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Relay race (4X100M)

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Abstract

A relay race is a track and field event in which athletes run a pre-set distance carrying a baton before passing it onto the next runner. Often, a relay team is a team of four sprinters.

The 4 x 100-meter sprint relay challenges four athletes to carry a baton around a 400-meter track as quickly as possible.

A relay race is a track and field event in which athletes run a pre-set distance carrying a baton before passing it onto the next runner. Often, a relay team is a team of four sprinters. In athletics there are two standard relays: The 4 x 100m Relay & The 4 x 400m Relay.

Keywords: Relay race, 4X100M

Introduction

All runners in the 4x100m relay must stay in their designated lanes the entire race. Leg Baton Ability Athlete Strengths Lead-off Leg Passes baton Good starter, with good acceleration and balance Can run the curve, staying in the lane Second Leg Receives baton Passes baton Very fast runner Ability to run strong straightaway Excellent speed and endurance Third Leg Receives baton Passes baton Can run the curve, staying in the lane Fourth Leg or Anchor Leg Receives baton Most competitive runner Ability to catch and pass runners.

How does the relay work

The relay consists of four people. A team with four decent sprinters can out-race a team with four better sprinters by beating the faster team in the exchange zones. The initial runner in the 4 x 100 relay begins the race in starting blocks. The next three runners receive the baton via exchanges. The exchange zones are 20 meters long and are preceded by a 10-meter acceleration zone. The receiver begins running in the acceleration zone but the baton can only be passed within the exchange zone. In the relay, runners do not switch hands when carrying the baton. Therefore, if the first runner holds the baton in the right hand, the second runner will receive the baton in the left hand, the third will receive and carry the baton in the right hand and the final runner will handle it in the left hand. The Acceleration Zone Also known as the pre-changeover zone, it is the section of the track leading up to the changeover zone which allows the athlete who is going to receive the baton to start and pick up speed. NOTE: The baton cannot be exchanged in the acceleration zone but the outgoing runner can wait within the 10m acceleration zone. The Changeover Zone This is the area in which the changeover of the baton to the next athlete takes place. It is 20m long and the baton must be exchanged in this zone. A mark is usually put down on the track by the runner to let the outgoing runner know when to start, this mark is found through training before the event, usually 15 - 20 foot before the outgoing runner.

4 x 100 meter relay - exchange zones

The baton must be exchanged within the 20-meter exchange zone. There are 3 exchange zones. Each exchange zone has a 10-meter acceleration zone. The outgoing runner may start running from within this acceleration zone. However they cannot receive the baton within the acceleration zone. The ideal baton exchange will take place at the middle of the exchange zone.

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Fig 1: Down Sweep body position

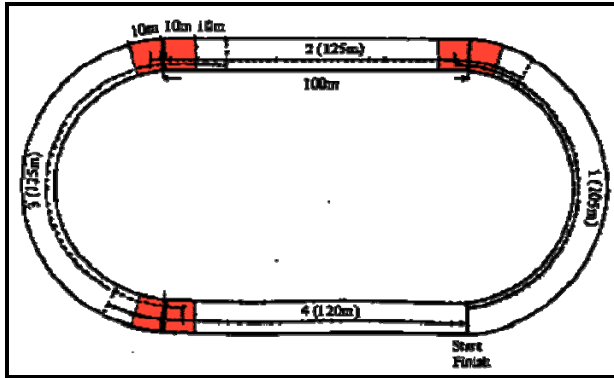


Fig 2: Baton exchange and acceleration zone



Fig 4: Position of Starts and acceleration

Third Leg Runner

- Starts in the acceleration zone.
- Explosive off the check-mark. (Good timing on the check-mark)
- Runs on the bend.
- Carries the baton in their right hand.
- Runs approximately 125 metres.
- Receives and passes the baton.
- Runs on the inside of the lane.



Fig 5: Third Leg Runner position

4 X 100 Metre relay - running order

Lead-Off Leg Runner

- Starts in blocks. (Experienced starter).
- Can start with the baton
- Runs on the bend. (Ability to stay in lane).
- Carries the baton in their right hand.
- Runs approximately 105 metres.
- Passes the baton only.

Runs on the inside of the lane.



Fig 3: Starting position of first runner

Second Leg Runner

- Starts in the acceleration zone. (Explosive off the check-mark. Good timing on the check-mark)
- Runs on the straight.
- Carries the baton in their left hand.
- Runs approximately 125 metres.
- Receives and passes the baton.
- Runs on the outside of the lane.

Fourth Leg Runner

- Starts in the acceleration zone. (Explosive off the check-mark.)
- Runs on the straight.
- Carries the baton in their left hand.
- Runs approximately 120 metres.
- Receives the baton only.
- Runs on the outside of the lane.
- Competitive.
- Ability to stay in lane.



Fig 6: Starting position of Second Leg Runner

How the baton can be transferred

1. The Up-Sweep Technique: The receiving hand is extended behind them at hip height with the palm facing down and a wide angle between the thumb and the rest of the fingers. The incoming athlete passes the baton in an upward movement into the receiving hand. The advantage of this method is that this is a normal position for the receiving hand. A disadvantage is that it may require some manipulation of the baton in the hand to make the next exchange safely.

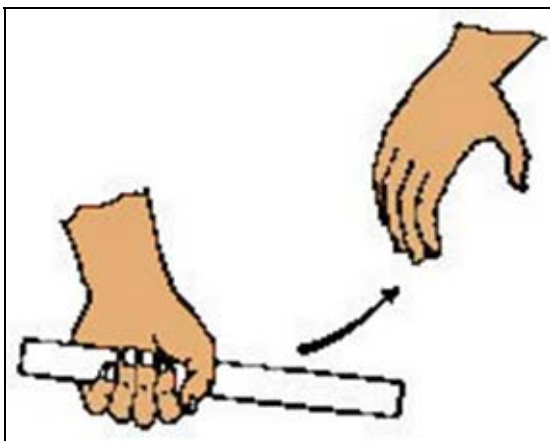


Fig 7: Up-Sweep Technique

2. The Down Sweep Technique: The receiving hand is extended behind them at hip height with the palm facing up and a wide angle between the thumb and the rest of the fingers. The incoming athlete passes the baton in a downward movement into the receiving hand. The advantage of this method is that it will require no manipulation of the baton to safely make the next baton exchange. A disadvantage is that it is not a natural position of the outgoing athlete's hand to receive the baton.

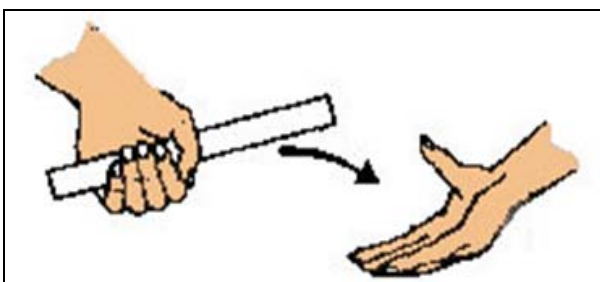


Fig 8: Down Sweep Technique

3. The Push-Pass Technique The outgoing runner's arm is extended out behind them parallel to the ground and the hand is open with the thumb pointing down. The incoming runner holds the baton vertically and pushes it straight into the open hand.

The arm is extended out parallel to the ground and the hand is open with the thumb pointing down. The incoming runner reaches the pre-determined check mark. The outgoing runner sprints at full effort. Both runners facing forward at all times. The incoming runner maintains top speed and on approach calls the pre-determined command – HAND. The outgoing runner extends a steady arm and opens their hand while maintaining top speed. The incoming runner pushes the top of the baton into the open hand.

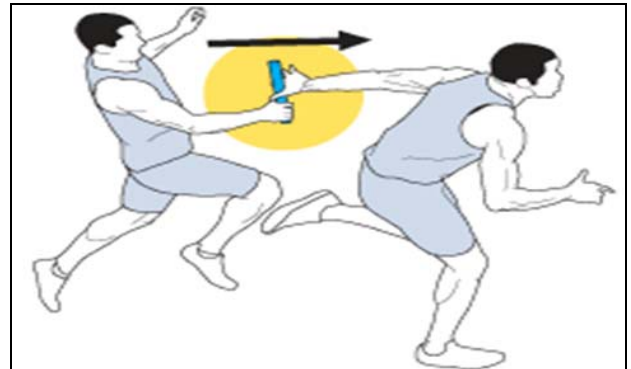


Fig 9: Technique of Down Sweep body position

4 X 100 Meter relay - Check-mark

- Check-marks are used so that the baton exchange will be smooth and legal.
- A check-mark is placed on the track outside the exchange / acceleration zone.
- White tape is commonly used as a check-mark.
- The outgoing runner accelerates as the incoming runner meets the checkmark.
- Poor exchanges occur when the outgoing runner takes-off too early / late.
- The faster the incoming runner, the further away the check-mark should be.
- The faster the outgoing runner, the closer the check-mark.
- Identifying efficient check-marks requires trial and error and takes time



Fig 10: Set the check mark



Fig 11: Position of outgoing Runner



Fig 14: drill of Down Sweep Technique

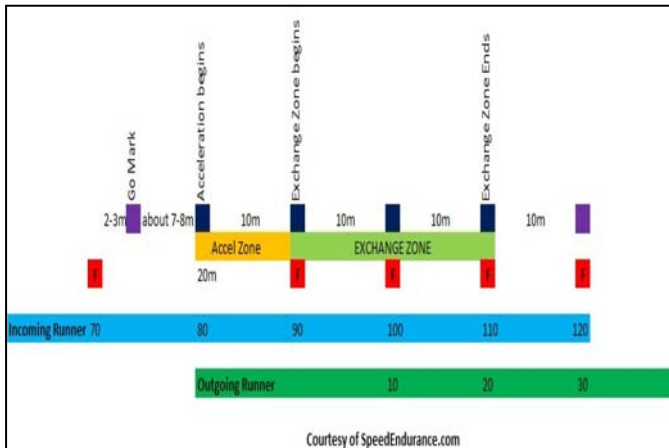


Fig 12: Baton exchange and acceleration zone

4 X 100 Meter relay – drills

The following drills are important to the development of baton exchange technique. Athletics Ireland High Performance relay squads incorporate these drills into their practice sessions.

Used in the following order these drills may also act as a comprehensive competition 4 x 100 metre squad warm-up routine.

- Push-pass wall drill
- Squad drill static
- Squad drill static - tap / take
- Squad drill jog
- Pairs drill stride - tap / tap / take
- Pairs drill stride / sprint
- Pairs drill two baton stride / sprint



Fig 13: practice of baton exchange in static position

A good selection of team members

First Leg - Priority goes to an athlete who has a good start, can run the bend and pass the baton well.

1. **Second Leg:** The choice goes to an athlete who is confident in receiving and passing the baton, runs well in the straight and possesses sufficient speed endurance.
2. **Third Leg:** The selection goes to the sprinter who is confident and reliable in receiving and passing the baton, can run the bend well and possess sufficient speed endurance.
3. **Fourth Leg:** Here we normally select a runner who receives the baton well, is efficient in running the straight and has a high degree of competitive spirit

Rules of a relay

A team may be disqualified from a relay for Losing the baton (dropping the baton)

- Making an improper baton pass
- False Starting (usually once but sometimes twice)
- Improperly overtaking another competitor
- Preventing another competitor from passing
- Willfully impeding, improperly crossing the course, or in any other way interfering with another competitor.

The Outgoing Runner

The outgoing runner may either stand or crouch at the beginning of the acceleration zone, with both knees bent for good leg angles and both feet pointing in the direction to be run. Body lean should be forward with weight equally distributed over both legs. Both heels should be off the ground with the head turned looking back. Adjustments as to the exact placement on the track of the “go patch” have to be made during training sessions as the two runners practice the exchange. Of course, there are other factors that affect the speed of the incoming runner and the acceleration of the outgoing runner in every meet such as the wind or the condition of the running surface.

Responsibilities of the outgoing runner:

- Know exactly which lane your team has been assigned before you go to your zone
- Remove all other “go” marks from your lane.
- Place your “go” patch all the way across your lane.
- When the incoming runner hits the patch, start explosively and accelerate all the way through the exchange zone. Never slow or float to receive the baton.
- Stay on your half of the lane!
- Do not extend your hand back for the baton until the

- incoming runner calls for it or you reach your mark.
- Give the incoming runner a steady, soft hand (slightly cupped) when he or she calls for it. Don't grab for the baton. Never look back.
- Following the race, discuss the execution of the passes with your incoming and outgoing partners to determine how you might be able to improve.
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The incoming runner

It is the duty of the incoming runner to get the baton into the hand of the outgoing runner.

Responsibilities of the Incoming Runner

- Catch the outgoing runner!
- Stay on your half of the lane
- Do not extend the baton until you have focused on the hand. Do not decelerate, and never lean to reach the hand.
- Shove the baton up into the crease of the palm hand.
- If you miss completing the pass on the first stroke, keep sprinting, and get the baton into the hand on the next stroke.
- Sprint all the way through the zone, regardless of where you complete the exchange!
- Stay in your lane until the outgoing runner in every other lane has passed you.
- Following the race, discuss the execution of the passes with your incoming and outgoing partners to determine how you might be able to improve.

Equipment

The relay baton is a smooth, hollow, one-piece tube made of wood, metal or another rigid material. It measures between 28 and 30 centimeters long and between 12 and 13 centimeters in circumference. The baton must weigh at least 50 grams.

Summary

- **Practice baton exchanges at realistic racing speeds.**
The most common mistake many high school teams make when practicing baton exchanges is to conduct a training session with the incoming runner sprinting full speed from a distance of 30 meters or less—this certainly does not simulate race conditions in which the incoming runner is required to make the baton exchange after a full effort of 100 meters when the runner is decelerating and very tired. Practicing baton exchanges at speeds that cannot possibly be achieved during the actual relay will only serve to ensure the exchanges will not be efficient. Another mistake high school teams make is to practice relay exchanges at the end of practice when all relay members may be tired. Productive relay training should be done when all relay members are fresh and sufficiently warmed up to produce a full effort. Just as practicing baton exchanges at speeds greater than can possibly be achieved is undesirable, practicing exchanges at speeds slower than race speed due to athletes being tired or improperly warmed up will also yield poor results.
- Emphasize maintaining the speed of the baton through the zone. (If the two runners were invisible, you should never see the baton slow down.)

- Practice exchanges in different lanes, including Lanes 1 and 8.
- Practice with other sets of runners in adjoining lanes to simulate the congestion and distractions runners have to deal with in the zone. One excellent way to do this that will allow a single coach to see more exchanges is to have your one and two runners work in lane three and your three and four runners work in lane 5 or have your varsity boys work in lane three, your junior varsity boys in lane four, your sophomore boys in lane five, and your girls varsity in lane 6. To further simulate congestion, start each group at slightly different times.
- **Coaches should watch exchanges from a distance** - many coaches find it helpful to watch exchanges from the stands to get a better perspective. It is difficult to determine if a runner leaves early or if the pass occurs at the proper point if the coach is right next to the action.

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