

2023 Delivery Principles Update

Information gathered at Curling Canada National Training and Development Centre and provided to member associations in August of 2023 by Curling Canada's National Team Coaches.



Sources of Information:

- ▶ The CC Delivery Principles Information provides a framework for the foundational pillars of a curling slide
- ▶ The CC Delivery Technique information provides a step by step guide to set-up, drive, slides and release phases of the delivery
- ▶ The CC Delivery Analysis Information is a fantastic guide highlighting common faults in the curling slide
- ▶ The 3 presentations above are being provided to all M.A's to create consistency across Canada within the foundational skills when instructing the technical delivery
- ▶ We want to create good technical habits at L2T (U12) and T2T(U15) L2C (U18) stages, so that we can create a solidified slide across country as athletes develop to L2C and T2C
- ▶ Belief is this consistency in training habits will create more success right from west to east in programming

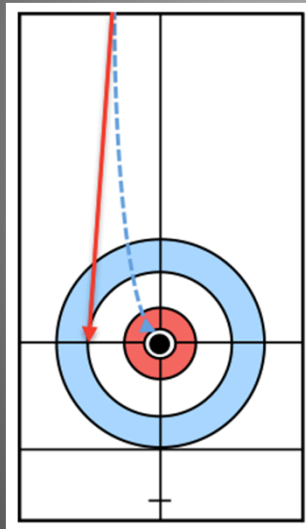
The driving principle of the Delivery:

- ▶ The Curling delivery is a functional motion that exists to achieve the goal of executing as many curling shots as possible.
- ▶ The function of the curling delivery is to simply produce the **intended line**, **weight**, and **rotation** on a consistent basis, and in the process to make as many shots as possible.
- ▶ We suggest doing this through alignment of technique (1) Set-up, (2) Drive, (3) Slide and (4) Release.
- ▶ The most important word in this function/ principle is **consistently.**

Key Principles- Line

- ▶ Line/Direction- Line is the rocks initial direction. Its should start out on a straight path upon release and eventually begin to curl when crossing the break point.
- ▶ Common principle for line is that there is not a huge variety of where the rock should start for each slide.
- ▶ **The old image of line is a single line running from the middle of the rock to the target broom can be limiting for advanced curlers because it only allows for a perfectly centred slide, an only accommodate a pure (i.e straight through release)**
- ▶ **The new suggested for advanced curlers is an image of two lines (i.e., a Lane) about a broom head wider than the rock which allows advanced curlers the option of a pure, mini set or set release.**

Line Continued

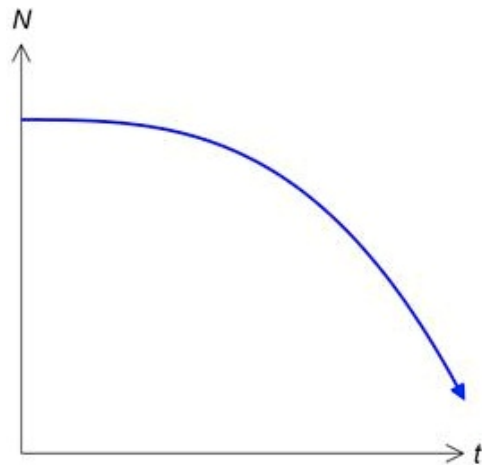


This first visual is meant to reinforce Line is the rock's initial direction, which starts out on a consistent straight path for all phases of delivery and eventually begins to curl as it travels down the ice after the break point is reached



This next picture of the sprinter leaving the blocks is meant to reinforce the message /analogy of a sprinter running in their lane. This gives curlers a little more freedom to nail their line throughout the slide phase . for advanced curlers is an image of two lines (i.e., a Lane) about a broom head wider than the rock which allows the option of a pure, mini set or set release

Key Principles-Weight

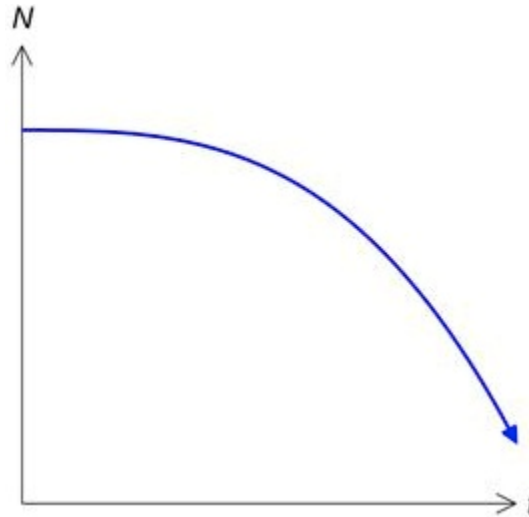


Regardless of the shot being played, both rock and body will begin to decelerate immediately after as the Slide begins. While its shape will depend on the specific weight of the shot, this deceleration can always be seen as a downward curve.

Key Principles- Weight

- ▶ Managing that deceleration by knowing where the rock is on the deceleration curve can make it easier to find the right weight for the shot.
- ▶ Once the weight is found, a controlled arm extension is the best way to preserve that weight until the rock is released.
- ▶ This is done by Early on in the slide (i.e., somewhere in the rings), the throwing arm relaxes/softens. Then, later in the slide, when the curler senses that the rock is travelling at the right speed for the shot, they extend the throwing arm to preserve that speed.

Key Principles-Rotation



Rotation is the rock's initial spin, which will also decelerate steadily and predictably as it travels down the ice.

Key Principles- Rotation

- ▶ **Advanced curler are best to employ 4.5-5.0 rotations in order to manage swingy ice or championship conditions.**
- ▶ The is recommended because delay the break point and allows teams to take less ice
- ▶ It also creates additional carry for the rock, which is taking place after the break point when the stone will be curling more.
- ▶ It's important to start with appropriate handle positions, along with sufficient grip pressure.
- ▶ The other key contributor is a consistent release tempo (i.e., the cadence of turn application).

Equation

- ▶ Consistency of SLIDE (set-up, drive)
 - EQUALS
 - ▶ Consistency of ROCK PATH (slide)
 - equals
 - ▶ Consistency of RELEASE (rotation)
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- ▶ Accomplishing these 3 foundation steps in the equation consistently will mean its
 - Easier to manage the trajectory of stone for line
 - Easier to manage sweeping for weight

What we want to see!

- ▶ The most reliable way for a curler to get the Line, Weight, and Rotation right on a consistent basis is to develop and maintain superior delivery mechanics.
- ▶ It should be a very simple slide to look at where *form follows function*, meaning that the shape of our delivery(set-up, drive, slide, release) relates to the throwers ability to reaching the goal of throwing down the intended line, with the appropriate amount of weight and rotation on a consistent basis.
- ▶ A very simple slide to do
 - Becomes automatic and repeatable so the focus becomes on the kick and managing the speed/ deceleration curve for the thrower.
- ▶ Slide is fluid, and rock and body are in a straight line that is driven by both hips throughout the drive phase.

3 acceptable slider options



Delivery Phases

- ① Setup
- ② Drive
- ③ Slide
- ④ Release

The technical principles that will be described in the upcoming slides apply to all styles of delivery (i.e., Flat-Foot, Raised-Heel, and Toe-Tuck).

Set-up- Key steps

1. Ensure that the ball of the gripper foot is positioned securely against the hack, with the laces pointing at the target broom.
2. Position the heel of the slider foot even with the toe of the gripper foot, with both feet parallel to each other and 2-3 inches of lateral separation between them.
3. Ensure that the body weight evenly distributed (i.e., 50% and 50%) between the slider foot and the gripper foot in the Setup.
4. Ensure that the knees stack on top of the feet, and that the hips are square (i.e., perpendicular) to the target line, as the body lowers into the hack.
5. Ensure that the shoulders are square (i.e., perpendicular) to the target line, and level (i.e., parallel) with the ice surface.
6. Ensure that the throwing shoulder is internally rotated (i.e., palm in) on in-turns, and externally rotated (i.e., palm out) on out-turns.
7. Keep the throwing arm/elbow extended, and positioned so that the upper arm, forearm, and wrist are all on the same plane.
8. Keep the broom arm relatively straight, with the broom handle either across the back (@ 30-35° to the target line), or parallel to it and flat on the ice.
9. **Centre the rock at in a consistent position between the middle and and centreline edge of the hack, and ahead of the gripper kneecap.**
10. Ensure that the handle is already in its pre-set position (i.e., at 10 or 2 o'clock) before applying the grip to the handle.
11. **Centre the index finger on the handle and establish the grip in a manner that puts a slight 'break' in the throwing wrist (i.e., a semi-high position).**
12. Establish a grip pressure between 4 and 6 on a scale of 1 to 10, with a potential variance within this range depending on the weight of the shot.

Set-up



- ▶ **Rock is set to positions between the middle and the centre line edge of the hack.**
- ▶ Each side of this range has advantages and potential disadvantages. So, it's up to the curler/team to figure out what's best for their particular needs.
- ▶ The middle of the hack option is simpler for some people. It has the advantage of being right in front of the curler's hack knee, which puts rock and body on the same 'line of push'. In other words, the rock and body lines don't need to converge much at all.

Set up continued

- ▶ **Always approach target (broom) from middle of hack**
- ▶ When lining up to outside 12 on either side, the rock moves minimally (maybe 2 inches max)
- ▶ It is more about moving the body
- ▶ Every slide should be virtually the same other than a slight movement of body based on broom position and slight change in drive based on the weight requirement
- ▶ Hip and ankle and knee alignment are key aspects often over looked in set-up phase.



Set the Clock



We like to use the analogy of an 'old-school' analog clock. This helps curlers to be more precise with their handle positions in set-up, drive and slide.

Drive



- ▶ The **Drive** is the first moving phase of the delivery. It begins when the body is set into motion, and ends when the curler leaves the hack.

Drive – Staying Connected

- ▶ The key to a successful **Drive** is to stay connected. This means that the body and rock work together as a cohesive unit.



Drive- Key Steps

1. Ensure that the slider foot moves straight back and straight through, travelling on a direct line towards the target broom.
2. **Ensure that backward motion is powered by the hips, with an appropriate amount of body weight shifting onto the slider foot as it moves back.**
3. **Initiate the forward motion by shifting body's weight back onto the gripper foot, before shifting it back to the slider foot as it moves past the hack.**
4. **Push off from the hack with the necessary leg drive for the shot, while delaying the timing of this motion progressively as the weight of the shot increases.**
5. Ensure that the shoulders and arms form a strong 'frame' to support the rock's backward and forward movement during the Drive.
6. Keep the shoulders square to the target line and level with the ice surface throughout the Drive, just as they were in the Setup.
7. Keep the throwing arm straight and diagonal to the ice (i.e., at least a 45° arm angle) during both the backward and forward motions.
8. Keep the broom arm strong and stable throughout the Drive, while maintaining the exact same broom positioning as in the Setup.
9. If an initial 'forward press' is used, ensure that the rock only moves forward a short distance (i.e., no more than 2-3 inches).
10. Allow the rock to move straight backward and forward along the target line, without any active contribution from the throwing arm.
11. Ensure that the rock is always the furthest point forward during both the backward and forward parts of the Drive.
12. Maintain the same handle positions (i.e., 10 or 2 o'clock), grip structure, and grip pressure (i.e., 4 to 6 out of 10) as established during the Setup.

Rock and Slider Foot

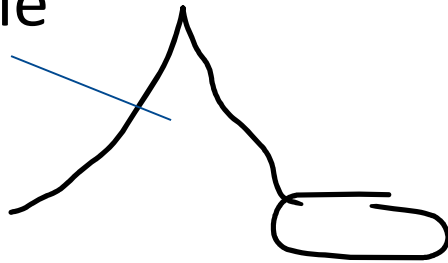
- ▶ **Rock and slider foot move TOGETHER**
 - They transition back and forward at the same time
 - Like a pendulum
- ▶ For draws and light weight hits, there is no need to take slider foot off ice
- ▶ For heavy hits and peels, important to teach the step to generate weight
- ▶ left glute being engaged when forward slide engages is key
- ▶ Anchoring backward motion with hips will keep forward arm angle
- ▶ First two to 3 inches in forward slide for outturn is common fault that comes back to hips and core commonly or how the curler leads with the stone

Arm Angle

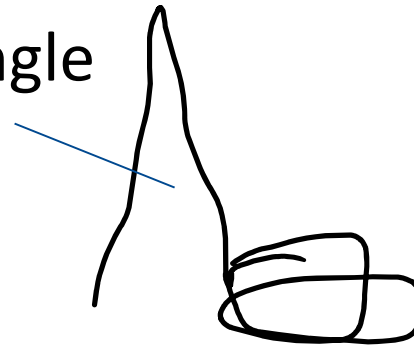
- ▶ Want to **maintain the arm angle** (position of rock to body) throughout entire delivery
 - Example, if you pull back and rock goes off line right away, it is likely because you have changed the angle of the arm - rock to body angle and not used both hips to drive backwards.



▶ Angle



Angle



Slide

- ▶ The **Slide** begins when the curler leaves the hack, and ends (from a technical perspective) when the Release motion is initiated
- ▶ The key to any successful **Slide** is good balance. That is, the dynamic stability of rock and body as they move towards the target.



Slide- Key Steps

- ▶ **Ensure that the slider foot 'plants' accurately on the target line, with the inside edge of the ankle aligned with the mid-line of the rock.**
- ▶ Centre the slider foot directly below the vertical mid-line of the body, and under the sternum (flat-foot), navel (raised-heel), or belt buckle (toe-tuck).
- ▶ Ensure that the hips are still square, and that the trailing leg is now fully extended and entirely within the outer borders of the rock.
- ▶ Orient the gripper foot as square to the ankle as possible, ideally with the tops of the toes in contact with the ice.
- ▶ Keep the shoulders square to the target line and level with the ice surface, while maintaining the same broom position as in the Setup and Drive.
- ▶ Ensure that the head is effectively centred on the target line, understanding that one eye could be centred on the mid-line of the rock.
- ▶ Keep the throwing arm/elbow extended for the early part of the Slide (i.e., approximately between the back-line and the t-line).
- ▶ Allow the throwing arm to soften at the elbow as the Slide continues (i.e., approximately between the t-line the top of the rings).
- ▶ Keep the rock moving straight forward along the target line, understanding that the body will now be directly behind it.
- ▶ Maintain the same handle positions (i.e., 10 or 2 o'clock), grip structure, and grip pressure (i.e., 4 to 6 out of 10) as in the Setup and Drive.
- ▶ When delivering an in-turn, the throwing elbow should point as much out as down once the throwing arm has softened.
- ▶ When delivering an out-turn, the throwing elbow should point straight down to the ice once the throwing arm has softened.

Release-The moment of Truth!

- ▶ The **Release** begins with arm extension and turn application, and ends when the curler completes their follow-through.
- ▶ The **Release** is the moment of truth in any delivery. A poor Release can cancel out all the good work that's happened previously.



Release

- ▶ 4 – 5 (5.5 on ice that really curls)
- ▶ Shorten the release zone to allow for more rotation
- ▶ 10 and 2 are still your starting points
- ▶ Option of straight through Mini sets and set are option depending on conditions

- ▶ **The more rotation, the less ice needed. Tight broom, easier to manage for sweeping, rocks tend to finish hard**

Release- Key Steps

- ▶ Keep slider foot directly below the vertical mid-line of the body, with the inside of that ankle bisecting the rock, just as it was during the Slide
- ▶ Maintain the exact same slider foot positioning (i.e., flat-foot, raised-heel, or toe-tuck) that existed during the Slide.
- ▶ Ensure that the hips are still square, and that the trailing leg is still extended and entirely within the the outer borders of the rock.
- ▶ Maintain the exact same gripper foot positioning that existed during the Slide (i.e., ideally square to the ankle, with the top of the toes on the ice).
- ▶ Ensure that the shoulders remain square to the target line and level with the ice surface throughout the entire Release phase.
- ▶ Extend the throwing arm smoothly over a distance of at least 6 feet, understanding that this distance should lengthen with increased weight.
- ▶ Begin the turn application about halfway through the arm extension, while using a purposeful and consistent tempo (i.e., cadence) with both turns.
- ▶ Maintain the same throwing arm position that existed at separation until the end of the follow-through (i.e., at least 6 feet).
- ▶ **Direct the rock from the middle to the outside of the target broom head between the start of the arm extension to the moment of separation.**
- ▶ Rotate the handle from its pre-set position (i.e., 10 or 2 o'clock) to a point just before 12 o'clock, where it will separate from the hand.
- ▶ On an in-turn, 1-2 knuckles (and therefore none of the palm) should be visible between separation and the end of the follow-through.
- ▶ On an out-turn, 1-2 palm pads (and therefore no knuckles) should be visible between separation and the end of the follow-through.

Delivery Analysis Principles

1. While we definitely want all our curlers to develop superior technique, no two curlers will deliver in exactly the same way. Therefore, we need to accept a certain range of technique, provided that it produces the intended line, weight, and rotation
2. Beyond what exists from curler to curler, we must also accept a certain amount of technical variability within each curler. Everyone's going to slide a little wide or narrow, light or heavy at times, but that doesn't necessarily equate to a technical flaw.

Delivery Analysis Slide Deck Presentation and PDF from the National Training and Development Centre provides many videos and common delivery faults to look for in you own or analysis or analysis of athletes.