

## What Is Directional Sweeping? Does It Really Work?

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Have you ever watched top-level teams and wondered why only one sweeper is sweeping at a time? The answer is directional sweeping and possibly a bit of energy conservation. The following paragraphs attempt to describe directional sweeping, to illustrate if it really works, and to clarify its legality.

**What is directional sweeping?** Directional sweeping involves sweeping on one side of the stone or the other to make it curl more or to make it run straighter. Years ago and in a simpler world we called it corner sweeping.

To explain, imagine that a right-handed curler is throwing an out turn draw. The stone is rotating counter clockwise as it is traveling down the sheet. To make it travel farther, both sweepers brush in front of the stone. To reduce the amount of curl the sweeper on the left side is positioned slightly behind the stone and brushes at a 45 degree angle roughly between the stone's 9 o'clock and 12 o'clock positions.

To put it another way, imagine that the sweeper on the left side of the stone is trying to "push" the stone straighter with his/her down stroke by sweeping the nearby front side of the stone. An effective sweeper can heat and minutely scratch the ice with a fabric or hair brush. This makes it more difficult for the biting edge of the stone to grip the ice and the rock runs straighter.

To make the stone curl more, the sweeper on the right side of the stone brushes at a 45 degree angle roughly between the stone's 3 o'clock and 12 o'clock positions. Again, the sweeper is trying to push/curl the stone with his/her down stroke by sweeping the closest front side of the stone. Heating the ice at that location reduces the amount of bite that might be occurring on that side of the stone. Scratch theory also suggests that the stone tries to travel in the direction of the minute scratches made by the abrasive brush head fabric. As a result the rock curls more.

The same concepts apply to rocks thrown with a clockwise rotation.

**Does directional sweeping really work?** Yes, but it depends on the brushes being used and the effectiveness of the sweepers. In 2016 the World Curling Federation (WCF), in conjunction with the National Research Council of Canada, undertook extensive studies concerning the effectiveness of directional sweeping. The study used two types of brush heads, one was a previously allowed fabric head and one was a newly-allowed head. The following diagrams highlight related findings:

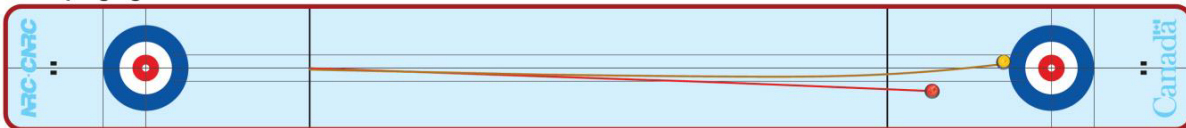
#### Sweeping full face



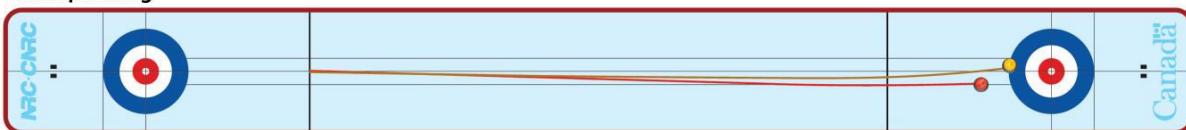
#### Sweeping with the curl



#### Sweeping against the curl



#### Snowplowing



Swept by WCF Approved Broom



Swept by WCF Unapproved Broom

Source: National Research Council of Canada

As these diagrams illustrate, directional sweeping with a certain type brush head can dramatically impact stone movement in terms of the amount of curl and the distance traveled.

**Is directional sweeping legal?** Yes, but . . . .

The WCF determined that directional sweeping was having too great an effect on the game. The equipment being used could make rocks curl significantly more, run straight, or even go the opposite direction. Equipment-related rule changes were implemented for the 2017-18 season to govern equipment features such as brush fabric, color, and underlying foam and reflective foil. New equipment standards make it more difficult for sweepers to scratch the ice and to generate brush head heat. The ultimate intent of the changes was to return the primary responsibility for making shots to the shooter. Related WCF findings and device specifications are published at <http://www.worldcurling.org/brushes>.

Competitive curlers still use directional sweeping. It is important to recognize, however, that this technique is highly dependent on sweeper skills related to brush head pressure and velocity. It is far less effective than it was prior to recent equipment rule changes. Its greatest impact is making guards and draws run straighter or curl/finish harder. Directional sweeping may be of little or no value to typical club curlers who are using WCF approved brushes, primarily because of the brush head pressure and sweeping technique that are required to make it work.

It is important to note that the WCF does not expect non-competitive curlers to replace their current brushes with newly-approved equipment. The WCF stated that. “For leagues, competitions or events contested primarily for recreation or fun, or for competitions or events contested primarily by novice or inexperienced curlers, it may not be necessary to limit which sweeping equipment can be used as a condition of competition. For leagues, competitions or events where substantial prizes or awards are earned, it may be advisable to require sweeping equipment conforming to WCF specifications be used as a condition of competition.”

**Etiquette tips for the day:** In keeping with the Spirit of Curling, proficient sweepers should not use unapproved sweeping equipment in order to produce unfair results. The outcome of games should be determined more by shooter skills and not by the use of unapproved sweeping equipment.

Until next time – Good Curling!

*(Mielke is a Level III instructor and a Level III coach. He is a member of Bismarck’s Capital Curling Club and a 2012 inductee into USA Curling’s Hall of Fame. His previous articles are available on line at: USA Curling – Media – Curling News – Columnists – Jon Mielke).*