
Supporting narrated video (NV) demonstrations, high-speed video (HSV) clips, technical proofs (TP), and all of my past articles can be accessed and viewed online at billiards.colostate.edu. The reference numbers used in the articles help you locate the resources on the website.

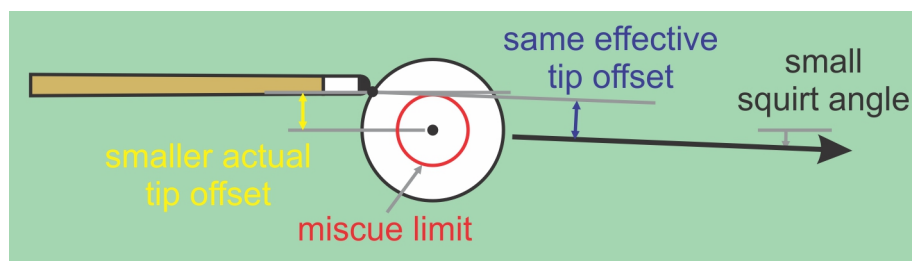
The pool world has been rife with myths and misconceptions throughout its history. Fortunately, with the wealth of excellent instructional books and videos and online resource now available, much of the misinformation has been solidly debunked. However, some preconceptions and wrong assumptions are hard to break in some people ... especially pool “Old Timers” and those they influence with their constant perpetuation of pool mythology.

In the June and July issues, I presented my categorized list of **Top 100 Pool and Billiards Myths**. In this installment of the Pool Myth Buster series, I want to take a closer look at the **myths related to low-CB-deflection (LD) shafts**:

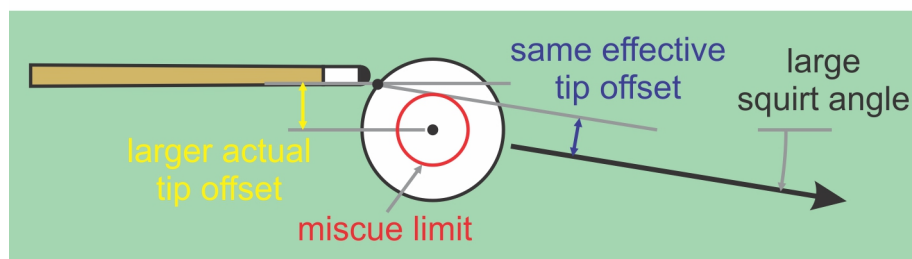
4. **LD shafts allow you to put more spin on the ball.**
5. ***A smaller-diameter shaft/tip allows you to put more spin on the ball.***
6. ***LD shafts are better than non-LD shafts.***
7. ***When you switch from a regular non-LD shaft to an LD shaft, you won't need to change the way you play.***

First, let's address **Myth 4**. An LD shaft cannot put more spin on the ball. Period! Now, for a given tip offset from center, an LD shaft will create slightly more sidespin than a non-LD shaft. However, as demonstrated in [HSV B.47](#), a non-LD shaft can hit farther out on the ball (with a larger apparent miscue limit) than an LD shaft, so the amount of spin that can be applied to the CB is the same. **Diagram 1** illustrates these effects. Diagram 1a shows that with an LD shaft, the amount of squirt (CB deflection) is small and the effective tip offset from center is about the same as the actual tip offset from center. Diagram 1b, which is exaggerated for clarity, shows that with more squirt, the actual tip offset from center needs to be much greater to achieve the same effective tip offset. The amount of sidespin produced will be the same for both shots (close to maximum, at the miscue limit), but where you need to hit the CB to get the desired sidespin for each shaft will be slightly different.

As documented in my [September, 2007 BD article](#), a typical LD shaft has a squirt angle of about 1.8° at close to maximum tip offset, as compared to 2.5° for a typical regular-squirt cue. So an LD shaft offers only about 30% less squirt than a typical non-LD shaft. Per [TP B.7](#), which calculates the effective offsets using these squirt angles, the percentage change in effective tip offset and the resulting spin for a given actual tip offset is only 2-3%, so the effect is very small, much smaller than as illustrated in Diagram 1. Regardless, this effect does not imply that you can get a larger effective offset and more spin with an LD shaft. You can't! Although, in comparing an LD to a non-LD shaft, you do need to aim slightly differently and hit a slightly different spot on the CB to send it in the desired direction with the desired amount of spin. For more information, see the [“getting more spin with an LD shaft”](#) resource page in the “cue” FAQ section at billiards.colostate.edu.



a) low-CB-deflection (LD) shaft



b) high-CB-deflection (non LD) shaft

Diagram 1 Effective tip offset with LD and non-LD shafts (exaggerated)

Concerning **Myth 5**, it might seem to some people that a small-diameter shaft allows you to put more spin on the ball, but there are logical reasons to explain this false belief. When comparing cues and/or tips, it is important that the tip offset is the same for both. If the tip size and shape are different, and one uses "tips of english" as a measure, perceived tip offset can be very different than actual offset, resulting in significant differences in the amount of spin. LD shafts typically have smaller-diameter tips than non-LD shafts. Because of this, a person might tend to place the tip farther from center than with a thicker non-LD shaft. Obviously, this would apply more spin to the CB (as long as the tip contact point is within the miscue limit). The shape of the tip can also make a difference. For more information, see "[cue tip size and shape effects](#)" resource page in the "cue tip" FAQ section at billiards.colostate.edu. Also, with draw shots, if someone is accustomed to a larger shaft that is close to touching the cloth at CB address, and they place a smaller-diameter shaft in that same apparent position (close to the cloth), the effective tip contact point offset on the ball will be lower.

Concerning **Myth 6**, LD shafts are not better than non-LD shafts for all people. For some people, LD shafts offer the following advantages:

- a) The CB will come off the cue tip closer to the aiming line when using sidespin. Therefore, not as much aim adjustment or compensation is required when using sidespin. For people who aren't good at compensating for squirt, this can be very helpful. Also, with less compensation, there will be less error. For more info, see my [December, 2007 BD article](#).
- b) A player might be more consistent with shots with sidespin since the possible range of squirt is smaller than with regular shafts. Basically, if there is less squirt then less aiming adjustment is required. For more info, see my [December, 2007 BD article](#).
- c) Back-hand and/or front-hand english (BHE and FHE) aim-and-pivot aim compensation methods might be more suited to a player's natural bridge length with an LD shaft. For more information, see the "[BHE/FHE](#)" resource page in the "english" FAQ section at billiards.colostate.edu.
- d) With a bridge length well matched to the natural pivot length of a shaft, the effects of any stroke swoop (intentional or unintentional) will be canceled. This can be particularly useful with a break cue, where stroking errors are more likely. For more info, see Diagram 4 in my [November, 2007 BD article](#).

- e) Squirt resulting from unintentional english due to slight errors in off-center alignment will be minimized.
- f) Many LD shafts are constructed as a radial laminate (long wedge-shaped sections glued together and then turned down on a lathe), so they are more likely to hold their straightness over time (i.e., they are less likely to warp). If the wood laminates are chosen carefully (e.g., with a certain grain orientations), this might help improve strength. Also, this could help with consistency from one shaft to another of the same model. Some people think the radial consistency also helps create a more consistent "hit," regardless of the orientation (twist angle) of the cue, but this effect is questionable. Some people think radial consistency also helps create more consistent squirt, but that effect is also questionable (see my [February, 2008 BD article](#)).

But for other people, LD shafts can offer the following disadvantages:

- a) LD shafts currently available can be expensive.
- b) If somebody is used to compensating aim with a higher-squirt cue, it might be difficult to adjust to the lower-squirt cue.
- c) Some people might not like the "feel" or "hit" or "sound" or "look" of an LD shaft.
- d) It can be more difficult to masse or jump the CB (e.g., when wanting to jump over just the edge of a ball) with an LD shaft.
- e) Some people might not like the small shaft diameter or taper of some LD shafts, especially if a closed bridge is used.
- f) An LD shaft might not be as mechanically sound over long-term use (i.e., the shaft end is not as strong and tough).
- g) If someone hits lots of low-speed sidespin shots, and he or she is used to a higher squirt helping to cancel some or all of the swerve, then he or she might have trouble adjusting to an LD shaft (where more swerve compensation would be required for these shots).
- h) LD shafts have long natural pivot lengths, which might not be appropriate for either BHE or FHE on certain shots. Therefore, there is no simple aim-and-pivot squirt-compensation method ... a "combination" of BHE and FHE will be required. For more info, see the "[BHE/FHE](#)" resource page in the "english" FAQ section at billiards.colostate.edu.
- i) If you have a short bridge length, an LD shaft could result in more directional error (as compared to a regular squirt cue with a shorter pivot length) due to any unintentional pivot during your stroke.
- j) If you are used to an LD shaft, and you find yourself in a place without your cue, where only regular-squirt cues are available, you might not play very well (until you can adjust).
- k) An LD shaft will not make it easier to compensate for swerve and throw. To aim shots with sidespin, many factors need to be taken into consideration. For more info, see "[aim compensation for squirt, swerve, and throw](#)" in the "aiming" FAQ section at billiards.colostate.edu

Concerning **Myth 7**, if you change from a non-LD shaft to an LD shaft, you will most definitely need to change the way you aim when using sidespin (per the info above). A non-LD shaft produces more CB squirt off line, so you need to angle your aim slightly to compensate. You also need to aim off-line with an LD shaft when applying sidespin, but the amount you need to compensate is less.

I hope this article helps dispel some of the myths out there concerning LD shafts. For those who are really interested in Pool Myths and want to explore more on your own, the complete list of 100 myths with links to supporting resources are available at billiards.colostate.edu/pool_myths.html. Enjoy!

Good luck with your game,
Dr. Dave



high-speed video

[HSV B.47](#) – Effect of shaft endmass and squirt on miscue limit



technical proof

[TP B.7](#) – Effect of squirt on the amount of spin

PS:

- I know other authors and I tend to use lots of terminology, and I know not all readers are totally familiar with these terms. If you ever come across a word or phrase you don't fully understand, please refer to the [online glossary](#) at billiards.colostate.edu.

Dr. Dave is a PBI A Advanced Instructor and author of the book: [The Illustrated Principles of Pool and Billiards](#) and the instructional DVD series: Video Encyclopedias of [Pool Shots \(VEPS\)](#), [Pool Practice \(VEPP\)](#), [Eight Ball \(VEEB\)](#), and [Nine-ball and Ten-ball \(VENT\)](#), [How to Aim Pool Shots \(HAPS\)](#) and [Billiard University \(BU\)](#), all available at: DrDaveBilliards.com.