# APPENDIX 7A

## LIST OF TRAINED PHYSICAL EDUCATION LECTURER ASSISTED IN COLLECTING DATA

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name &amp; Designation</th>
<th>Academic &amp; Professional Qualification</th>
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<tbody>
<tr>
<td>2.</td>
<td>I. Poddar, Lecturer</td>
<td>M.P.E.</td>
</tr>
<tr>
<td>5.</td>
<td>S. Bag, Lecturer</td>
<td>M.P.E. M.Phil.</td>
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APPENDIX 7B
DETAILED PROCEDURES OF DEMONSTRATION OF THE SELECTED
TRACK & FIELD EVENTS

Track and field is one of the most popular sports on the international scene. No other sport in which individuals participate on an amateur basis has the universal popularity of track & field. Although the main purpose of such competition is to defeat the other contestants in the event, winning is not the goal of most participants. However, victory is accompanied by greater height, farther distance, or faster time which can be improved if the adopted technique is proper.

In this work, the investigator used the following techniques of the selected track & field events on the basis of recent literatures (Bosen, 1973; Frost & Cureton, 1977; Malhotra & Chaudhary, 1981; Howard & Payne, 1981).

7B.1. The Sprints (100 M & 200 M Run)

Sprints are defined as including all races in which the contestant runs at full speed over the entire distance between two points, on the flate (Malhotra & Chaudhary, 1981). The 100 M, 200 M and 400 M races are given included in sprints. However, the techniques of 100 M and 200 M races are given below:

7B.1.1. 100 M Run

It is well known that a good start is half the battle. There are different types sprint start, viz., the Bunch Start, the Medium Start, and the Elongated Start. In this investigation the Medium Start was chosen because of the Ss of average height.

In the 'Medium Start', the athlete should place the knee of the back leg even with or somewhat forward of the instep of the front foot. In other words, the knee of the rear leg is about opposite the toe of the lead foot. On this start the front
foot is placed from 15" - 18" from the starting line and the rear foot 16"- 19" from the front foot. The Ss have used a one unit adjustable starting block which includes another materials, viz., nails and hammer.

In the starting position the arms extend straight down from the shoulders. The wrists on the starting line should be chest width apart. The elbow must be straight to elevate the shoulders to full arm's length. The hands should be placed with the thumbs and forefingers immediately behind the line, and with the weight resting on the tips of the fingers and thumbs. The guiding factor is the comfort of the sprinter. Care should always be taken so that hands are not in front of the scratch line.

On the starter's command, 'On Your Marks' walk forward breathing in deeply, back into the block and lean forward, taking much of the body weight on the fingers. Position of the feet on the inside portions of the block. The knees are prevented from splaying out. The head is not thrown back, but positioned in a normal manner. The eyes should be directed at a point on the track only few feet past the starting line. The arms are at the width of the shoulder apart, fully extended and not flexed at the elbow.

On the starter's command, 'set' the sprinter rocks further forward over his hands, raising his hips without any jerky movement. The rear leg will not straighten. The hips will be slightly higher than the shoulders. The rear leg is kept relaxed. The knees are kept quite close together. The head and eyes are looking closer to line than in the "On Your Marks". In the 'set' position the runner must think of the sensation of the running out of the block and imagine, muscually, the physical sensation felt in coming out with the gun.

On the "Gun" the athlete accompanies the powerful drive from the lead leg with vigorous arms action, as the body drives forward. However, the action of leg, arm, hip and head are given below:

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The Leg Action
- Rare foot should support the ground.
- Front foot should move forward by swinging the leg.
- Knee should bend as much as possible.
- Knee should go upward and the toe should be pointed downward.
- Extension of knee should be done.
- Front foot should be planted with toe and rare foot start the swinging phase.
- Plantation and action should be just like front foot.

The Arm Actions
- In the swinging phase of front foot opposite arm action should be started.
- The angle in elbow of opposite arm should be at least 90°.
- Fingers of the said arm should be fixed and thumb should cover the total fixed.
- Arm should move forward near about to the medial line of the body i.e., forwards the nose of the individual.
- After plantation of front foot the rest arm should move towards the direction of nose and the angle of arm should be maintained as said before.
- The movements of arms should be just like pendulum of a wall clock.

Body Position
- During running the body should bend slightly forward towards the direction of the running.
- Body should move towards the direction of running maintaining a straight line.

Hip Action
- During running hip oscillation is there.
- Inspite of such oscillation, hip should maintain a straight line.

Head Action
- Head should maintain a straight line.
APPENDIX 7B (Contd.)

The head should not go far away from the medial line of the body.

Once the Gun has gone and the sprinter is under way, his every effort must be made to reach maximum speed as soon as possible. He will come out of his block working his arms vigorously, and in the first two or three strides keep the feet close to the ground. The body angle will gradually get more upright until, after about eight strides the sprinter will be in his normal sprinting angle. Similarly the knee lift gradually increases. Since the force of the swing of the arms depends on the force of the leg drive, it follows that either insufficient or too much power in the swing throws the body out of balance.

The sprinter, if for three or four strides be relaxed deliberately and takes a breath, will maintain the same speed and be sufficiently relaxed for the finishing efforts.

To finish the race a sprinter must avoid glancing to the right or left at his opponents and striving to best them. He must also maintain his body lean and avoid getting too upright and throwing his head back. A sprinter must run as a machine unaffected by his opponents. Having arrived a few strides from the tape, he may then employ a technique of finishing methods:

- Sprinter run through the tape, without decelerating the speed to a point 4-5 metres beyond and slow down gradually. A slight lean into the tape may catch a judge's eyes.
- or Drop Finish i.e., thrust the arms out behind and the chest down on the tape.
- or Shoulder Shrugging i.e., the sprinter should shrug his opposite shoulder to the tape by turning the chest sideways into the tape at the very last moment. In this style a trained sprinter can give 8-12 inches distance. The sprinter can avoid the failing chances and get more free distance.
APPENDIX 7B (Contd.)

7B.1.2. 200 M Run

In 200 M run a curve and a straight line is included. It is quite different than 100 M run. The main difference between the 100 M and 200 M race is as under:

- **Block Placement**
  200 M race is always started on the curve, so the starting block is placed on the tangent of the curve to give the straight path at the time of start and minimise the distance of the curve and give better acceleration.

- **Curve Running**
  The speed of a sprinter on the curve is less than the straight run. This difference in speed is due to a force called the centrifugal force. Due to this force the sprinter comes out of his running path and to avoid this he creates an other force, the centripetal force. The power of this force depends upon the following factors:

  - Curve Sharpness
  - Sprinter's Speed
  - Centre of Gravity
  - Angle of the run
  - Gradient of the track
  - Number of the lane
  - Stride length of the sprinter

However, the sprinter follows some salient points:

  - Put right toe outward at the curve
  - Lean inside
  - Look inside at the curve
  - Twist the upper body towards the left
  - Give extra movement to the right hand
  - Drop left shoulder inside
  - Shorten the strides

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Contd......Appendix 7B
The techniques of starting, the pick up, and the finishing are same as while running in a straight lance in 200 M running event.

7B.2. The Middle Distance Running (800 M Run)

Although 800 M running event is a middle distance running event, recently it is appearing under the sprint event. This running event is usually started from a crouch position with the aid of foot support. The detailed description about such starting position has been described under 100 M sprint. The runner must experience the varying running cadence and length of the stride. He must possess rhythmic striding action. The ability to synchronize leg and arm action is fully as important in this style of running as in sprinting.

In this event full speed stride is varied somewhat since the conservation of energy, as well as the distribution of the speed, is a factor to be considered. As contrasted to sprinting, the following points are considered:

- The cadence is slower in the middle distance running.
- There is a conscious effort to maintain an optimum length stride.
- The trunk angle is straighter.
- The knee lift of the recovery leg is less pronounced.
- The extension of the driving leg is less vicious.
- The arm action is less tense and the arms may rightfully be carried lower.
- The runner has a greater tendency toward a ballheal landing of the recovery leg. Although the runner lands on the ball of the foot, he lets down on the heel, sometimes to the extent that the heel touches the ground.
- The hands are cupped rather than clenched as in sprinting.
APPENDIX 7B (Contd.)

- Breathing is through both the mouth and nose, the same as in sprinting.
- Shoulder girdle muscular fixation is less tense during this race.

As previously pointed out in race of 200 M, a period in which the runner gains rest through further muscular relation is designated as the coast. By practice the athlete is able to coast for a time without loss of form and without apparent loss of speed. The runner must coast somewhere in the race, and he must learn by experience how to adjust its place of execution, in the light of the requirements of this event. When the athlete of this event reaches the last 20-25% of his race, striding at full efforts is begun and continued until the finish yarn is reached. An ideal race is one in which the energy has so been spread that when the runner reaches the finish yarn, his resources are well spent. The four basic practices are included during practising this event as follows:

- Some over-distance at a slower than race pace.
- Under-distance at a faster than race pace.
- Repeated speed work.
- Pace work.

There is a danger in this event in the carrying of too fast a pace during the first lap. This burdens the athlete too early with an oxygen debt, and he will have little energy for the final stage.

The runner of 800 M event experiment with varying running cadence and length of stride. Unlike the distance runner, the runner of 800 M running event may be required to sprint for position, settle down into a relaxed stride and go along with pace, and then sustain a more or less extended drive for the tape.

Contd...... Appendix 7B
APPENDIX 7 B (Contd.)

Due to the fact that runner of this event is usually able to carry a good amount of speed, they naturally have a higher knee action and more forward body lean than distance runners. The length of the stride for such a runner is usually shorter than a 100 M sprinter. His arms should be carried about waist high with a relaxed motion.

The problem of passing an opponent must be solved in the light of both the stage of the race and whether it is to be done on either a straight stretch or on a curve. It is not considered poor strategy to run around an opponent even on a curve when this act can be accomplished by expending no more than normal effort. In this race the athlete may be required to speed up beyond his predetermined rate, run around the rival, and then resume his customary pace. The three most logical places for passing are:

- Coming off a curve.
- On the straight way.
- Just before going into a curve.

7B.3. Running Long Jump

There are four parts of the technique of the running long jump:

0 Approach Run

The approach run depends on whether the momentum is gained slowly, fairly fast, or extremely fast. There are three plans for stride adjustment and a number of variation from them. For the sake of simplicity, these plans are discussed as the 2-4-8 stride plan, the 2-4-6 stride plan, and the 2-4-10 stride plan. In these stride plans the jumper marks off on the run way three points which he aims to strike with the toe of the take-off-foot. These marks are known as checkmarks.
The adjustment of checkmarks is an important work. If the checkmarks are not correctly adjusted, the jumper will either step over the front edge of the take off board resulting a foul jump or step back of the board, depriving himself of the full measure of his leaping effort. The method of adjusting checkmarks is as follows:

Stand at take off board facing towards the runway. Take eight running strides from the take off board, and place the checkmark 1st here. From checkmark 1st, take four running steps towards the runway and place the 2nd checkmark here. From this point take 2 steps and mark 3rd checkmark. The adjustment of all plan can be made in this way. Always place the checkmark on the side of runway. Standing with the toe of the take off foot on checkmark 3rd, run down the runway striking checkmark 2nd and 1st with the toe of the take-off-foot, running through the pit, paying no attention to the take-off board. The run should be gradually accelerated so that when the take-off board is reached the jumper will be at 95% of his best speed. This method should be repeated until there is correct adjustment of the checkmarks with the take-off-foot. The speed between the checkmarks should be as under:

- o between 3rd and 2nd - 50 %
- o between 2nd and 1st - 75 %
- o between 1st and take-off board - 95 %.

The 100 % speed is not recommended because the speed must be slightly reduced during the last two or three strides for the sake of accuracy and spring. If the speed of the run is too great, the jumper will suffer in the effectiveness of his spring. 'The Toeing Out' on the next to the last step, claiming that it shifts the body weight over the jumping foot as it strikes the board.

The Take-Off

For the proper and correct take off, the particular attention should be paid to the length of the last stride. If
last stride is too long, the centre of gravity is back of the point of application of force and the jumper will fail to get height and will have a tendency to get back at the time of landing. If the last stride is too short, the centre of gravity is too far ahead of the point of the application of force and the jumper will have a tendency to fall forward at the time of landing. If the centre of gravity is directly over the take off foot, the jump will be for height, not for distance, so for the proper take off foot the centre of gravity should be slightly ahead of the point of application of force. The adjustment of the centre of gravity is made most effectively by shortening the last stride.

The jumper should strike the take-off board flat-footed by a vigorous stamp. This necessarily curtails the speed slightly, because some time is required for the physical adjustment in 'settling down or gathering', which results in a slight bending of the knee of the take-off leg. This gathering can be compared with the crouching of a cat before it springs. The proper degree of knee bend is required in relation to the speed and spring.

At the time of take off, the following movements are executed simultaneously:

- Horizontal momentum created by run (←------).
- Friction of the ground (--------→).
- Weight of the body and gravitational force joining together (↓).
- The forward swing of the free leg (↑).
- The straightening and backward thrust of the take off leg and thigh (↑).
- The upward lift of the arms (↑).
- The rock up on the toe (↑).

0 The Flight

It begins when the contact with the take-off board is broken and ends at the instant the heels touches the pit.
The hitch-kick technique has been adopted. It is the walking motion in the free air. The walk is started with the free leg in the air. The timing the step in the walk is very important. The walk in the air should not be started until the jumper is well on his flight. With the take-off leg partially flexed and coming forward the jumper is ready to begin the execution of the step with the free leg, which consists a downward backward drive with a knee lift of the take off leg as in sprinting. Now the take-off leg is brought forward as a step in the air and the knee of the free leg is brought even with the opposite knee as a first preparation for the landing. As the jumper approaches his landing, the legs and thighs tend to straighten out as they touch the pit.

At the time of leaving the board, the take-off leg is inclined forward at an angle of 75° approximately, with the trunk erect. The trunk erect position should be maintained up to the highest point of the flight. From this point, the trunk should be gradually inclined forward, until the landing position. At the landing position its angle is 45°.

The movements of the arms is synchronized with the movements of the legs as in ordinary walking. After the motion of the walk-in-the-air has been completed and the legs are being extended, the trunk is bent forward, and the arms are swung backward.

As soon as the heel of the jumper touches the landing pit, the knees are bent and the trunk and arms move forward, with a move of C.G. downward and forward along the time of flight. As the C.G is moved in front of the feet the body falls forward.

0 Landing

In the knee-tuck style of landing, the angle of take-off leg is 70° inspite of 75°. There is no walk in the air but a knee bent position and the stay in the air is more than the Hitch-kick. The knees should be fairly close together. The knees must be drawn

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upward and forward as a preparation for the forward thrust of the feet in landing.

7B.4. The Shot Put

This is the missile, which is pushed rather than thrown. The force is added by a body shift across the circle to the push. There are a number of well defined body movements across the circle. The movements (Perry 'O' Brien Technique) are discussed in order to which they are executed.

0 The Hand-Hold and Shot-Placement

There are three generally accepted types of hand-hold based on the spread of the fingers. The shot is held resting on the base of the fingers. In type one the first, second and third fingers are back of the shot and the little finger is bent and aids the thumb in maintaining lateral support. Type two is commonly used by most of the putters. In this the first, second and third fingers, slightly spread, are like wise back of the shot and the thumb prevents sideward movement of the missile, the little finger gives force to forward and upward propulsion and aids in maintaining balance with the thumb.

The beginners are advised to carry the shot lower down in the palm until the musculature of the hand is developed to carry it higher. Finger development is highly important. The shot should be carried well up towards the finger tips if the putter is an experienced and have a powerful hand.

The type third is employed by men with smaller hands and shorter fingers.

0 The Shot Placement

The shot is carried under the right ear, touching the chin, against the neck, resting on the clavical, slightly above and directly in front of the shoulder, with the elbow away from the body. The elbow is held pointing downward and outward at 45° angle in front plane of the body. The weight of the shot is directly
over the hand.

0 The Initial Stance
The putter should stand in the back of the circle and face 180° with direction of throw. The toe of the right foot should touch the back edge of the circle at 180° from the direction of the throw and the left foot is 10"-16" away at 30°-40° angle from the centre with the sole up. The weight of the body is directly over the right foot and the left leg helps in balance. The left hand is loosely extended upward in order to maintain balance with elbow and wrist relaxed. The shoulder should be square to the back. The head and eyes are in normal position.

0 Dip
The 'dip' is made to break the inertia. In this movement the body comes in an impact position to give maximum force in shifting the body across the circle.

The putter comes in a position known as 'T' position first. In this position the right leg acts as the balancing point. The trunk leans forward and the left leg lifted backward and upward, till they come in the position parallel to the ground, making a shape 'T' with the supporting leg. The left arm comes down across the chest towards the right knee. The whole body is balanced on the right toe in this movement. The right hand forearm is under the shot and position of the shot is unchanged with shoulders square to the ground.

Now after attaining the 'T' position, the right knee is flexed and left leg knee is lowered to touch the middle of the circle with its toe and keeps moving towards the right knee. These movements are synchronized. The chest comes closer to the right thigh keeping the position of the shot unchanged and the shoulders square to the ground. The weight is on the right foot. The putter is ready to take the shift across the circle.
APPENDIX 7B (Contd.)

0 Shift Across The Circle

At the beginning of the shift the body weight is obviously on the right foot, with the right knee bent. As the left leg reach the most forward point in the 'Dip' the right leg is vigorously straightened and a moderate push is given by the right thigh, leg and foot. Here there are three synchronized movements of the body:

- Shifting the centre of gravity backward for an unbalanced position.
- Low kick of the right leg towards the throwing sector.
- A forceful extension of the right leg.

The synchronized movement of the body gives a fast and low shift across the circle. During the shift the putter should stay in low position without disturbing the square position of the shoulder and the placement of shot. The right foot is pulled fast in a rocking position to land in the centre of the circle. On the ball at an angle 40°-45° the weight of the body is directly over the right foot. The left foot is landed, just after the right foot near the toe-board, making an angle 30°-35° at centre with the direction of the throw. The shift is made towards the direction of throw in a straight line. The left foot and leg rotates outward to open the left hip for exerting lateral stretch on the left lateral muscles. It produces the torque in the right lateral muscles to give the maximum force for delivery.

0 Delivery

As soon as the left foot planted after the shift, the delivery begins. An effective put is one in which there is no pause between the shift and the delivery. A good putter gains distance by concentrating on speedy rather than forceful movement. During the course of the delivery the following movements are rapidly executed:

- The straightening and rotating of the right leg, which produces a movement that looks like a thrust of the right hip.
APPENDIX 7B (Contd.)

- A quick twist of the trunk to the left over the left semistraight leg.
- A forceful swing of the left elbow to the left side and backward.
- A forceful push of the right arm upward and forward is a long smooth and continuous.
- A push off from the right toe.

Coincident with this last movement the arm is vigorously straightened, and the body weight is transferred to the left leg. It should be remembered that form and speed are the important factors in gaining distance.

0 The Release

As the weight of the body passes on the left leg, the left knee is extended to aid in transferring the momentum upward. The total of all forces generated in the shift and delivery has been transmitted to the wrist and fingers. Added to these forces is an instantaneous forward snap of the wrist and flip of the fingers which provides added impetus to the shot. Good form requires that the major force contact be kept directly behind the centre of the shot in the line of flight.

The most effective angle for the release of the shot depends on the velocity with which it leaves the putter’s hand. The range of angle is from 39-42 degrees. The head and eyes should be kept in the direction of the put, thus aiding in a complete and effective follow-through. The left arm remains passive throughout the delivery and release. At the time of release the weight of the body is well over the straightened left leg. The left foot remains in contact with the ground firmly, till the shot is released.

0 The Recovery

The right foot is fulshed against the toe board, while the left leg swung backward. This is accomplished by the speedy
interchanging of the position of the feet, known as 'reverse'.

7B.5. The Running High Jump

There are different techniques of running high jump. The Fosbury Flop is a recent technique introduced by the American high jumper DICK FOSBURY when he won the 1968 Olympic. The 'title' flop is now used by maximum leading jumpers. But this Fosbury Flop technique is only safe when tried on a foam rubber landing.

In this investigation, the researcher did not get the facility of rubber foam. Therefore, the Straddle Roll Technique has been chosen. The 'straddle' form follows some sub-skills.

1. The Approach Run

The angle of approach to the cross-bar is about forty five degrees. The number of strides employed varies with different competitors, eight strides being the average. The length of run up is about 12-13 metres.

To checkmarks are commonly used to insure accuracy in the approach: 4 strides and 8 strides, respectively from the point of take off. The take-off point is marked, by the jumper at an angle of 45°, approximately 1 metre apart from the cross-bar.

2. Addressing the Bar

At the take off spot, after approach, the jumper gathers or settles down in preparation for an explosive spring, by driving less vigorously, thus approaching a semicoasting forward effort. The last stride is lengthened in order to provide a greater arc for the right leg swing. The C.G. comes over the left foot in last stride. It is swung high and towards the bar. It is not fully straightened but carried slightly bent. Both arms are thrown upward and the emphasis is on the forceful movement of the left arm which harmonize with the right leg swing-up.
Upon the completion of the rock-up on the toe and the right leg swing up, the jumper has to left the ground. Here the right knee is slightly bent on the up swing, but the prime desire is to get the right foot well above the head.

0 The Bar Clearance

The force of the right leg swing is the impetus for the body turn. Provided the right foot has been swung up properly, the object is to get the left leg over the bar. Care should be taken to retrain form touching the bar with the left arm. The arm should be held close to the body side.

0 The Landing

The proper landing procedure has been followed to avoid landing shocks. During landing the support of right hand and right leg has been appreciated.
APPENDIX 7C

TECHNIQUES OF WARMING UP AND CONDITIONING EXERCISE FOLLOWED IN THIS STUDY

7C.1. Jogging

7C.1.1. Jogging on Spot

The athlete stands on the ground relaxing total body. If the body weight is kept on right toe raising the right heel, the leg gets relaxation. When raising of the right heel, the body gets a mild upward thrust or jerk.

Similarly, if the body weight is kept on left toe, raising the left heel, the right leg gets relaxation and the body feels similar upward thrust. This is continued using alternative heel movements. Toes are not lifted from the ground. Both the hands are to be relaxed in such a way that they will hang from the body.

7C.1.2. Jogging On 50 M Distance

Body movements are same as jogging on the spot. In this case, toe touches the ground momentarily and gives a thrust on the ground to produce a mild upward jerk. These movements are performed with the alternative legs having small stride lengths.

7C.2. Walking (SOM)

It is an art for movement from one place to another with least expenditure of energy. Walking is performed with two phases namely, "supporting phase" and "swinging phase". Normal walking has been included here.

7C.2.1. Walking with Heel to Toe Movement

In the "supporting phase" of walking, firstly the heel touches the ground and secondly, the toe smoothly touches the ground.

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without any jerk. In the 'swinging phase', the body weight is kept on the 'supporting leg.' If the right leg moves forward, the alternate hand (i.e., left hand) moves forward simultaneously. Similar principles are followed during the 'swinging phase' of left leg.

7C.2.2. Walking With Heel

The 'swinging phase' of this technique is similar to the normal walking. The 'supporting phase' is performed with the heel only. In this case, the arm movements follow the same technique like the arm movements in sprinting. However, the knees are kept straight.

7C.2.3. Walking With Toe

The 'swinging phase' of this technique is similar to the normal walking. The 'supporting phase' is performed with toe only. In this case, the arm movements follow the same technique like the arm movements in sprinting. The knees are also kept straight.

7C.3. Running (100 M)

The technique of running has been presented in Appendix 7B.

7C.3.1. Slow Running (50 M)

The maximum stride length is appreciated here. The proper arm action and the action of knee are maintained.

7C.3.2. Sprinting (50 M)

This technique has mentioned in Appendix 7B. However, the stride length decreases and frequency of stride increases as compared with the slow running.

7C.4. Hopping (25 M)

In hopping, each hop should consist in a strong push.
from the ball of the supporting foot either height or length being the aim. Equal practice must be given to both legs. While hopping the athletes should be trained to maintain balance and develop springness. Efforts should be made to increase distance and height in performance. In hopping short distance speed and stride should be demanded.

Competition in hopping has been organized for the athletes to cover a distance of 25 M. Sufficient practices are given to them in covering this distance by hopping on either leg alternately.

7C.5. Running on Spot and High Knee Action

Body should be kept erect while performing spot running. The action of arms and legs are same as sprinting. As there is no stride length appreciated, the distance covered is zero.

Keeping the body erect and raising the knees as high as possible, the high knee action is performed.

7C.6. The Dip

Kneel down on the ground. Put two hands 3' (approx.) in front of your knees. Palm should face downward. Distance between two hands should be as per shoulder distance. Lift your body up pressing on the ground with the help of toes and palms. Straightened the elbow, knee, hip and spine. Keep balance of your body on toes and palms. Slowly bring down your whole body bending at the elbow only and then slowly return to the balancing position by keeping straight the elbows. Repeat this exercise for 10-15 times.

7C. The Suppling and Stretching Exercise

0 Hamstring Stretch, Standing

Stand, feet slightly apart, hands clasped behind the back. Slowly bend forward from the hips. Keep legs and back straight, head raised. Bend down as far as the athlete can comfortably and slowly return. Repeat two or three times.
O Sprinter's Position
On all fours, one leg forward and bent, rear leg extended
For thigh: on balls of feet, slowly lower hips as in push up. For shin: rear foot extended, with toes extended out. Slowly lower. Repeat and alternate. For Calf: cup heel of rear leg, and lower. Repeat and alternate.

O Calf Stretch
Stand. Place one foot ahead of the other with weight on the ball of the back foot. Slowly lower the heel of the rear foot to the floor, and hold. Alternate.

O Medial Thigh Stretch
Sit; bend knees so that soles of feet touch. Rest arms on thighs. Grasp ankles and force knees toward floor while bending forward as far as possible.

O Toe Pointer
Sit on feet, toes and ankles stretched back. Raise knees from floor slightly, balancing weight with both hands on floor just behind hips.

O Double Arm Circles
Stand, and extend arms forward. Do arm circles upward and overhead. Repeat to side and behind back.

O Shoulder Grapevine
Stand erect. Put left hand behind back, reaching up toward shoulder blades; move right hand behind head, reaching down to meet the fingers of your left hand (between shoulders). Repeat stretch in opposite direction.

O Static Trunk Stretch
Stand an arm's length from a wall, left side facing wall heels together, and left arm at side. Extend right arm
to sideward, then slowly swing it backward and around to touch the wall. The head follows the right arm. Force the stretch by inching down the wall with the fingers of the right hand. Repeat and alternate.

**0 Shoulder Stretch**

Lie on stomach, arms extended overhead, forehead on floor. Lift hands as high as possible, keeping elbows locked and forehead in contact with floor. Lower, rest. Repeat.

**0 Arm Down Under**

On hands and knees, bring right arm under left arm and touch shoulder blade. Head Up, extending arm straight up and twisting head upward towards outstretched hand. Repeat and alternate.

**0 Hip Raiser from Shoulders**

Lie on back, arms folded across chest, knees flexed. Raise and arch body on shoulders and feet by thrusting hips upward. Hold for a count of two or three. Repeat.

**0 Lower Back Stretch**

Lie on back, legs extended. Lift and bend right knee and hip grasping leg below the knee. Keep left leg on floor, and pull right knee to chest. Repeat and alternate.

**0 Knee to Forehead**

On hands and knees, touch head toward stomach and bring right knee toward forehead. Then slowly raise head, looking up, and stretch right leg fully to rear and up. Alternate and repeat.

**0 Triangle Pose Forward**

Stand with feet wide apart, right foot at a right angle, and body twisted to right. Bend right knee so that your right thigh is parallel to floor, left leg straight. Place right hand outside right heel; left arm stretches forward, pulling away...
from body. Tuck head below arm, with face turned up. Weight is forward on right foot. Hold and alternate.

0 Suppling Exercises

The suppleness of the body is maintained with the rotational exercises around joints such as ankle, hip, shoulder, arm, wrist and neck. Both the clock-wise and anticlockwise rotations have performed.
APPENDIX 7D
THE TECHNIQUE OF PERFORMING THE LEAD UP GAMES INCLUDED IN THE SUGGESTIVE MODEL OF THIS STUDY

7D.1. Shuttle Relays (50 M)

Two parallel lines are marked at a distance of 50 M apart. The players are divided into teams and each team is divided into two divisions - 'ones' and 'twos'. These divisions stand facing each other in singlefile, with the player in front from each division touching one of two lines. The division formed by all 'ones' are to stand on one line and the others with 'twos' stand on the opposite line facing the 'ones'. At the whistle, the first players from 'one' run forward and 'touch off' (touch the outstretched hand of) the first players of the files facing them (twos). On being touched off, these players run to touch players from the opposite division, who have moved up the starting line. Those in turn give the 'touch off' to those from the opposite division and so on until both divisions of the team have run. Each player thus runs only in one direction instead of two.

Each player as he gives the 'touch off' lines up with the file he has reached, standing at its rear, and moving forward with the file, one place, each time a running leaves the mark, so that at the end, each file lines up on the opposite side of the field from which it started.

The team whose last player is first to cross the starting line opposite him, wins.

7D.2. Hopping Tag

Players scattered over a marked area 12.19 x 19.14 Sq. M. approximately. One of the players is chosen as 'It'. The 'It' starts the game by hopping, on one foot and chasing the players. If the 'It' succeeds in tagging a player, the tagged player becomes the 'It' and the game continues.

Contd.......Appendix 7D
APPENDIX 7D (Contd.)

7D.3. Touch and Run

Divide the class into two teams and line them up facing each other about 30 metres apart. Call them A and B teams. At the whistle the player at the right and of the A team runs towards the line of the B team. All the players of the B team stretch one of their hands forward on the same signal; The runner goes to the line of the B team. Touches any of the outstretched hands and the races back to his line, attempting to reach it without being tagged by the player touched. The player who is touched, chases the runner trying to touch him before he reaches his line. The player who succeeds in his effort takes the other player as his prisoner and places him behind his line. Then a player from B team goes forward and repeats the game. If any player return to his line without being touched by his opponent, the opponent becomes his prisoner. The game continues until all have run forward. If any player who has prisoners, is made a prisoner himself, the prisoners are to be released and returned to the original team.

The team having more prisoners at the conclusion is the winning team.

7D.4. Jump Height

This is also a simple running relay with a variation of jumping a certain height. In the midway between the starting and finishing lines two boys can hold a rope and every player in his turn will jump over that rope. The height of the rope should be so regulated that everybody should be able to jump over it.

Another variation is for each player to crawl under the rope indicated in the above relay.

7D.5. Run and Throw

Teams stand behind the starting line. Finish line is marked about 10 metres from the starting line. First runner of each team...
is given a football or volleyball or basketball. On signal, the first runner of each team runs to the finish line, turns around and throws the ball from behind the finish line to the second player of his team. Second runner runs to the finish line and throws the ball to the third runner. The relay continues till the last man of each reaches the finish line.

In case the ball falls down on the ground in throwing, the runner behind the starting line will come forward and pick up the ball and will start running from the starting line.

After throwing the ball each player will join the end of his own team.