

# The Fundamentals of Putting

## Episode 2 – Putter Face and Path Direction

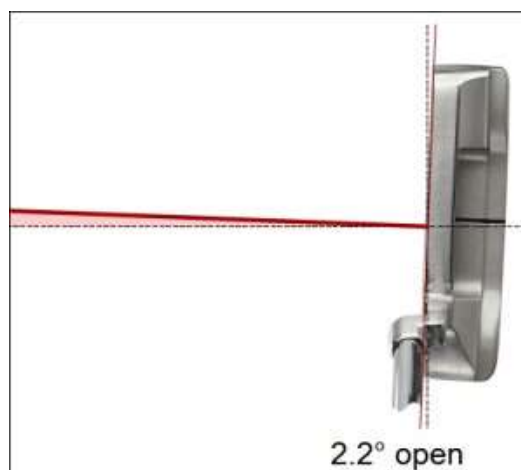
The putter face angle at impact and the swing path direction at impact are the critical factors which determine the initial direction of the ball, as rhythm and timing of the swing are the most important factors for distance control. Direction control starts with a neutral setup position where all body lines are aligned parallel to the intended target line. With a neutral grip the putter face should now exactly point to the target (see fundamentals episode 1: Setup and Aiming). During the putt the putter should be swung back and forth around a stable center of rotation in the upper spine with a stable triangle between shoulders, arms and hands. The putter path through impact will then be parallel to the target line and the putter face will return to impact exactly pointing to the target. This will start the ball straight into the target direction. Please note that a prerequisite of a neutral setup is a fitted putter.

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### Basics

#### *Face angle at impact*

The putter face angle at impact determines the initial ball direction to 83% and is the most important factor for ball direction. You will miss shorter putts mainly because of a misaligned putter face at impact. To start the ball into the intended direction the putter face at impact has to be pretty accurate. A face angle error of only about 1 degree will result in missing the hole in a 4 meters putt (if the putter path is square at the same time). For half the distance in a 2 meters putt an error of about two degrees will result in missing the hole.



**Face angle at impact:**  
2.2 degrees open

*A 2-meter-putt would miss the middle of the hole by 7.7cm*

## *Path direction at impact*

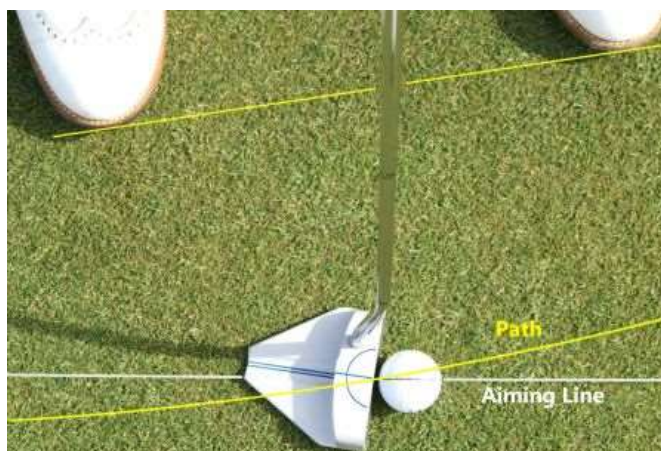
The putter path direction describes the direction of the swing path in relation to the intended target line at impact. The direction of the swing path at impact determines initial ball direction to 17% and is thus almost 5 times less important as compared with the putter face angle. A path direction error of 4.5 degrees in a 4 meters putt and a path error of 9 degrees in a 2 meters putt will result in missing the hole (if the putter face is square at the same time).



**Short putts** are hardly missed because of pulls or pushes of the swing path, because the swing path influences ball direction by only 17%.

## *Face angle relative to path direction*

The preferred putting technique would be a neutral putting stroke where at impact the swing path is parallel to the target line and the putter face is square to the target. However face angle and putter path direction can also compensate for each other. An open or closed face at impact relative to the putter path direction reflects the amount of compensation needed to make the ball go straight if the stroke is not neutral. If the putter path is cutting inside left through impact the putter face has to be open to still make the ball roll straight. Conversely a push path moving to the right requires a closed putter face to advance the ball on the target line. As the influence of putter face errors on ball direction is 5 times higher as compared with putter path errors, the compensation needs to be adjusted accordingly.



**If in example the path is cutting left 4.5 degrees through impact** it can be perfectly compensated with a putter face which is one degree open at impact. The putter face will then be 5.5 degrees open relative to path direction.

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## Frequent errors and consequences

Problems with putter face angle and swing path direction are often related to problems with the setup. In many golfers the body lines point to the left (open setup), resulting in an out/in path to the left, which needs to be compensated with an open putter face at impact. Other golfers tend to mis-aim the putter face during setup. To square up the putter face to impact compensations in the backswing are needed. If the setup is additionally inconsistent then it becomes almost impossible to control the direction of the ball. Other sources for face and path errors are grips which are not mounted perpendicular onto the putter or putters which are simply too long.

Although mild compensations are not necessarily critical, compensations always complicate the stroke and additionally tend to impair the overall consistency. Problems with face and path are more relevant for shorter putts, where direction control becomes pre-dominant, and on breaking putts. The resulting errors are pulling or pushing putts, or over- or under-reading breaks.

To correct errors arising from an inadequate setup consequently the setup needs to be fixed first (see fundamentals episode 1: Setup and Aiming). If the setup is not the source of the problem, then the stroke itself might be affected by i.e. poor balance and stability, uncoupling the hands from the lower arms, turning the upper body instead of tilting the shoulders, or by a poor end position.

## Ways to improve face angle and putter path direction

### *The string line*

A string line provides excellent feedback on swing path direction and initial ball direction to improve your direction control. The string is stretched at a height of about 20 cm exactly over the ball to the center of the target (on straight putts) or to the aim point on breaking putts. Instead of a string line also a chalk line can be used. The golfer aligns himself square to the line and then hits a putt. The string line now allows the golfer to control the swing plane or end position and to inspect the initial starting direction of the ball. Additional tees can be put at critical positions to help to give feedback on path characteristics (i.e. a tee to the left inside to avoid cutting to the left through impact).



***As soon as the putts with the string line are consistently played, more and more putts without string line should be played in between, to allow transfer from the feedback condition to normal putting.***

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## *The PerfectStroke putting aid*

Swing path problems can also be fixed with the 'PerfectStroke' putting aid ([Visit 'PerfectStroke' website](#)). This aid is different from the typical putting track by promoting the concept of a slightly tilted swing plane. The shaft of the putter moves on plane on a straight suspended rail, supporting a putting stroke that has a slight arc with a putterhead moving slightly inside / inside rather than a straight back and through stroke. At the same time the putterface opens and closes slightly relative to the target line but always stays square relative to path direction.



**PerfectStroke** - This tool allows you to perfectly feel a neutral swing plane without constricting other aspects of your stroke. The resulting ball direction will then be a consequence of the putter face only helping you also to better square up the putter face to impact.

## *The double ball drill*

Putting two balls at the same time provides feedback on the putter face angle at impact. The two balls need to be positioned exactly perpendicular to the target line, or you use special balls which are connected by an axis. Only if the balls are hit with a square putter face at exactly the same time, both balls will leave the putter blade with the same speed and the same direction. If the outer ball is leading, then the face at impact was closed, if the inner ball is leading (as shown in the picture) then the face has been open at impact.



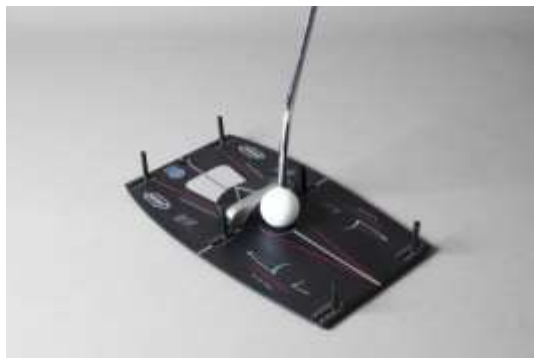
**Inner ball is leading** -> the face has been open at impact

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## *The path finder putting aid*

Training aids such as the Path Finder ([Visit 'EsotericGolf' website](#)) provide feedback on swing path direction and face angle at impact at the same time. A set of carbon fiber pins can be positioned to define gates where the putter needs to move through. When striking the ball without hitting the pins, then the path is correct. If you hit a pin then your actual swing deviates from the planned path at this position. If the path is correct, then you are getting additional feedback regarding the face angle at impact. It is the most imperative factor in order to start the ball on the target line. If the ball does not start on the line then the face at impact was not squared up. The initial ball direction can be more accurately checked by additionally positioning a narrow tee gate in front of the aid.



***Path Finder*** - by  
*EsotericGolf*

## *Adjust the ball position*

If your balls are consistently going left or right, then you might also think about adjusting the lateral ball position in your stance. On an arcing path normally the putter face will slightly open in the backswing and close during the forward swing. Depending on the ball position the face at impact will be more or less closed relative to the target. You will now need to find your optimal ball position where the balls are going straight. The normal ball position would be one ball width left in the stance. If the balls tend to go left, a ball position slightly more right will support a more open putter face at impact. Accordingly, if the balls tend to go to the right a ball position slightly more left will support a more closed face at impact. In this way ball direction errors of up to one degree can be corrected. However try to not use extreme ball positions. The lateral ball position might also affect the effective loft at impact. To avoid influences on effective loft the shaft should always be neutral or slightly delofting at setup, meaning that the hands need to be always over the ball irrespective of the ball position. So you will need to move both the ball and the hands left or right in the stance.

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We hope you also enjoyed our second episode of 'The Fundamentals of Putting' and could give you some ideas on how to improve your training.

New episodes will follow soon. Follow our Facebook page  and Twitter  to stay up to date...

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