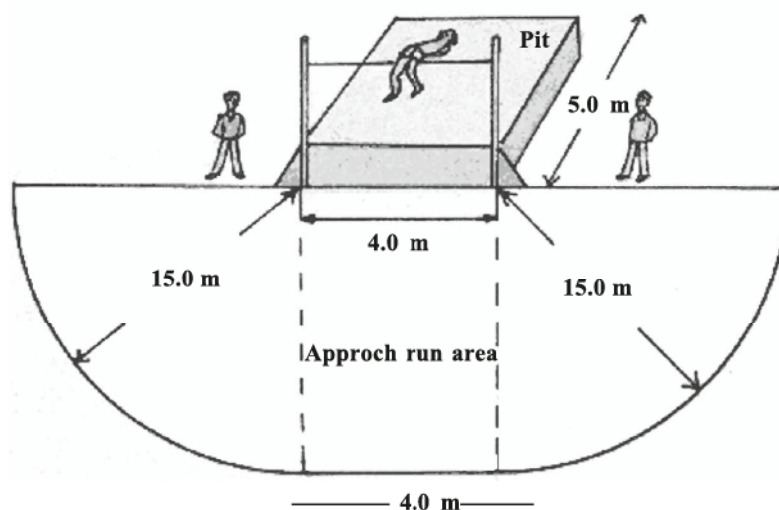


● High Jump :

Among all the track and field events high jump occupies unique position. Skills for high jump are developed repeatedly and many changes have taken place in the skills of high jump. In high jump an athlete comes running, takes off on a stronger leg, lifts the body in the upward direction, crosses the cross bar and lands on the pit.

In high jump, if the athlete wants to jump higher, the parts of the body below the waist should be turned upwards to raise the centre of gravity of the body as high possible in air. Thus in high jump, lifting the body in the direction opposite to that of the force of gravity and maintaining the proper position of the body have great importance.

● Ground:



High Jump: Ground, Equipment

● Approach run :

Minimum length of approach run is 15 mtrs. Length of approach run for Olympic and international competitions is kept 20 to 25 mtrs.

From the uprights of high jump an area of 15 mtr, radius is drawn and the entire area to be used as the approach run, is levelled.

● **Pit:** Length is 5 mtr and width is 4 mtrs. Instead of filling the pit with sand, rubber foam (pit) is used for safety.

● Equipment :

Uprights : They shall be sufficiently high as to exceed the actual heights to which the crossbar is raised by at least 10 cm. The distance between the uprights shall be not less than 4 mtrs nor more than 4.04 mtrs.

Crossbar : The crossbar shall be made of wooden or other suitable materials. The overall length of the crossbar shall be 3.98 mtrs, to 4.02 mtrs. The maximum weight of the cross bar shall be 2.00 kg. The diameter of the circular part of the crossbar shall be 2.9 cm to 3.1 cm. The end pieces shall be square in shape.

● **Supports of crossbar** : Support of the crossbar shall be 4 cm wide and 5 cm long with rectangular shape.

● **Skills** :

(1) Approach run.

(2) Take – off.

(3) Bar clearance.

(4) Landing.

Now let us discuss these skills in detail.

(1) Approach Run : Following items can be included in approach run :

● **Direction** : The direction to be taken by the athlete depends on the style that the athlete intends to adopt. In the scissor style, eastern cut-off style and fosbury flop style the take off leg is placed on the outside, away from the crossbar, compared to the free leg, so an athlete who takes off on the right leg will have to come to the take off point from the left side, while in the western roll and straddle style as the take off leg is coming towards the crossbar, the athlete will have to come running from the right side.

● **The angle (for the run)** : The angle of the body formed at the take off mark with the crossbar while running towards the side of the uprights in the direction of the approach run is called the angle of approach run. This angle is different in various styles of high jump. Generally the athlete arrives at the angle of 39° to 45°.

● **The distance** : After deciding the direction and angle of the approach run, the athlete has to decide the distance he will run before taking off. Generally athletes execute the take off after covering a distance of 12 to 15 mtrs in 7 to 9 strides.

(2) Take off : The athlete first makes a mark on the ground at a proper distance from the uprights and the cross bar. He takes this measurement with his arm. This mark is for athlete as his take off mark. Taking care not to obstruct the speed obtained during the run-up, the athlete touches the take off mark first with the heel of his take off foot, takes off and lifts his body in the upward direction. The last stride in the run up is longer and touches the take off mark first with the heel of his take off foot, slightly bends the knee of take off leg, centre of gravity of the body will be slight back and downward. Because of the momentum of the body, it will be pushed forward when the toe of the take off leg touches the ground. At this time, if the arm is swung from down to the upward direction, and if the free leg is straightened with a swing, it will be easier for the athlete to lift his body effectively in the upward direction. In short combination of lifting ability of take off foot, swing of free leg and upward motion of both the arms will lift the body effectively in the upward direction.

(3) Bar clearance : The action of passing the body successfully over the cross bar is also as important as the take-off. The position of the body while clearing the cross bar plays an important role in crossing the bar. Position of body depends on different styles of bar clearance in high jump. Different styles of bar clearance are as follows. (i) Scissor style (ii) Eastern cut off style (iii) Western roll style (iv) Straddle Style (v) Fosbury flop style.

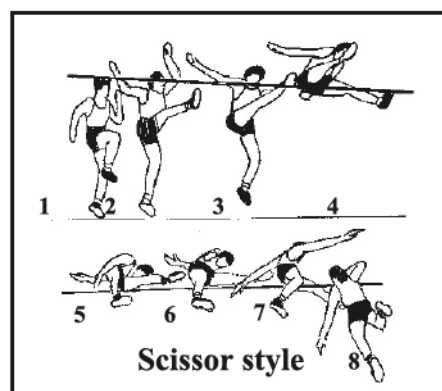
(4) Landing : While coming down towards the ground from the height of the crossbar landing is done in such a way that the reaction of the push is minimized and the landing is safe, without causing any injury to the body. The action of landing will be different according to the different styles adopted by the athletes.

Landing in scissor style is done on take off legs or some times on both the legs. In eastern cut-off style, it is on take off leg. In western roll style it is on take off leg and both hands parallel to cross bar. In straddle style it is on free leg and both the arms and then rolling on free leg side in the pit, in fosbury flop style landing is done on the back and the shoulders.

● Styles of Bar clearance in high jump : (Bar Clearance)

- (1) Scissor style.
- (2) Eastern cut off style.
- (3) Western roll style.
- (4) Straddle style.
- (5) Fosbury flop style.

(1) Scissor style : Approach run should be in such a way so that take off leg falls outside the crossbar, then athlete touches the take off mark first with the heel then toe of his take off leg takes off with the swing of hand and free leg and lifts the body in the upward direction, as athlete reaches at maximum height take sitting position over the crossbar keeping both hands and legs straight forward. After this position give momentum first to free leg, then take off leg towards the pit and lands on free leg or both the legs. While landing to reduce force of body he lands on toes, as leg touches the ground he bends the joints of leg in sequence.



This style is not more effective, because while clearing more height position of the body over the crossbar plays very important role. In this style position of the body over the cross bar is sitting, so to lift hand and trunk more energy is spent and more parts of the body fall between crossbar and centre of gravity of the body, so to gain more height, this style is not effective.

(2) Eastern cut off style : Approach run is same as scissor style, but before take off last two strides should be outside the cross bar. Lift the body with the help of swing of free leg, lifting ability of take off leg and swing of both the arms. While going over the crossbar athlete will turn the body towards the approach run so that heel of take off leg, knee, hip and buttock of that side remain near the crossbar. From this position bends towards the pit and brings take off leg downward quickly, so that waist will bend towards the crossbar and landing will be done on take off leg. While landing, keep both the arms upward so that they do not touch the crossbar. This style is also not very useful for clearing more height.

(3) Western roll style : The distance of approach varies from competitor to competitor. Some of them select 4 to 5 steps in approach run where as some of them select 10 to 12 steps. But most of the competitors select 6 to 8 steps. Steps are selected in such a way that take off leg comes, nearer to the crossbar in the last step. These steps are taken at an angle from 40° to 45° . A competitor increases his speed in last three steps. The last step is always longer than the other steps. This helps in having the higher swing of free leg. At the end of the approach run take off is taken by a strong leg.

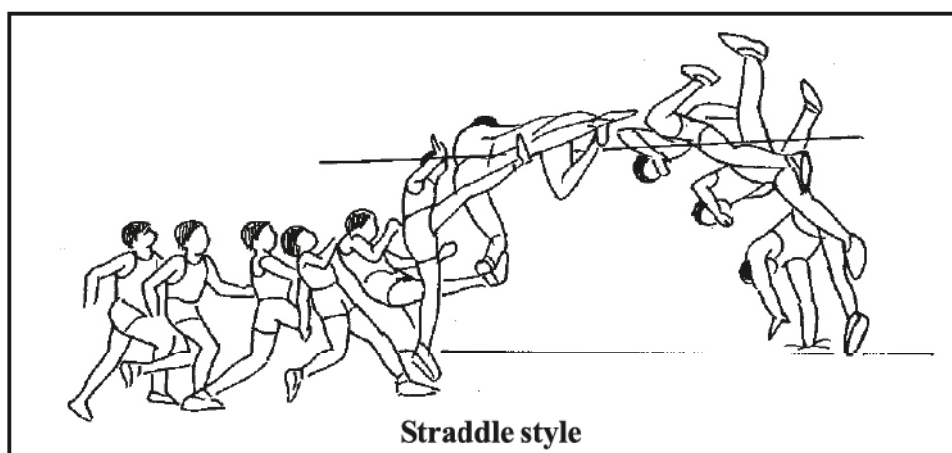
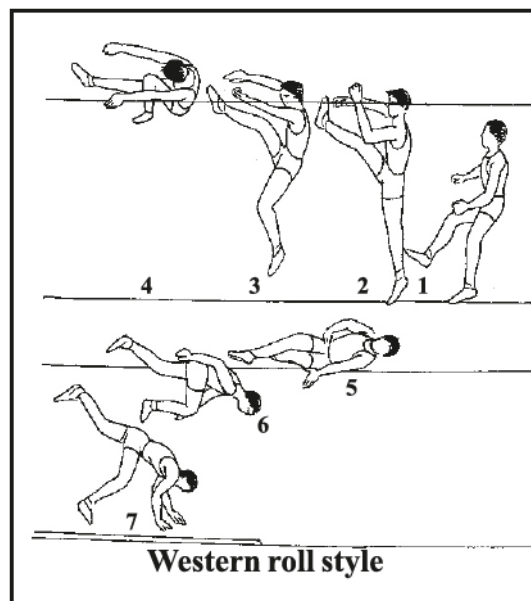
Since, last step remains longer, the heel of the take-off leg first touches the ground. Then the toes of the leg touch the ground. At this moment the upward swing of the free leg helps the body to be lifted in the upward perpendicular motion.

After take off the body passes over the crossbar, while crossing strong leg will be bent from the knee, and right side waist, the knee of the right leg and its thigh will be facing the cross bar. Free leg will be straight and shall remain parallel to the cross-bar. Thus the body shall remain in the sleeping position on the left side, landing will be done on take off leg and both the arms. During landing players will bend nearer joints, while take off leg and both hands will touch the ground.

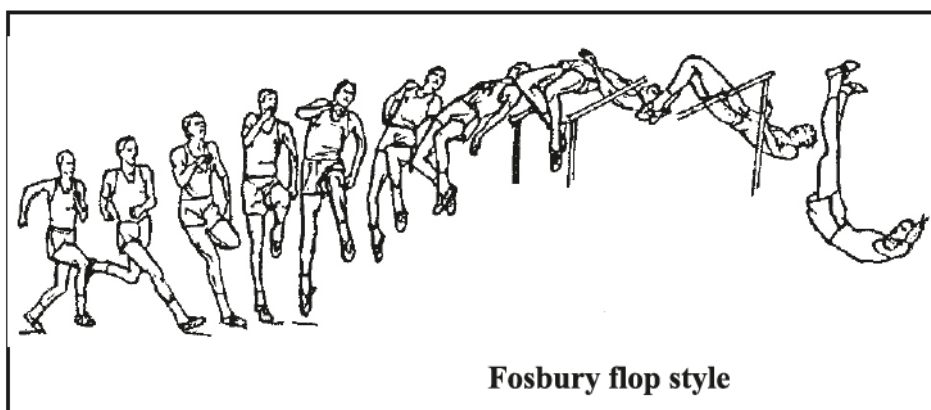
In this style less part of the body falls between the centre of gravity and crossbar over the crossbar. So better height is cleared than the scissor and eastern cut off style.

(4) Straddle style : In this style the athlete completes the running distance in 7 to 9 strides. He takes the strides from an angle of 30° to 40° in such a way that his take off foot comes near the crossbar. During the last three strides the athlete increases his running speed. The last stride is longer compared to other strides, then athlete places the heel of his stronger foot almost at right angle to the cross bar near it. During the take off action, the heel of the foot touches the ground first and then only his toes touch the ground. The take off leg is bent slightly and is given an upward swing.

After the take off the head and the shoulders of the athlete go above the cross bar and then the rest of the body comes above the bar. When athlete comes on the cross bar, his body stays facing down above the cross bar and parallel to it. While his free leg and the arm on that side are inclined towards the jumping pit from the cross bar. After crossing the bar, the athlete kicks in the air upwards with his stronger leg so that the rest of the body passes over the cross bar and starts coming down towards the pit. The athlete completes the landing with his free leg and both the arms.



(5) Fosbury flop style : In this style the back is turned towards the cross-bar, while taking off and because the body has to be turned around a perpendicular axis, the runway is kept semicircular in shape. The starting point and the take-off mark are in a straight line and at the right angle of the bar. The athlete arrives with a circular motion in such a way that the take-off leg is away from the crossbar. In this way he gains the speed needed for the take off. Most of the athletes take the first five strides straight in the direction of the up rights and the last three strides in a circular direction.



After acquiring the maximum speed through the approach run, the athlete will have to raise both his legs up to the lower edge of the bar. After take off both the legs are bent at the knees and with the upward reaction of the stumping of the foot during the take off and the swinging of the arms in the upward direction, the body is lifted in the upward direction. As a result the weight of the body comes quickly on the take off leg and so the action of lifting the body upwards is to be done quickly. As the arrival is speedy in the circular movement, the push of the body is stronger on the outer side of the take off leg. So in order to keep the weight of the body on the take-off leg, the athlete takes the last stride slightly sideways. As soon as the action of straightening the take-off leg becomes speedier the upward movement of the bottoms begins. At the time of the take-off the bar is by the side of the body. While athlete is crossing the bar, the bar will be towards his back. The shoulder on the side of the bar will stay upwards during the take-off. With this action the position of the body lying face upwards over the bar can be achieved easily.

As both the legs are together, they will hang downwards until the upper part of the body, including the bottoms passes over the bar. As the bottoms are pushed upwards, the position of the shoulders and the movement of the legs for crossing the bar become easy. As long as the bottoms do not clear the bar, the arms will remain close to the body. But as soon as the bar is cleared, the arms are straightened on the sides. As soon as the bottoms clear the bar, the knees are lifted towards the chest. After crossing the bar, the legs are straightened in the upward direction as a result of which circular motion at the back or in the body ceases and landing becomes possible on the shoulders and the back. This positions looks like a Halasan or keeping legs forward in sleeping position.

In present time in National and International competitions most of the athletes use the fosbury flop style. To clear the maximum height Fosbury flop is the best scientific method.

During the Mexico Olympics, American athlete Dick Fosbury had used this new method and cleared the 2.24 mtrs height with new record. So, this style is known as Forsbury flop.

● Rules :

- (1) The athletes shall compete in an order drawn by lot.
- (2) The athletes should wear clear number on the chest.
- (3) Each athlete will be given three trials at each height.
- (4) If he fails to clear the bar in all three trials, he will be out from the competition (This will not apply to solve the tie for first place).

(5) The rate of increasing the height of the cross-bar should not be less than 2 cm.

(6) In high jump, a competitor must take-off with one leg only.

(7) The trial of athlete shall be failure in the following -

- After the jump if cross bar falls down.

- If, before clearing the cross bar any part of the body crosses the imaginary line between the two uprights in level with the take off line, and after the jump touches any part inside the pit including the landing area.

- If athlete does not take his trial within two minutes after the judge call.

(8) A competitor can start jumping at any height announced by the chief judge.

(9) A competitor can ask 'pass' at any height.

(10) Last height that a competitor has cleared according to the rules, will be considered as his score.

(11) Even after all the other athletes have failed, an athlete is entitled to continue jumping until he has forfeited his right to compete further.

(12) After an athlete has won the competition the height or heights to which the bar is raised shall be decided by the athlete, in consultation with the relevant judge or referee.

(13) In case of records, the judges shall also recheck the measurement, before each subsequent record.

Exercise

1. Answer the following questions in one or two sentences :

- (1) What is the length and width of pit in high jump ?
- (2) List the equipment used in high jump.
- (3) Write the various styles of bar clearance in high jump.
- (4) How is landing performed in straddle style ?
- (5) Which is the best style for clearance the bar in high jump ?

2. Write short notes :

- (1) Scissor style.
- (2) Eastern cut off style.
- (3) Western roll style.
- (4) Straddle style.
- (5) Fosbury flop style.

3. Answer the following questions by selecting correct option from the options given below.

- (1) What is the minimum length of approach run in high jump ?
(A) 5 mtrs (B) 10 mtrs (C) 15 mtrs (D) 20mtrs
- (2) What is the length of cross bar ?
(A) 3.94 to 3.98 mtrs (B) 3.98 to 4.02 mtrs
(C) 4.02 to 4.06 mtrs (D) 4.06 to 4.10 mtrs.
- (3) What is the maximum weight for cross bar in high jump ?
(A) 2.00 kg (B) 3.00 kg (C) 4.00 kg (D) 5.00 kg
- (4) What is the length of pit in high jump ?
(A) 2 mtrs (B) 3 mtrs (C) 4 mtrs (D) 5 mtrs
- (5) How many trials are given to each competitor at new height in high jump ?
(A) One (B) Two (C) Three (D) Four

