

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. If you have a slow or inconvenient Internet connection, you might want to view the resources from a CD-ROM or DVD. Details can be found online at: dr-dave-billiards.com.

This is the second article in a series dealing with “[How to Aim Pool Shots \(HAPS\)](#),” a three-disc instructional-DVD collection I recently created with fellow BD columnist Bob Jewett. HAPS covers cut-shot aiming systems, how to adjust for cut-induced throw, how to aim without guessing when using sidespin (english), and how to aim specialty shots including caroms, kisses, combos, rail cut shots, and elevated-cue shots. Also included are numerous simple but effective systems for aiming kick and bank shots. An outline of the entire HAPS series along with video excerpts from each DVD can be viewed online at: dr-dave-billiards.com/aiming.

The month, we will look at how to adjust one’s aim for squirt and swerve when using sidespin. If you are not very familiar with squirt and swerve, watch online video **NV B.70**. It provides a complete summary and demonstrates all of the important effects. There are several useful “systems” for aiming when using sidespin. If you are already accurate and consistent when using sidespin, you don’t need these systems. However, if you are new to english, or if you don’t yet have a good “track record” with accuracy and consistency, these systems might be helpful.

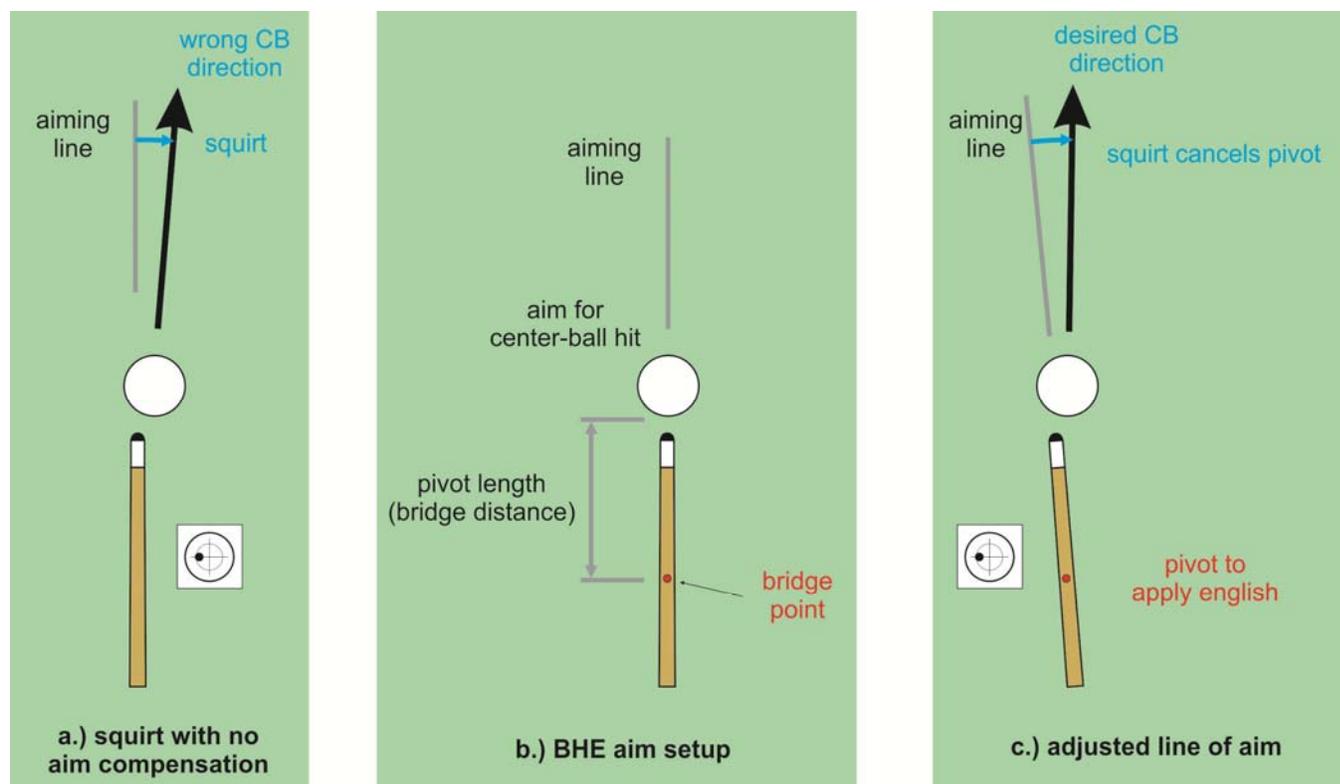


Diagram 1 Back-Hand English (BHE)

Diagram 1 shows one technique for compensating for squirt called back-hand english or BHE. As shown in Diagram 1a, when you hit the CB off center, it does not go straight. It initially heads in the squirt-angle direction. For each cue, there is a unique bridge length you can use that will allow you to aim the shot center-ball and pivot to apply english, and the pivot will exactly cancel the squirt (see Diagrams 1b and 1c). The end result is that the

cue ball (CB) will now head in the direction intended, which is a good thing. The bridge length required for a given cue is called the “natural pivot length.” If you want to find the natural pivot point for your own cue, there are procedures and video demonstrations for how to do this under “natural pivot length” on the [“cue” FAQ page](http://billiards.colostate.edu) at billiards.colostate.edu. Again, if your bridge is at the natural pivot point, when you pivot your cue to apply english, the aiming line will cancel squirt and send the CB in the desired direction. Fixed-bridge-length BHE is most effective either with fast speed and/or when the CB is close to the object ball (OB). With fast speed and/or short distance, swerve is not much of a factor since the CB does not have time to curve on the way to the OB.

For longer and slower-speed shots, another technique is more effective. It is called front-hand english or FHE. As illustrated in **Diagram 2**, with FHE, you keep the back grip hand stationary while you move your front bridge hand left or right to pivot the cue. The result is a much longer effective pivot length with correspondingly less aim compensation. Everything else is the same as with BHE. FHE will work only with a near-level cue (in other words, not elevated more than the amount necessary to clear the rails). The resulting swerve partially cancels some of the squirt, and the remaining squirt is canceled by the FHE pivot. As with BHE, the method will work regardless of the amount of english you need to apply. With more pivot, the aim is compensated more for the additional squirt that comes with using more sidespin.

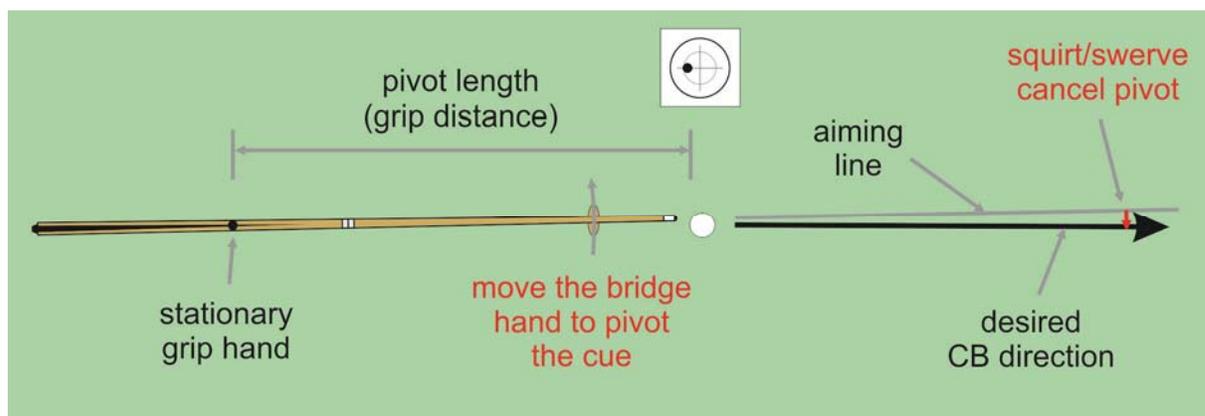


Diagram 2 Front-Hand English (FHE)

Remember, BHE works best for short and fast shots, and FHE works best for long and slow shots. For all shots in between, you can use a combination of BHE and FHE. **Diagram 3** shows the setup for a useful drill you can use to develop a feel for when to use BHE vs. FHE vs. a combination of the two. Set up a straight shot into a ball on the rail and try to get a perfectly square hit on the OB while using sidespin. Obviously, you would probably never use english on a shot like this, but that’s not the point. The point is to learn and carefully test the BHE and FHE methods. Try the drill, practicing shots from CB positions **A**, **B** and **C** at slow, medium and fast speeds, and determine the appropriate combination of BHE and FHE required for each of these 9 “benchmark” shots. Position “C” is difficult to reach on a large table, so feel free to shoot it toward the side rail instead (at the alternative ball positions shown in top of the diagram). Online video **NV E.2** and the HAPS-I DVD demonstrate selected benchmark shots, showing how the required percentages of BHE and FHE change with shot speed and distance. The exact percentages you will need will vary some with your preferred bridge length, the squirt (cue ball deflection) properties of your cue, cue levelness, and cloth conditions. Try out the shots when you get a chance.

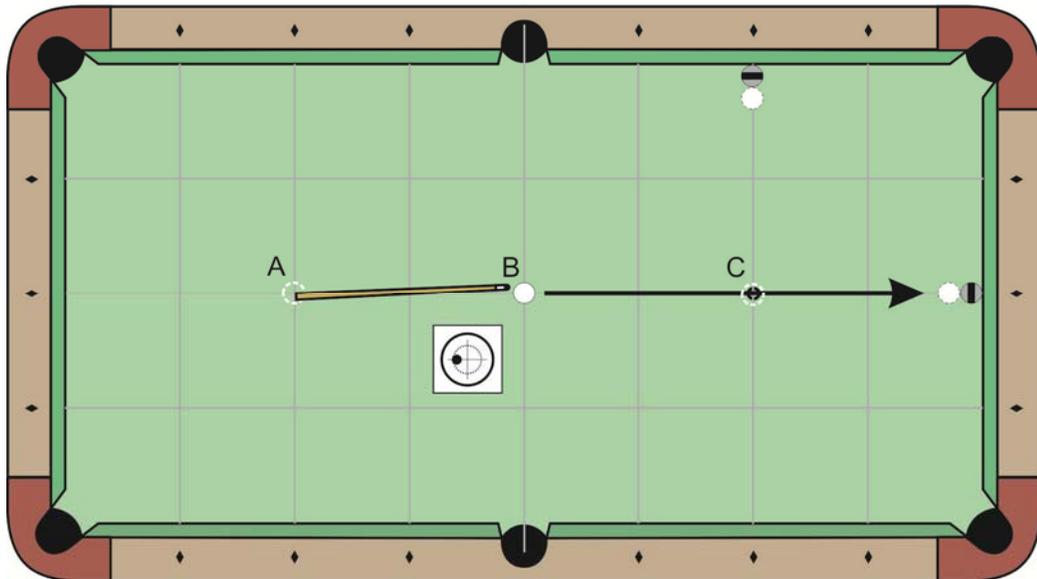


Diagram 3 BHE/FHE Combo Benchmark Shots

In Diagram 3, at CB position **C**, with fast speed, pure BHE should be appropriate, assuming your bridge is at the natural pivot length of your cue. Also, from CB position **A**, with slow speed and a near-level cue, FHE should be fairly accurate; although, the effectiveness of FHE will depend some on your cue, your height, and table conditions. From CB position **B**, at medium speed, a combination of BHE and FHE, probably close to 50/50, should be appropriate. As demonstrated in **NV E.2**, to apply 50% of each, start with a center-ball alignment and move the tip half way to the desired tip position using a back-hand pivot, and then pivot the remaining amount by moving the front hand only. At different CB positions and speeds, different percentages of BHE and FHE will be required. The purpose of the drill is to help you discover these percentages based on previous benchmark shots and based on the understanding the drill will help you develop.

Depending on the natural pivot length of your cue, your preferred bridge length, your height, and table conditions, you might need a small amount of BHE with long and slow shots (where FHE alone is often appropriate), and you might need a small amount of FHE with short and fast shots (where BHE alone is often appropriate). But that's the beauty of the BHE/FHE combo approach. With a few benchmark shots (from the Diagram 3 drill), you can easily see what BHE/FHE combinations work best over a wide range of shots. Then you can take the guess work out of aiming with English. Just aim center ball, then pivot with the BHE/FHE combination appropriate for a given shot speed and distance, and then just stroke straight.

An alternative to using BHE and FHE is to simply bring the cue into the required line of the shot to compensate for squirt and swerve strictly intuitively based on feel and past experience. This is what most pros and top players do. An advantage of this approach is that the stance is not shifted once down on the shot. Slight stance shifting occurs with BHE and FHE pivoting, especially with large amounts of sidespin. However, the intuitive approach requires a significant amount of past practice and successful experience, and it takes a long time to develop a complete feel for all squirt, swerve and throw effects and how they change with every type of shot. But as you improve over time, you will learn to adjust for these things more naturally and ultimately even subconsciously.

NV E.2 and the HAPS-I DVD demonstrate a variety of shots where sidespin is appropriate or necessary. These examples show how BHE, FHE, and combinations of the two are used effectively in a wide range of game situations. If you are fairly new to using sidespin, you should give these shots a try. Although, you might consider practicing the BHE and FHE methods first, using the Diagram 3 drill.

If you want more information about how to compensate your aim when using sidespin, see "aim compensation for squirt, swerve and throw" in the ["aiming" FAQ page](#) at billiards.colostate.edu. And if you want to learn more about how, when, and why english is used in a variety of game situations, check out Disc II of the [Video Encyclopedia of Pool Shots \(VEPS\)](#). VEPS-II takes a comprehensive look at this topic.

I hope you enjoy my series of articles dealing with the "How to Aim Pool Shots (HAPS)" DVD set. If you want to view video excerpts from the entire series, check out online videos **NV E.1** through **NV E.8**. Enjoy!

Good luck with your game,
Dr. Dave



- [NV B.70](#) – Squirt (cue ball deflection), swerve, and throw, from VEPS II
- [NV E.1](#) – Fractional-Ball Aiming, from HAPS I
- [NV E.2](#) – Back-Hand (BHE) and Front-Hand English (FHE), from HAPS I
- [NV E.3](#) – Using "Gearing" Outside English to Eliminate Throw, from HAPS I
- [NV E.4](#) – Carom-Shot Trisect-Draw System, from HAPS II
- [NV E.5](#) – Combination Shot Throw Adjustment, from HAPS II
- [NV E.6](#) – Rail Cut Shot Aiming, w/ and w/o Sidespin, from HAPS II
- [NV E.7](#) – Mirror Kick-Shot Aiming System, from HAPS III
- [NV E.8](#) – 1/3-More-Than-Twice Bank-Shot Aiming System, from HAPS III

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 author of "[The Illustrated Principles of Pool and Billiards](#)" book and DVD, and co-author of the "[Video Encyclopedia of Pool Shots \(VEPS\)](#)," "[Video Encyclopedia of Pool Practice \(VEPP\)](#)," "[How to Aim Pool Shots \(HAPS\)](#)," and "[Billiard University \(BU\)](#)" instructional DVD series.