosbury flop style has become the most widely used technique at present for better performance.

High jump can be divided into four stages under any of the techniques.

- i. Approach run
- ii. Take-off (flight)
- iii. Bar clearance
- iv. Landing

Lets us study these four stages under Fosbury Flop style.

Approach run

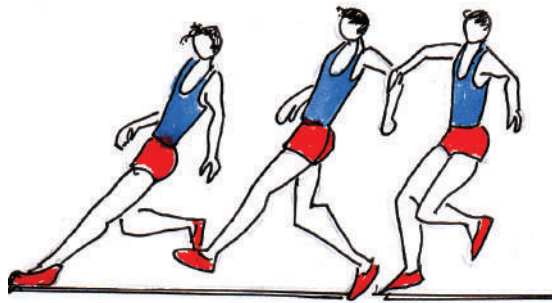


Figure 5.17 - Approach run

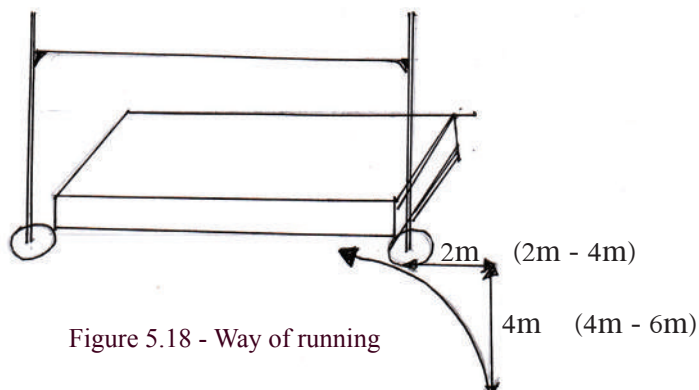


Figure 5.18 - Way of running

- During the approach run, jumper runs on the front part of the feet.
- Jumper uses the first phase of the run to gain speed.
- In the second phase, the jumper controls his/her speed to prepare for the take-off.
- When the jumper is running along a circular path, his/her body is curved towards the circular path.
- At the last step of the run, the body of the jumper is tilted backwards.

Take-off (spring up)

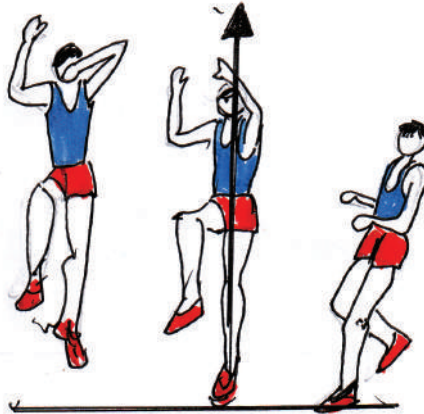


Figure 5.19 - Take-off (spring up)

- At the point of take-off the taking-off foot kicks the ground with a fast backward push.
- The taking-off foot is directed towards the landing area. The knee of the free leg is raised until the thigh is parallel to the ground.
- At the final phase of the take-off the body is erect.

Bar clearance

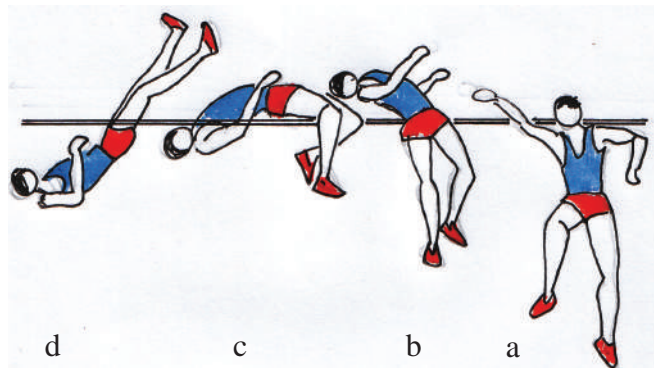


Figure 5.20 - Bar clearance

- Soon after the take-off, the jumper turns the back of his body towards the bar (figure 5.20 - a).
- As the jumper gets close to the bar, the free leg is lowered so that the thighs of both legs lie parallel to the ground (figure 5.20 - b).
- The legs are bent 90° at the knees and the body of the jumper is well bent taking an arch-shape (figure 5.20 - c).
- Just as the buttocks of the jumper clear the bar, his legs should be straightened very quickly at the knees (figure 5.20 - d).

Landing

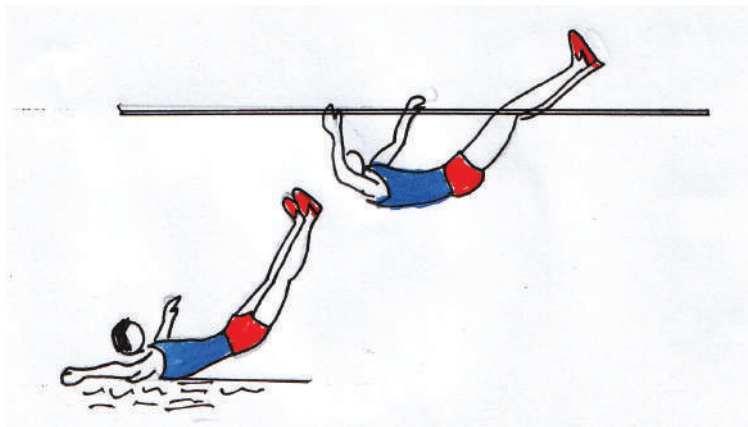


Figure 5.21 - Landing

- When a jumper has completed clearing the bar, his body lies parallel to the ground and the legs are raised.
- At this stage, the body should be kept relaxed and the landing should be done first on the shoulders and then on the arms.

It is important to keep in mind that it is dangerous to engage in training activities related to Fosbury Flop style unless proper equipment and a trainer are available.

Rules and regulations related to high jump

- ★ In terms of the rules and regulations of high jump, the following jumps are considered to be foul.
 1. Bar falling off the rests due to an action of the jumper while jumping.
 2. Making contact with the landing area or the area outside the two supporting poles with any part of the body before clearing the bar.

- ★ Take-off should be done with a single foot.
- ★ Continue to compete after three consecutive unsuccessful attempts.
- ★ A jumper has the right to refrain from attempting to clear a particular height and going to the next height. In such situations, the jumper does not have the right to ask for another opportunity to clear the height that he did not attempt.

Putting and throwing

In athletics there are four events coming under putting and throwing .

1. Shot put
2. Discus throw
3. Javelin throw
4. Hammer throw

Shot put

There are two techniques of putting the shot put.

1. Parry O Brien technique (linear technique)
2. Rotational technique

In this chapter, let us study the linear technique of shot put

Linear technique

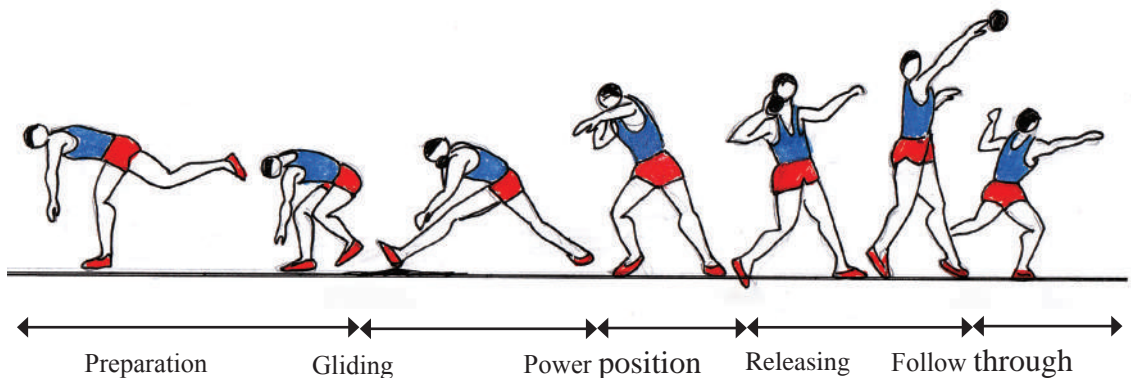


Figure 5.22 - Shot put

The linear shot put technique comprises of the following stages:

- i. Preparation
- ii. Gaining speed (Gliding)
- iii. Power position
- iv. Releasing
- v. Follow through

Let us study each of these stages under linear method of throwing the shot put.

The technique of a right-handed shot putter has been described in these examples.

Preparatory stage

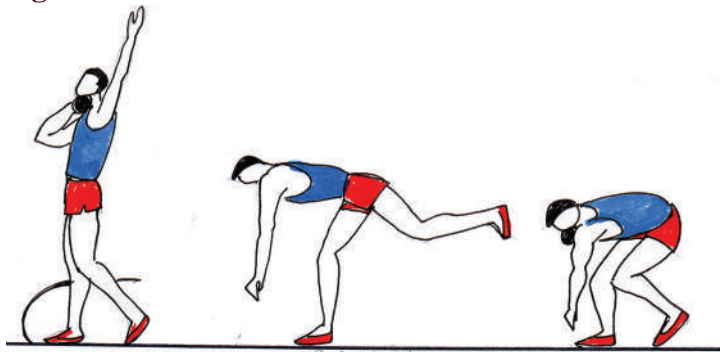


Figure 5.23 - Preparatory stage

- Hold the shot so that it touches the base of the neck below the ear and, under the chin.
- Bend the upper body forward until the body lies parallel to the ground.
- The shot putter stands on the back half of the circle turning his/her back towards the throwing direction.
- The left foot is moved backward to maintain the balance of the body.
- The left leg is then moved towards the front of the circle and the supporting leg is bent at the knee.

Gliding stage

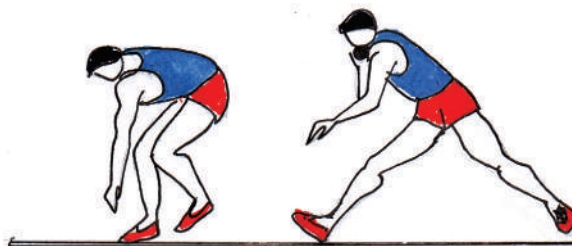


Figure 5.24 - Gliding stage

- Push the left leg backwards quickly with a sharp jerk.
- The right knee is slightly stretched at the knee.
- Gliding backwards on the ground is done on the heel of the right leg.

Power position

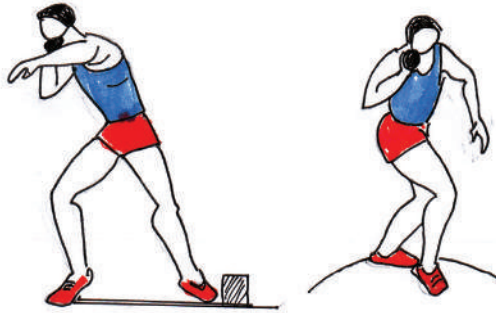


Figure 5.25 - Power position

- After gliding, the right foot is placed in the middle of the circle while the left foot is placed close to the front of the circle.
- The right leg is slightly bent at the knee and the weight of the body is on the right leg.

Release

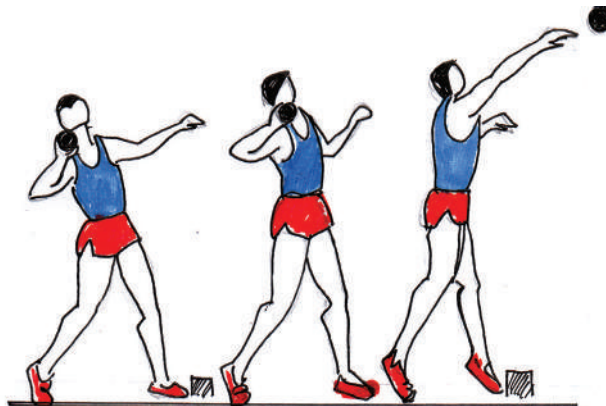


Figure 5.26 - Release

- The legs are stretched while turning the body towards the throwing direction.
- The right hand is straightened at the elbow and the shot put is released.

Follow through

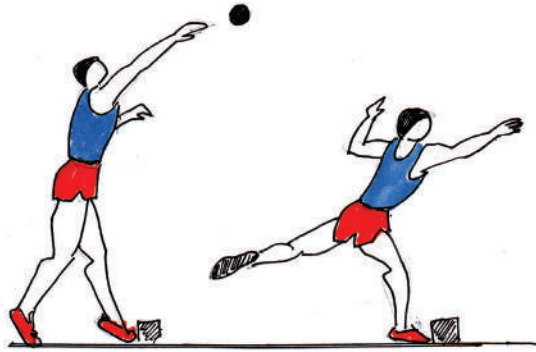


Figure 5.27 - Follow through

- When the shot put has been released, jump up bringing the back foot (right foot) to the front and the front foot to the back while in the air.
- Bend the right leg at the knee and slightly lean the upper body forwards.
- Stretch the left foot backwards in order to maintain body balance.

Weight of the shot put used for open competitions of different age limits at school level.

Table 5.3

| Age limit | Boys | Girls |
|-------------------------|---------|---------|
| Under 15 years | 4.000kg | 4.000kg |
| Under 17 years | 5.000kg | 4.000kg |
| Under 19 years | 6.000kg | 4.000kg |
| Under 21 years and open | 7.260kg | 4.000kg |

The throwing circle for shot put

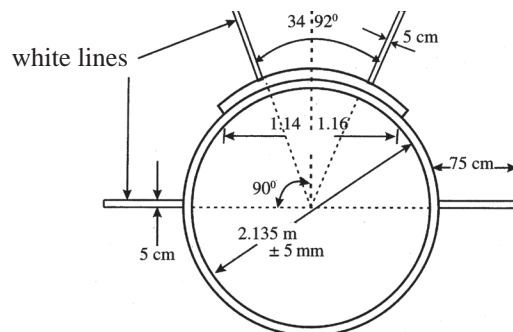


Figure 5.28- The throwing circle for shot put

Discus throw

Rotational technique is the commonly used method in discus throw. The process of discus throwing can be studied under six stages.

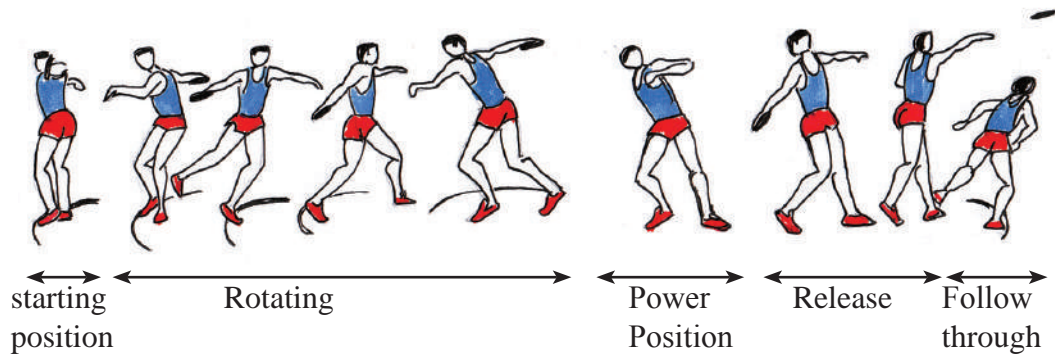


Figure 5.29 - Discus throw

Stages of discus throw

1. Preparation
2. Starting position
3. Rotating
4. Power position
5. Release
6. Follow through

The following descriptions of discus throw relate to a right-hander.

preparation



Figure 5.30 - Preparation

- When the discus is held firmly in hand, the competitor stands turning his back towards the direction of throwing.

- The feet should be kept apart close to the edge of the circle with a gap slightly over shoulder width.
- The knees should be slightly bent.

Starting position

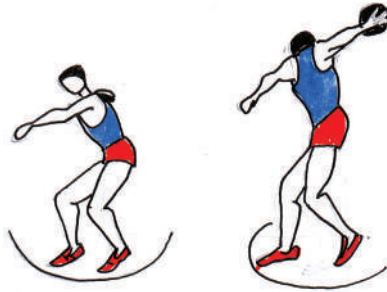


Figure 5.31 - Starting position

- The body is turned clockwise swinging the discus backwards.
- The hands should be at a level close to that of the shoulders.

Rotating stage

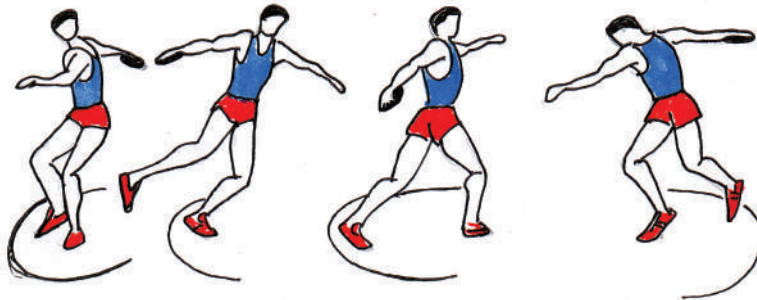


Figure 5.32 - Rotating stage

- The left knee, the left hand and the toes of the left foot are turned anticlockwise towards the throwing direction.
- The right foot is rotated forward anticlockwise close to the ground along the edge of the circle.
- A forward leap is made by pushing the body with the left leg and the right leg is landed close to the centre of the circle.
- When this landing has been made, the body lies in a position that the back of the body is turned towards the throwing direction.
- The left leg is swung forwards fast and landed close to the front area of the circle.

Power position



Figure 5.33 - Power position

- The bent right knee bears the weight of the body.
- The shoulder axis lies above the right leg.

Release

- The right leg is well stretched with the hip turning anticlockwise.
- The body is turned towards the throwing direction and the discus is released (figure 5.34-a,b)

Follow through

- As the discus has been released from the hand, the position of legs is changed so that the right leg is in the front and the left at the back.
- The right leg is bent at the knee and the body is slightly bent forwards.
- The left leg is moved and stretched backwards (figure 5.34-c)

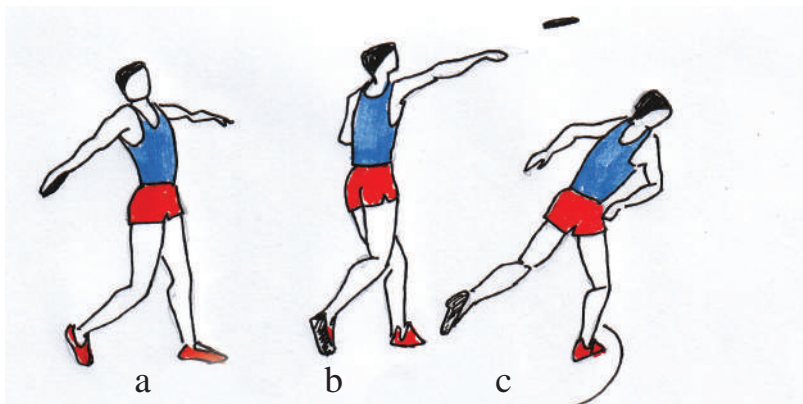


Figure 5.34 - Release and follow through

Weight of the discus used for open competitions at different age limits at school level

Table 5.4

| Age limit | Boys | Girls |
|---------------------|----------|----------|
| Under 15 years | 1.000 kg | 1.000 kg |
| Under 17 years | 1.000 kg | 1.000 kg |
| Under 19 years | 1.500 kg | 1.000 kg |
| Under 21 years open | 2.000 kg | 1.000 kg |

The throwing circle for discus

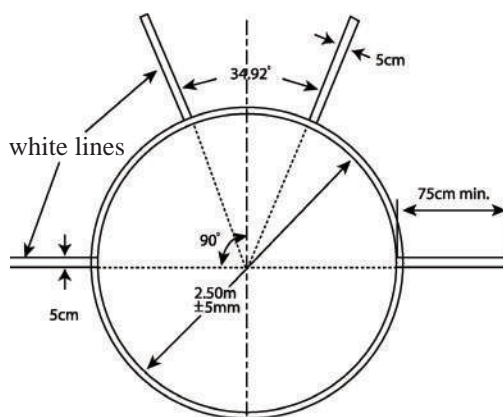


Figure 5.36 - The throwing circle for discus

Some of the rules and regulations related to shot put and discus throw

- ★ After a competition has started, the circle and the area on which the equipment lands cannot be used for training activities.
- ★ The place that each participant has won is decided on their best performance in all the rounds.
- ★ An attempt should be started with a steady position within the circle.
- ★ The participants should be within the relevant limits when an attempt is made.
- ★ The participants should not leave the circle after throwing until the equipment has touched the ground.
- ★ After an attempt has been made, the participant should leave the circle through the back half.
- ★ It is a foul attempt to touch the ground outside the circle, the top of the iron rim or the stop board or the area beyond that with any part of the body.
- ★ Participants are not allowed to wear gloves.



For extra knowledge

Except for high jump and polevault, the method used to resolve a tie position of competitors.

The maximum achievements of four long jumpers has been tabled below in meters. let us find the places of the four competitors according to the results tabled.

| Name of the competitor | 1st round | 2nd round | 3rd round | 4th round | 5th round | 6th round | highest achievement | place |
|------------------------|-----------|-----------|-----------|-----------|-----------|-----------|---------------------|-------|
| Supuni | 4.50 | × | 4.18 | 4.43 | 4.32 | 4.13 | 4.50 | 1st |
| Samadhi | × | 4.00 | 4.43 | 4.07 | 4.18 | 4.50 | 4.50 | 2nd |
| Amaya | 3.96 | 3.77 | 4.50 | 3.95 | 4.38 | × | 4.50 | 3rd |
| Pasindi | 4.02 | 3.72 | × | × | 4.46 | 4.12 | 4.46 | 4th |

Summary

All events coming under athletics have been classified into five groups, namely track and field events, race walking, road running, cross-country running and mountain running. Track and field events can be classified again into track events, field events and combined events. There are three types of combined events based on the number of events held.

Each step in race walking consists of two stages namely, single-support phase and double-support phase. The standing start and the crouch start are the two techniques used when starting a running event. The baton change in relay races can be classified according to the technique used. The hang technique of long jump can be studied under four stages. The Fosbury Flop technique of high jump too, has four stages. The linear technique of shot put and the discus throw rotating technique consist of several stages. There are rules and regulations governing each of these events.



Exercises;

1. Prepare a chart classifying the athletic events according to the standard classification.
2. Write two rules and regulations related to race walking.
3. State five advantages that can be gained by engaging in running exercises.
4. Write five rules related to relay races.
5. Prepare a chart classifying the jumping events.
6. State three situations in which an attempt is considered to be foul in long jump.
7. Write three rules and regulations that are related to shot put and discus throw.