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Lecture Title
Relay Race - 2
Script

Second Episode:

Welcome to the Second Episode of Relay Races. In previous episode we discussed about the history and rules of this game. In this episode we will be talking about the techniques in Relay Races.

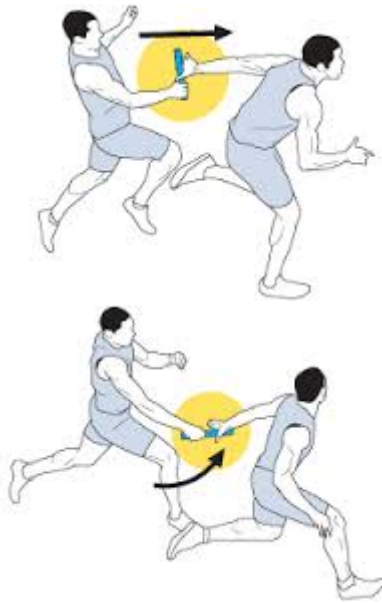
Relay races are for teams of four runners, each carrying a baton for a given distance or stage before passing it to the next team member. The handover needs to be accomplished with speed and dexterity within a defined take-over zone.

Technique

Techniques employed in relay racing are largely dictated by competition rules. We shall therefore only make a few introductory remarks. The baton must be passed only within a 20 m take-over zone. This zone begins 10 meters before the scratch line (100-m marking) and end 10 meters after it. The outgoing relay runner may commence running 10 meters outside the take-over zone. He therefore covers 30 meters to the end of this zone. This rule applies only to the 4×100 meters relay. After the baton-pass, the incoming sprinter must remain in his lane until all changes have been completed. If he deliberately impedes a member of another team by leaving his lane or his position, he is liable to cause disqualification of his own team. A good baton-exchange needs to satisfy the following two conditions:

1. The baton-exchange must take place after some 12 to 16 meters running, measured from the beginning of the take-over zone.
2. The baton must be passed inside a short distance to be covered by some three to four strides and without unnecessary loss of time.

By an ideal technique and an optimal utilization of the take-over zone a time can be recorded in the 4×100 meters relay which is about 2.5 sec. better than the total of the individual times of the four sprinters. This is feasible, because the passes take place after a flying start, i.e. at the greatest possible speed by the receiving runner.



Baton-Changing Methods

In practice three baton-exchange methods: the outside-, the inside- and the Frankfurt (or mixed method) is used. All three methods are practically equivalent. Not the type of exchange but, apart from sprinting skills, the mastery of the exchange technique used is important for achieving a good relay time.

The Outside Exchange

The incoming runner holds the baton in his left hand. He approaches the receiving member from outside and passes the baton into his right (outer) hand. This type of exchange is used preferably for beginners, because they are better at grasping the baton with the right than with the left hand.

The Inside Exchange

The incoming runner holds the baton in his right hand. He approaches the runner waiting for the baton from the inside and passes it to the outgoing runner's (inner) hand.

On outside as well as on inside baton-exchange methods, the baton is, after receiving, immediately transferred from the receiving to the passing hand.

The Frankfurt Exchange (mixed method)

This type of exchange is combination of the outside and the inside exchange methods: the first and third passes are on the inside and the second is on the outside. The runners in the bend hold the baton in the right hand, the runners on straight-aways in the left hand. After receiving, there is no change-over of the baton to the other hand. All three exchange methods have their pros and cons, of which only major ones will be discussed here.

The outside exchange has the advantage that the receiving hand is, as a rule more skilled than the left one. Drawbacks are relatively long distance of the receiving

members. The Frankfurt exchange also satisfies the demand of an economic use of space, but taking of the baton often creates difficulty: as there is never a change-over of the baton from one hand to the other, the space for seizing it becomes even smaller and the baton is frequently dropped.

The Start

The start for the 4×100 meters relay is basically the same as for the 400 meters. The starting blocks are placed close to the outer line of the track. The baton lies between the forefinger and the thumb and is enclosed by the other fingers. After a successful start, the runner quickly passes to the inside of his lane.

The Marking for the Start

The second, third and fourth runners place a checkmark on their lanes just behind their starting positions. It consists of one or several positions. It consists of one or several chalk lines across a cinder track. Coloured tape is used on Tartan lanes; it may be stuck or fastened on to the coating (placing marking objects on or alongside the track is not allowed). This is a check mark for the outgoing runner reaches him. The distance between the check mark and the starting position depends on the speed of the incoming runner and on the acceleration of the outgoing runner. It should be sufficient long to allow the baton to be passed without visible delay (if the second, third and fourth runners start 10 meters before the take-over zone, a baton-pass between 22 and 26 meters for men and between 19 and 22 meters for women should be attempted).

Most relay runner find out in training the right distance for the check mark and control it in competitions. Small changes are naturally inevitable, due to the varied fitness of athletes and changes in training and competitions.

It has proved advantageous in practice if in all training in differing conditions; attention is also paid to the feeling of the right moment of the start. This is where the runner learns to concentrate fully on his partner and to adapt to his speed.

Running Inside the Take-Over Zone

In this zone, a rapid and rational baton exchange has to be prepared and executed at speed. The runners receiving the baton start to sprint 10 meters before the take-over zone. The outgoing runner must focus his attention on the check mark and the incoming runner, when preparing for the start, his head is turned round. In order to keep the body twist as small as possible he will use the most favorable (narrowest) angle of vision backward. In the take-over zone, the runners keep close to the inner or outer line of their lane (depending on the type of baton-ex-change applied). The start of the outgoing runner must be at maximum speed. The runner passing the baton should slow down his speed as little as possible.

The Baton Exchange

During the exchange, the baton must be delivered firmly and safely into the hand of the receiving runner. The arm movement is basically the same as in running. A

prolonged extension of the arm may gain ground but disturbs the stride rhythm and reduces speed. When the incoming runner has approached his partner (with 2 to 3 meters) he indicates to him by a signal when to extend his receiving arm back-wards. The arm fixed in this position serves as a point of orientation. If the signal comes too early or too late, this results in an unsteady baton pass and consequently in a loss of time. The same thing occurs if the runner receiving the baton is put firmly into to grasping hand between the spread thumb and the four locked fingers. In spite of his fixed arm, the outgoing runner must be able to continue acceleration during the take-over. In side or exchange it is useful to pass the baton from one hand to the other immediately after the exchange, because a later change will disturb the stride rhythm and is also frequently forgotten, so that there is uncertainty in the change-over. In the past other methods of baton changing were used. These will, however, not be discussed here.

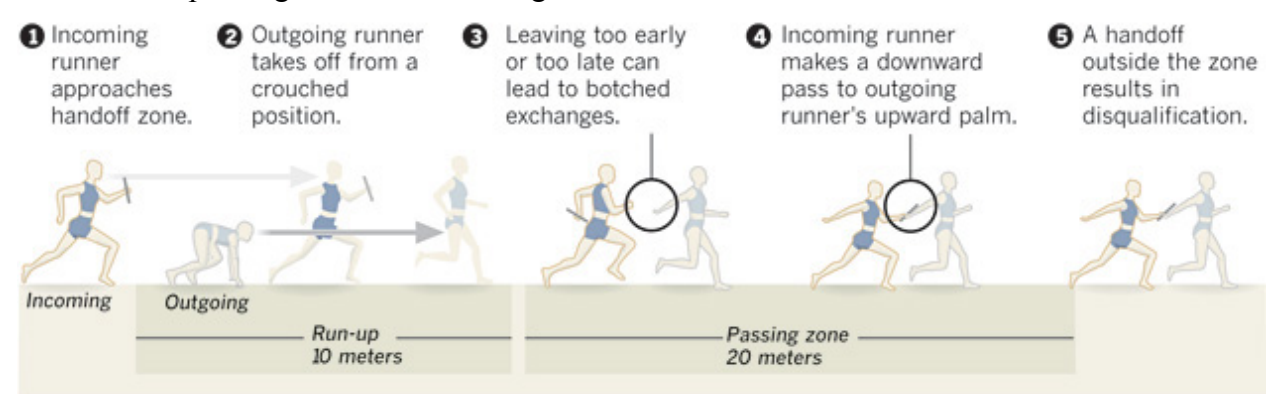
Tactics

The tactical order of running in relays serves the purpose of gaining any possible advantages over opposing teams by the applications of a particular tactics.

Thus attention should be given to the following aspects:

- Sprinting abilities
- Starting abilities
- Mastery of Baton Changing
- Competitive Qualities
- Physique

Influence of sprinting abilities on running order



Performers

The first and fourth runners cover roughly 110 meters each, and the third and fourth about 120 meters before a safe exchange is performed, resp. before the tape is reached. If the new competition rule of the I.A.A.F is applied, the running no. 2, 2 and 4 may be lengthened by 10 meters. Runners with the best individual time should therefore be placed on the "long" distance.

Influence of starting abilities on running order

The best starter should be Number.1 in the relay, so as to gain ground from the onset over the first leg.

Mastery of Baton Changing and Running Order

The first and last runner participate only in one phase of the of baton exchange. Thus the first runner only delivers the baton change while the fourth only delivers the baton while the fourth only receives it runners with poor technical abilities in the baton change may be placed in these positions.

Effect of Competitive Qualities on Running Order

It is often the last runner in closely matched relays who decides the victory over the last few meters. Combative and strong-willed sprinters are therefore best used on the last leg.

Effect of physique on running order

The two bends must be considered when deciding how the running order should be affected by this criterion. Because of the greater centrifugal force generated by tall runners, they are relatively slower in bends than shorter men. In positions No.1 and 3 we therefore frequently find shorter runners.

All the foregoing aspects are naturally interlinked they can be varied in many ways. If we do not find runners in the running order proposed here, it may be sometimes due to the need to outwit the opponent's plans. Yet the best way to encounter the opposition is to have one's own well-conceived tactics. The longer the legs, the more important tactical considerations become. Harmonious cooperation between squad members is a further important aspect. For the baton exchange partners should be chosen who are well suited to each other. Once a relay team has been well established, a change in position or a substitution should be considered only in urgent circumstance. Experience shows that the best sprinters are not always the best relay runners.

Technical Training

The aim of the training in technique in relays is a quick, economic and safe baton-exchange. All exercises should therefore be chiefly concentrated on these points. Hence it is suggested that practicing the used the use of the baton be started without much preliminary work.

Special Preparatory Exercises

In the preparation for relay races, a great variety of relay forms may be applied (e.g. medley relays, shuttle, relays, circle relays). In choosing the forms to be used the age of the athletes, their level of mental and physical development will have to be considered. The following is an example which has proved successful in training for relays.

Exercise 1

Tag with tapping zone. The athletes form two groups. Groups A stands, ready to start, at a mark in front of the tapping zone, while group B, standing 30 meters further and start, upon a signal, sprint at full speed to the tapping zone.

Task

Without looking back, team awaits for the whistle of the trainer to run as fast as possible through the tapping zone in order to avoid the tap of the partner from: the members of team A withdraw to a line drawn 4 to 5 meters behind the starting line, The runner who is due to start dashes off we regard this exercise as very useful,

because the requirement of getting away from the opponent as quickly as possible helps avoid the typical mistake of beginners in the baton exchange, namely the habit of looking back.

Basic Exercises of Technical Training

Under the heading “Baton- Exchange methods”, it has been pointed out that of the three suggested baton-exchange methods, the outer exchange is the best suited for beginners. In the basic technical training acquirements of the outer exchange, this should therefore be emphasized. But these exercises can naturally also be used for learning the two other exchange methods: the inside and the Frankfurt exchange. The partners walk one behind other in echelon at 80 cm distance. The partner at the rear holds the baton in his left hand and delivers it into the right hand of the man in front who, on hearing a signal, extends his arm back to receive the baton. The runner receiving the baton shifts the baton from the right into the left hand. Having delivered the baton he overtakes his partner and in turn receives the baton. After some repetitions the walking speed is increased.

Purpose

Practice in use of baton and in baton-exchange procedure.

Points to note

Correct backward extension of the arm. Maintenance of the baton-pass distance. The eyes of the runner with the baton of the runner with the baton are focused on the exchange area.

Exercise 2 Baton exchange at running speed

Repeat the same procedure as in exercise 1, but with jogging and running. Speed is increased with growing confidence.

Purpose: correct the firm delivery of baton at higher speed.

Points to note: keep the proper distance. The receiving runner must not look back correct baton-pass.

Exercise 3 Baton-pass in the change-over zone at medium and high speed.

- **Baton exchange on straight aways.**
- **Baton-exchange from the bend into the straightaway**
- **Baton-exchange from the bend into the bend**

The starting position of the outgoing runner depends on the competitive pressure. If the race is of average intensity, the athlete may stand at the beginning of the exchange zone. It is not necessary to place a check-mark (train for the “feel” of the take-off). If training is at top intensity, the team members may commence running 10 meters before the take-over zone, find out and fix the spot for the check-marks. The approach distance to be covered by the incoming runner is about 30 to 40 meters.

Purpose: safe and rational baton-pass at high speed.

Points to note: correct understanding or assessment of the moment of departure by the outgoing member. Determine the marking for the start (the running speed should be adapted to the two exchange partners). Economical baton-exchange.

Exercise 4 Baton-exchange under competitive conditions.

Purpose: Checking training performances under competitive conditions.

Points to note: quick safe and economic baton-pass. Good utilization of the take-over zone. Optimal time gain. Check the time of exchange by taking times at 30 meters. Measure area of 30 meter, beginning 10 meter before the take-over zone and ending with it. At the beginning and end of the measured course marking by a post. A third post should be placed at a distance of 20 to 25 m from the central point of the measured area and horizontal to it. Measure direction of the beginning and end of the measured area from this post. When the incoming runner passes point A (beginning of the measured area) he will be clocked. When the receiver passes point B (end of the measured area) he will also be clocked. The thus obtained “flying” 30-m-time is an aid for assessing a proper exchange.

Summary

Conclusion

The basic technical training must be aimed at producing relay in near competitions conditions. It is designed to prepare the performance directly for competition. In this rules must be applied: start with piston or another starting device; run in lanes marked with chalk lines on the tack; running with chalk lines on the track; running with opposing teams; accurate timekeeping and use of finishing tape. If one team is definitely superior to the other handicaps should be introduced.

That's all with today's lecture. I hope this must have raised your concerns about this important concept. Have a nice time. Good Bye.