

GYROSTATIC DELIVERY TECHNIQUE

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"Knowledge dispels fear"

1. INTRODUCTION

Gyrostatic technique: The application of these factors in the gyrostatic delivery technique is based on the principle that the body moving steadily about an axis will tend to resist changes in the direction of the axis. It maintains the bowler's equilibrium e.g. as in an aeroplane or ship.

Dynamics; This technique also involves the physical dynamics that relate to natural science. The branch of biomechanics concerned with those forces which cause or affect the motion of the body that pertain to or are characterised by energy, effective action and active force.

2. CONTENT

Coaches must have prior understanding of the theory of the aiming line, aiming point and its adjustment before making any attempt to coach bowlers in the gyrostatic delivery technique. This section covers the following subjects;

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| 4. | 5. | Delivering the Jack |

3. ACQUISITION OF SKILLS

Improvement: Aiding the bowler in the acquisition of the delivery skill is at the very heart of coaching in bowls. Current world trends in performance are also of vital importance and coaches need to be aware of techniques that raise the performer to State and International level, so that they can constantly improve the skill levels of their charges. It does no good to simply tell bowlers to concentrate! Bowlers need to know what to concentrate on, and to have a process or mechanism that allows them to concentrate on the appropriate things during training and within the game.

Learning: In this section we point out the critical features and fundamental issues of how the delivery skill movement is performed, what stage and processes underlie the production of delivery skill movement and the nature of differences between experts and novices. In

other words, learning to perceive the difference is what makes the difference. This knowledge is critical to our understanding of how the delivery skill might best be learnt and how the coach might best assist the bowler in the delivery of the jack or bowl.

4. FACILITATING A SMOOTH DELIVERY TECHNIQUE

Principle: The fundamental principle of the smooth delivery is the power force created by the natural forward and downward momentum of limbs and body weight being transferred from and to a postured position over the front foot.

Dynamics: This action involves the transition of static and dynamic balance, combining a pendulum action with elastic energy and a consistent backward and forward ratio of the delivery arm. There should always be an easy, relaxed rhythm in the delivery with the palm of the hand following the bowl or jack in a natural follow-through action aligned towards the aiming point. Throughout the whole movement it is essential that the eyes remain focused on an aiming point situated at a convenient distance along the aiming line. Facilitating a smooth delivery with economy of movement is as follows;

a. **Controlling factors:** The controlling factors are alignment and length. These factors involve body alignment and the coordination of momentum with leverage. The factors of alignment and length are taught in two stages as follows;

(1) **Stage 1. Alignment:** The bowl or jack is not used in teaching alignment. Alignment is taught in conjunction with the aid of a string line 16 metres long. This is set out as follows; position a mat on the rink as for a normal delivery, lay out the string line on an angle of approximately 25 degrees. This string line becomes the line of sight and is pinned on the grass surface approximately 15 metres forward of the mat. The far end of the string becomes the aiming point. The bowler is positioned on the mat in a kneeling position as for the follow-through and the string is raised to the bridge of the nose at eye level to represent the line of sight. Bowlers are then practiced in the back and forward pendulum swing of delivery arm with vital emphasis placed on finishing with eye, hand and aiming point alignment, *(All subsequent teaching of alignment is taught as described in the following sub-paragraph b. Alignment).*

(2) **Stage 2. Length;** This stage relates to teaching length with the use of two or four bowls, a mat and a training flap type jack set to a medium end. The start position for teaching the lesson is close behind the mat. It is taught in stages as explained in the following sub-paragraph c. Length: The method suggested is by explaining and demonstrating with the bowler imitating the action. When the instruction has been

confirmed, bowlers should practice delivering a bowl until they reach a reasonable accepted standard.

Note: The delivery of the jack should be taught in the follow-up lesson.

- b. **Alignment:** To maintain a constant delivery alignment there are four critical features that contribute to the perfect follow-through and they are as follows;
- (1) **Focus;** Explain that throughout the delivery the eyes must remain focused on the aiming point to maintain constant alignment and direction (*see Diagram 1, 2 & 3*).
 - (2) **Delivery arm;** Using the string line explain and demonstrate the pendulum action of the delivery arm which swings back and forward towards the aiming point (*see Diagram 1*).
 - (3) **Peripheral vision;** Explain and demonstrate using the string line. The forward delivery arm swing must stop within the confines of the peripheral vision approximately 30 cm below the line of sight, with eye, hand and aiming point alignment. To avoid and detect the round or hook arm action in the delivery, the bowler must see the precise alignment with each delivery (*see diagram 1, 2 & 3*).
 - (4) **Posture;** Explain, to detect visual or physical inconsistencies in the technique the alignment posture is held till the jack or bowl has travelled 10 to 15 metres along its delivery path (*see Diagram 1, 2 & 3.*)

Diagram 1. Alignment; Overhead view

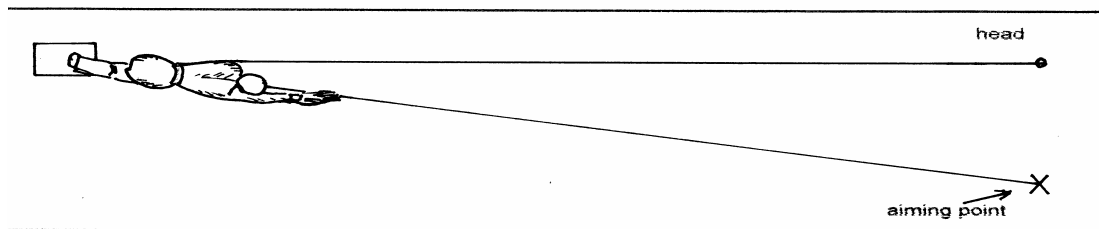
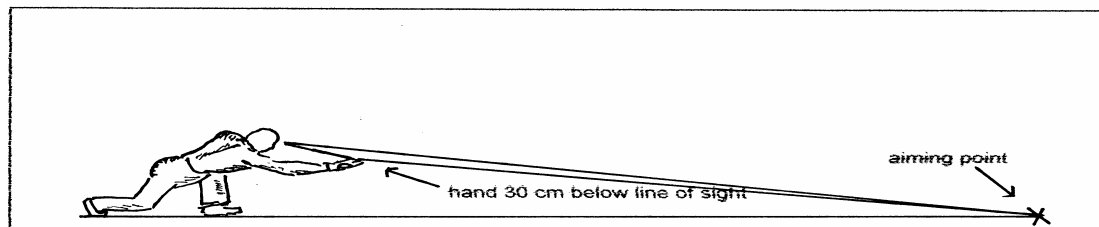


Diagram 2. Alignment; Side view



- c. **Length:** Maintaining a consistent delivery length requires economy of movement and a smooth delivery. The controlling features that contribute to this are; the ability to focus the eyes on the aiming

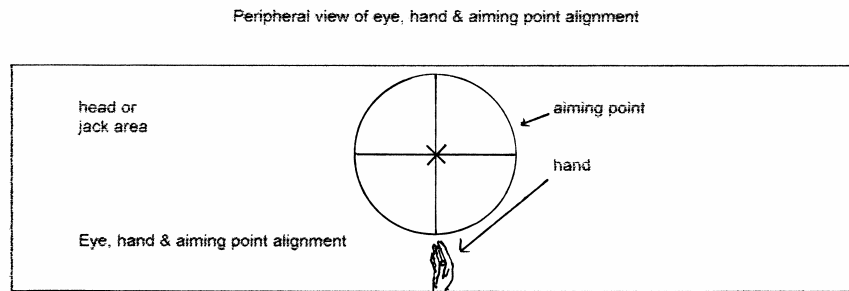
point throughout the delivery, body leverage, balance, momentum with timing, coordinated breathing and movement of arms legs and body weight. These critical features are taught as follows;

- (1) **Preliminaries;** from a close position behind the mat; stand in an upright relaxed position facing towards the aiming line, check the grip, lock the wrist, estimate the required aiming line, aiming point and length.
- (2) **Focus;** focus on the aiming point for alignment.
- (3) **Stance position;** maintaining focus, step onto the mat and automatically adopt an upright well balanced stance position with the mass of body weight over both feet and the delivery arm at the correct height. During this stepping movement do not look at the feet or bowl and do not worry about the grip or feet alignment.
- (4) **Initial momentum;** after a momentary stance on the mat, the initial momentum is commenced in unison by;
 - (a) Lowering the delivery arm shoulder as the arm is withdrawn to the rear in a pendulum action and inhale with the speed of the back swing
 - (b) Withdraw the supporting arm back and downwards placing the hand slightly above the knee of the leading leg in a backhand position, or let it hang perpendicular by the side
 - (c) Take a normal walking step towards the aiming point
 - (d) Bend forwards from the hips towards the aiming point
 - (e) Bend both knees to lower the height of the body
- (5) **Timing;**
 - (a) During the back swing as the delivery arm reaches the perpendicular position the elbow straightens and locks
 - (b) As the heel of the lead foot strikes the ground the delivery arm must be at the end of its back swing
 - (c) As the body weight is moved forward and placed over the lead foot the bowler commences to breathe out and the delivery arm swings towards the aiming point

Note: To maintain balance, alignment, length and to maximise the elastic energy and the leverage force; the pendulum arm swing must be a continuous action that travel back and forward at the same speed.
- (6) **Rear heel and knee;** At the point of release of the jack or bowl, the heel of the rear leg should be raised and the bending knee positioned to the side of and behind the front leg at the level of the lower calf muscle
- (7) **Release point;** the jack or bowl is released smoothly on the green surface at an approximate point 10cm to the right and 15 to 20cm forward of the toe line of the lead foot

- (8) **Body weight:** As the jack or bowl is released the player should have 70 to 90 % of body weight over the front foot
- (9) **Follow-through Alignment;** The delivery arm hand must swing up to eye, hand and aiming point alignment, stopping at the bottom centre of the peripheral vision and 30cm below the line of sight (*see Diagrams 1, 2 & 3*)

Diagram 3. Follow-through Peripheral View



- (10) **Follow-through Posture;** the posture of alignment is held till the jack or bowl has travelled 10 to 15 metres along its delivery path (*see Diagrams 1, 2 & 3*).
Note: It is essential that bowlers stay down in this position to check their delivery hand for the precise eye, hand aiming point alignment or any inconsistencies that may have occurred (*see Theory: The Follow-through*).
- (11) **Safety;** for safety reasons the bowler should never step backwards, but rise to a standing position by bringing the rear foot up and alongside the front foot
- (12) **Left handed bowlers;** a right-handed coach teaching a left handed bowler may find it easy to use what is known as the mirror method. Stand in front, facing the bowler. The bowler may then copy the coach's actions as though looking in a mirror. This has been very successful when the right handed coach has difficulty in demonstrating with his left hand delivery. This method can also be used vice versa by a left handed coach to a right handed bowler.

5. DELIVERING THE JACK

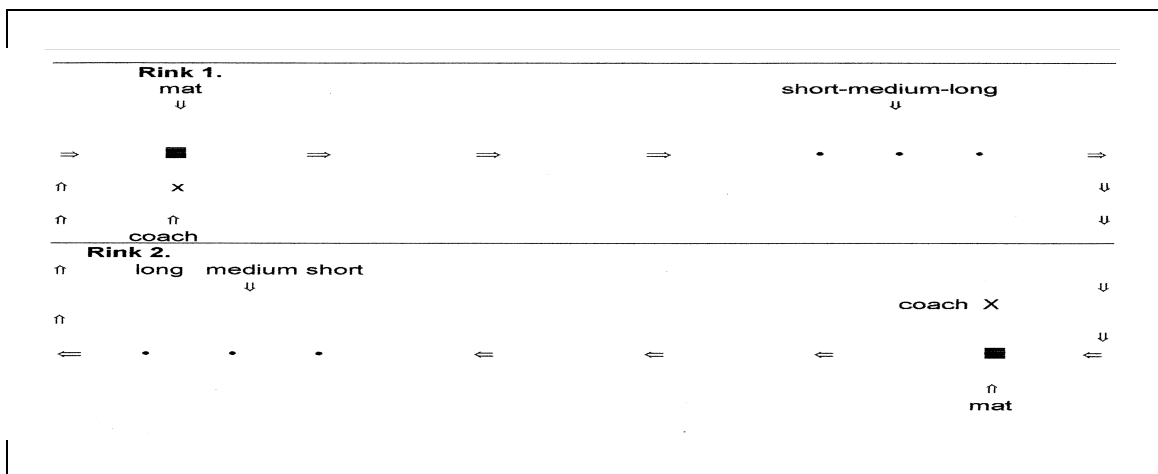
Lesson objectives: Delivering of the jack for the beginner is very important in order to motivate and maintain incentive. The introduction to a lesson must have a good tactical approach, explanations must have brevity and the training method must keep the bowler active and aligned towards the lesson's objectives. This may be obtained as follows:

- a. **Approach:** Delivering the jack is where the first or second tactical deployment may begin and this delivery skill is required by every lead within a team. Leads must be able to deliver the jack to a

length designated by their skip e.g. short, medium or long end. Varying the length also determines the strengths and weaknesses of the opposition. This is also used to change the playing rhythm and gain the initiative of the game.

- b. **Brevity:** The following jack instruction should be conveyed briefly and to the point, do not go into long explanation. This lesson should also cover such things as: in and out of bounds, movement of the mat and jack, and aiming off for strong wind.
- c. **Method:** The recommended training method is to use six jacks, and instruct the player to deliver these to a constant length as indicated in the following subparagraphs and rink layout in Diagram 4 below.
- d. **The Lesson:**
 - (1) **The grip:** Explain; delivering a jack is identical with that of the bowl except that the jack has no bias and requires no offset delivery angle. The jack grip is as follows etc.
 - (2) **Preliminaries:** Adopt the grip and stand directly behind the mat aligned with the axis of the rink. Estimate the line and length and focus their eyes on the aiming point
 - (3) **Jack delivery:** As previously taught with the bowl, step onto the mat and after a momentary stance, deliver the jack
- e. **Slow and fast greens:** Coaches should select lengths that allow the bowler to deliver a jack long enough on a slow green, and not lose it in the ditch on a fast green.
- f. **Method of training practice:** Diagram 4 shows the layout for a set training drill with the delivery of six jacks on two rinks as follows; deliver 2 jacks to a long end, 2 jacks to a medium end, 2 jacks to a short end and then move to Rink No 2 and repeat the same procedure. If more than one student, rotate them singly around the rinks. Coach's can situate themselves near the mat for correction of the player's delivery skills.

Diagram 4 Delivering the Jack



Note: According to the numbers within the training group this type training drill can be extended to six rinks. The mats should be set in fixed positions to achieve long, medium and short end delivery training.

**The application of anatomy and biomechanical science in sport
is one step forward, ignoring it is two steps back!**