

Introductory

Walking Running, jumping, throwing, climbing, descending, sliding etc. are the natural activities of human beings. All these activities are woven around human beings in one or another form. In different spans of time, among these activities, Running, jumping, throwing, etc, activities were given the forms of competitions. In sports science it is known as Athletics.

Regarding athletics activities, we shall get detailed information of running.

100 metres, 200 metres and 400 metres running are included in short distance running or sprints.

Skills of sprints or short Distance Running :

There are four main stages of short distance running. These are also known as skills.

They are :

(1) Start (2) Running strides (3) Coasting or Relaxed Running (4) Finish

(1) The Start :

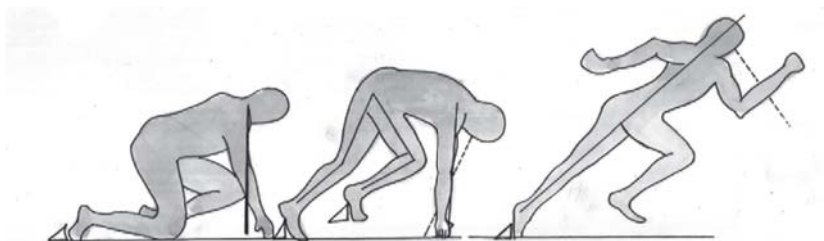
Start means the beginning of the running race. To get victory in the running race start plays a very important role. In the beginning of sprints, the standing start was commonly used by the runners. But due to development of the scientific theories in sports, a crouch start is started.

The crouch start : The name crouch start has been used, since two hands and two legs remain in touch with the ground. Using a crouch start, a competitor gets the speed from the very beginning of the start. Depending on the physical stature, constitution of the bodies, and the length of the legs of runner the crouch start is divided into three types.

(A) Bunch or Bullet Start (B) Medium Start (C) Elongated Start

Let us take the information about the above three types of starts.

(A) Bunch or Bullet Start : In short distance runs or sprints competitors generally prefer the crouch start in the world.



In Bunch start : on your marks, Set, Go - Positions

In crouch start 'on your marks', 'set' and 'Go' positions are as in the above figure. Yet, some runners like to take medium start. The runner has to take three positions of (i) on your marks (ii) Set and (iii) Go in all the crouch starts, and follow the instruction of a starter.

(i) On your marks : In the Bullet or Bunch start, as soon as the command 'on your marks' is heard, each runner places the toes of his strong leg on the starting block at a distance of 30 to 45 cm behind the starting line in his own lane. Then he places the toes of his 'free' leg in such a way that the toes touch the ground, keeping a distance of 5 to 10 cm between the heel and the front part of the toes of his leg. In this position the knee of the free leg is placed on the ground near the stronger leg in such a way that it is slightly ahead of the toes of the stronger leg. The soles of both the feet

should touch firmly on the starting blocks as shown in the figures.

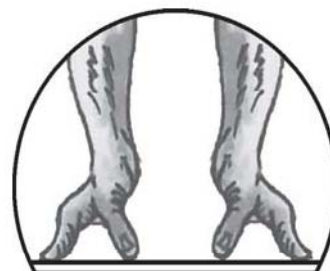
A position of the fingers in crouch start



Front view position



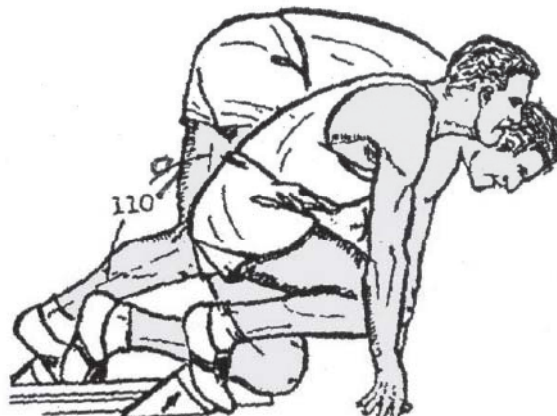
Side view position



A position of hand's fingers on the starting line in crouch start

After taking the sitting position as shown in the above figures, the runner places the fingers of both his hands 1 to 2 cm behind the starting line. He will place his fingers at a distance equal to the width of his shoulders. The weight of his body will be on his fingers. The fingers should not touch each other. The neck and the eyes sight should be in the direction of his lane in natural looking position.

(ii) **Set** : When the starter gives the command 'set' the runner leans a little forward and raises his buttocks. He keeps both his arms straight and leans forward. In short, he performs the forward and upward leaning action as shown in the figure. At this time his bottom part will be raised higher than his shoulders. The weight of the major part of his body, will be on the front foot toes and on the both the hands. The eyes should be in the direction of his lane in natural looking position.



(iii) **Go (A sound of clapper, gun or pistol)** : For this action, instead of giving oral command starter gives the order by using one of the above mentioned equipments.



The various movements of the body during the change from 'Set' to 'Go' Position in the bullet start

As soon as a runner hears the sound, he pushes his rear leg and brings it forward. He places it 45 to 60 cm away in front of the starting line. Along with the forward movement of his leg, he naturally, brings his opposite arm forward and the other arm backward. Both his arms are bent at the elbow and his fists loosely closed. The figure shows the various motions of the runner's body when he moves from the 'set' position to the 'Go' position.

(B) Medium Start :

Some runners prefer to take the medium start in short distance running, while most of them prefer to take it in middle distance running races. Some times, if after the completion of the action in the 'set' position, the sound of the clapper, gun or pistol is delayed, the runners find it difficult to maintain the balance of their body. Competitors having a medium height and legs with medium length generally find the medium start more suitable. This (medium) start is also suitable for maintaining the balance of the body after taking the 'set' position. Let us take the information of on your marks, set and go position in medium start.

(i) On your Marks : In the medium start as soon as the command 'on your marks' is heard, each runner places the toes of his strong leg on the starting block at a distance of 30 to 45 cm behind the starting line in his own lane. Then they arrange the other (free) leg in such a way that the knee of the free leg is placed 10 cm away from the arch made by the toes of the stronger leg. The knee of the free leg should touch the ground. After taking this sitting position, they place both their hands behind the starting line as in the bullet start at a shoulder wide distance forming an inverted 'V' with his thumbs and the fingers.

(ii) Set : As soon as the starter gives the command 'set' the runner performs the forward, upward and leaning actions as described in the bullet start.

(iii) Go : In the 'Go' action also, as in the bullet start, after hearing the sound of the clapper, gun or pistol, the runner quickly moves his rear foot forward and begins the running action. His first step is smaller compared to the steps which he takes later.

(C) Elongated Start :

This start is particularly used by runners with long legs. But because the runner gets lesser mechanical advantage from the elongated start than the "bullet start" or the 'medium start', most runners prefer to start their run with one of the two (Bullet or medium) starts. The three positions of the 'elongated start' have been described below.

(i) On your Marks : When the starter gives the command 'on your marks' each runner places his stronger foot at a distance of 30 to 45 cm from the starting line of his own lane. Then he places his free leg in such a way that the knee of that leg is placed on the ground 10 cm away from the heel of his stronger foot and the thigh of the free leg makes a right angle with the ground. The position of the hand is the same as in the bullet start or the medium start.

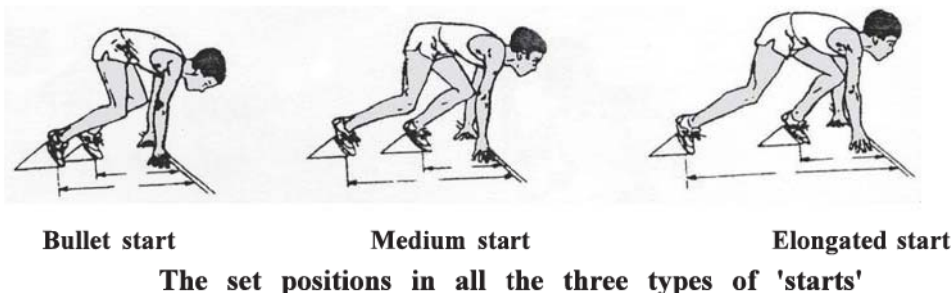
(ii) Set : The set position of the elongated start is also to a large extent similar to that in the medium start. As soon as the starter gives the command 'set', the runner performs the forward, upward and leaning action as described in the bullet and the medium starts. In the 'set' position, the hips and the shoulders are placed almost at the same height. The figures on the next page show the position of the body in the 'set' position in all the three types of start.

(iii) Go : Immediately after hearing the sound of the clapper or the gun or the pistol, the runner will speedily bring forward his free leg and place it 45 to 60 cm away in front of the starting line. The first step is relatively smaller than the rest of the steps or strides. The movements of the rest of the parts of the body will be similar to those in the Bullet and the medium starts.

(2) Running strides :

The running strides are divided into three parts :

(i) Starting strides (ii) Transitional strides (iii) Top Speed strides



(i) **Starting strides** : The first two strides after taking the start are called the starting strides. These strides are shorter than the other strides. The first step is needed to be short so that the runner can get the maximum advantage of the push back force from the starting block, which is with his rear leg. It also helps him to keep the balance of his body.

(ii) **Transitional strides** : Three to nine strides after the first two strides are called the transitional strides. Each of these strides are successively longer. The distance between each stride and the previous ones goes on increasing. Similarly by stages, the body which is leaning forward goes on becoming erect.

(iii) **Top Speed strides** : The strides after the transitional strides until the end of the run are known as the Top-speed strides. The distance between the two strides is almost the same and the body is inclined forward at an angle of about 25°.

(3) Coasting or Relaxed Running :

It is necessary to give rest to the muscles during the middle part of running competitions of 200 m or more than 200 m running. This action is called 'coasting' or 'Relaxed Running'. During the action of coasting there should be no change in the style of running, nor should be change in the speed. A learner finds it difficult in the beginning to bring about this change in his running speed, but training and long practice makes it possible for him to give rest to his muscles without actually losing speed. In a 200 m running race, the relaxed running is at 9/10 of the normal speed and it is only for about a distance of 10 metres, as shown in the figure.

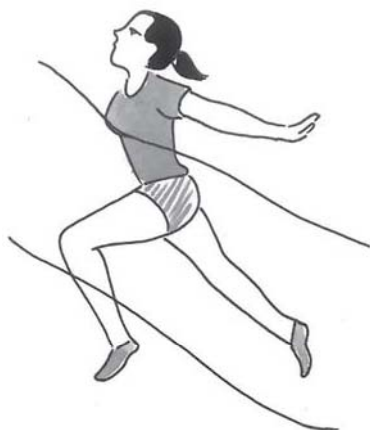
← 95 m →	10 m	← 95 m →
← Full speed →	9/10 speed	← Full speed →

4. Crossing the Finish Line :

The athlete should cross the 'finish line' with full speed in order to derive the maximum advantage of his speed. In order to cross the finish line at full speed it is necessary for the athlete to keep running at full speed for 5 to 10 metres even after crossing the finish line. While crossing the finish line, the part of the athlete's body between the shoulder and the waist, known in the sports language as 'torso' should cross the finish line first. If he take a jump or takes a long strike or tries to lunge forward, there is the risk of his losing the balance of his body.

A runner may cross the finish line by whichever of the three methods described below, he finds suitable for gaining the maximum advantage

(i) **Crossing the Finishing Line at the Maximum Speed** : In this method, a competitor has



(i) Crossing the finishing line at the maximum speed



(ii) Crossing the finishing line with the Trunk leaning forward



(iii) Turn Finish

to cross the finishing line with top speed. This is known as the Run Through Technique.

(ii) Crossing the Finishing line With the Trunk Leaning Forward : In this method, the runner arrives near the finish line at the top speed. He leans his trunk in the forward direction as shown in the darkened position of the figure. In this 'position, he cross the finish line at full speed. This method is known as the Lunge Finish Technique.

(iii) Turn Finish : In this method, a competitor turns his trunk either on the right side or on the left side, when he comes near the finishing line. Thus, he crosses the finishing line with top speed. This method is called turn finish technique :

The short distance runner has to keep in mind the following points :

(1) At the time of start, the attention should be concentrated to the sound of clapper or the gun or the Pistol.

(2) In the start, the speed of the starting strides go on increasing and maximum speed should be gained after ten strides.

(3) In the start, the runner keeps leaning position. His trides are rhythmic and of equal length. The speed is also uniform. The body is leaning forward at an angle of 25 degrees.

(4) The movement of hands and feet should be rhythmic.

(5) The respiration movement should be done with open mouth.

(6) Keeps both his arms bent at the elbow at 90° and keeps them forward.

(7) Strides should be in a straight line and knees should be lifted ahead forward.

(8) Strides should be speedy, push the leg on track for acquiring more speed.

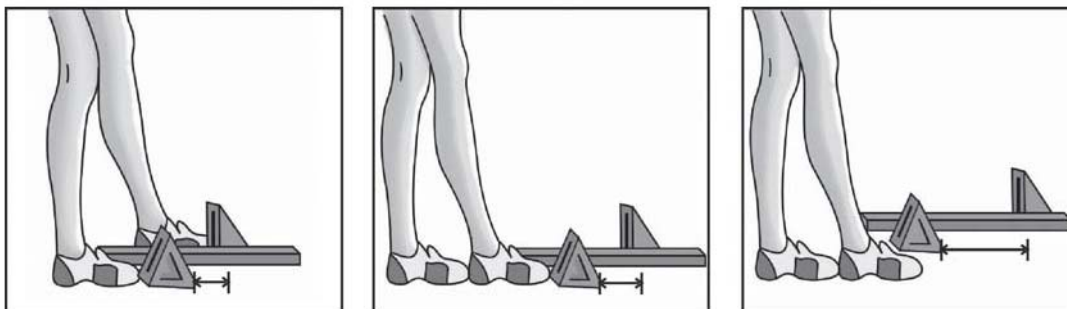
(9) Running should be in a straight direction while in curve, running should be nearer to the left side marking line.

(10) During running, attention should be concentrated in running.

(11) Do not look at the runner who is running in his side lane or behind runner. One has to run in his own lane of the track with straight eye sight.

Starting Block

The use of starting blocks is compulsory for all the runnings upto 400 m. In sprints, the crouch start is compulsory.



Starting Blocks

Charles Sherin had used the crouch start first time in 1887. At that time the starting blocks were not available. Competitors used to make pit on the track, fixed their feet and benefit of pushing was acquired. Due to pit the track is damaged. After that time competitors started the use of starting blocks.

Using starting Block, Runner gets the following benefits :

- Structure of the starting block should be strong. A competitor should not get any mechanical benefit or help for using the starting block.
- Starting block should be fixed on the track in such a way that there is no damage to the track. After using it, it should be removed from the track.
- In structuring the starting block, there are two foot plates. A runner puts his feet pushing in versus direction. Plates are strong and fixed in such a way that there will not be any obstacle to the runner.
- Foot plates will be inclining, flat or concave. There will be soft surface on the plates or holes so that starter puts his pegs of boot on it easily.
- Foot plates should move to and fro as necessary. Starting block is tightly fixed in such a way that it will not move.

Fixing the starting block :

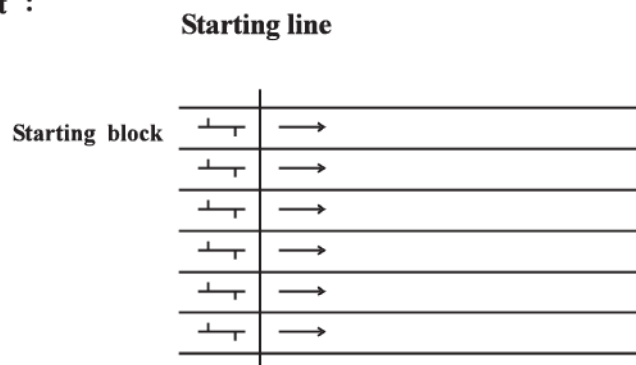
A starting block should be fixed behind the starting line. The starting block should not touch the starting line or interior part of track or any competitor's lane.

In crouch start, the starting blocks are fixed according to the type of the start, a competitor takes/selects.

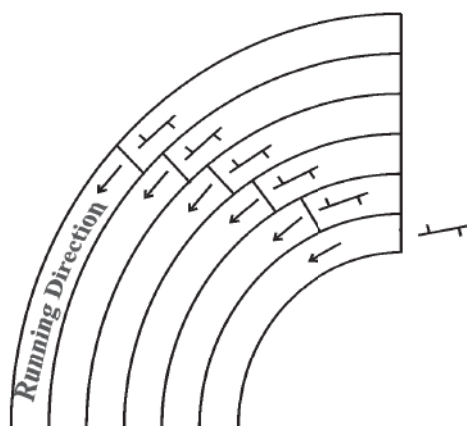
Starting block is used in short distance running (upto 400 m runnings). In this running the crouch start is compulsory. By mean of the use of a starting block, a competitor gets the speed from the very beginning. After arranging the starting blocks at a necessary distance behind one's starting line, it should be checked, whether the blocks are arranged in a straight line in one's lane. Then the pegs should be fixed. The blocks fixing screw keys also should be checked and after that, one should practice to take one or two starts trials from the blocks so that difficulty faced can be found out.

Fixing the starting block :

For 100 m start :



Arrangement of starting blocks for the staggered starts for 200 m and 400 m runs



EXERCISE

1. Answer the following questions in detail :

- (1) State the types of the crouch start ? Which start is the best. Give reason.
- (2) State the different positions in Bunch or Bullet start.
- (3) What is coasting or Relaxed Running ?
- (4) State the "on your marks" position in the medium start.
- (5) State the techniques or methods of crossing the finish line. Give the details of any one.

2. Write short notes on :

- | | | |
|---------------------|------------------------------|----------------------|
| (1) Starting block | (2) The transitional strides | (3) The crouch start |
| (4) The Turn Finish | (5) The Lunge Finish | |

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

- (1) Which Running are included in short distance running or sprint running ?
- (2) Which parts of the body are touching with the ground in the crouch start ?

- (3) What is the position of fingers and thumb of both the hands in "on your mark" position of the medium start ?
 - (4) Which actions does the competitor take in the crouch start ?
 - (5) When there are Top-Speed strides in sprint running ?
- 4. Fill in the blanks with suitable words (your answer should be based on the Text-book):**
- (1) 100 m running is including in _____ running.
 - (2) _____ are the main skills of the sprint running.
 - (3) When runner receives the command 'set' he performs the forward, upward and _____ actions.
 - (4) In the sprint running, there are _____ strides after starting (initial) strides.
 - (5) A Runner has to cross the finishing line at the _____ speed.
- 5. Write answers to the following questions by selecting correct option from the options given below :**
- (1) Which running is not included in the sprint running ?
 (a) 100 m running (b) 200 m running
 (c) 1500 m running (d) 400 m running
 - (2) How many types of crossing the Finish Line are there ?
 (a) One (b) Two (c) Three (d) Four
 - (3) Which type of start is wrong in the crouch start ?
 (a) A bullet or Bunch start (b) The Medium start
 (c) The Elongated start (d) The standing start
 - (4) Where is the starting block fixed ?
 (a) On the starting line (b) Behind starting line
 (c) Touching the starting line (d) Beyond the starting line in his lane
 - (5) What is the name of part of the athlete's body between the shoulder and the waist, except hands ?
 (a) Trunk (b) Torso (c) Stomach (d) Abdomen
 - (6) How many types of running strides are divided in the sprint running ?
 (a) Two (b) Three (c) Four (d) Five
 - (7) Which type of sprint running stride is wrong ?
 (a) The starting strides (b) The Medium strides
 (c) The transitional strides (d) The Top speed strides
 - (8) Which one method is wrong in crossing the Finish Line
 (a) Run through (b) Lunge Finish
 (c) Turn Finish (d) Jump Finish
 - (9) Where does the runner keep his eye-sight ?
 (a) On spectators (b) On his competitor
 (c) Behind (d) Straight eye sight in his lane

- (10) In which shape does the competitor fix his fingers and thumb behind his starting line in medium start ?
(a) U (b) \wedge (c) V (d) \cap
- (11) Which position is not true in the crouch position ?
(a) on the mark (b) set (c) vertical (d) Go
- (12) What is the name of action which gives rest to the muscles during the middle part of running competitions of 200 m or more than 200 m running ?
(a) The Coasting Running (b) The speedy Running
(c) The Slow Running (d) The Resting Running

Activity

- Fixing the starting block and removing

