

The Long and Short of Putter Length and Lie

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[ZipTip: EQUIPMENT: The Long and Short of Putter Length and Lie](#)

Don't let the putter wag the puttee; figure out a setup that is best for a good stroke, and then fit the putter to your needs, or else you'll get stuck with "average golferitis."

What difference does it make if the putter is 35 inches long with a "standard" lie of 71 degrees? Isn't this about what EVERYONE uses? It's surely what almost ALL the putter manufacturers peddle, so what could possibly be the question? The long and short of it is: putters are NOT designed for optimal putting, but for buyers of putters, and by far most buyers of putters are NOT too good at putting. The dirty little secret is: Many many times, it's not the puttee -- it's the putter.

[What's Stock.](#)

Putters in golf shops all look the same length, and nearly the same lie. So-called "standard" putters are 35 inches long with a "lie" of 71 degrees. Many manufacturers typically offer lengths from 33 to 37 inches with lies varying from 4 degrees more upright than 71 degrees to 4 degrees flatter.

Does anyone recall the advice that the golfer's setup and technique should dictate the putter length and lie, rather than allowing the putter specs to dictate technique? The dog wags the tail! But in golf, the putter wags the puttee!

More and more manufacturers are coming around, though. Karsten Manufacturing, makers of the popular Ping putters, cautions golfers to get fitted for their putters, and makes lengths available from 30 to 42 inches, with lie adjustments 8 degrees either way off "standard." Zevo also makes custom fitted putters. Other custom putters can be found.

[What's Wrong -- Too Long!](#)

Does a 35 inch putter work best for the average golfer? The average US male is typically between 5 feet 10 inches tall and 6 feet tall. Standing upright, the hands typically hang so the wrists match the crotch in height above the ground or the inseam on his pants, and the typical inseam length is between 30 and 33 inches. The WRISTS of almost all male golfers naturally hang 30 to 33 inches above the ground, so almost all golfers can grip a 35 inch putter WITHOUT BENDING OVER AT ALL. This is certainly the case with 6-foot tall males and is even more the case with anyone shorter. So this applies to about 90 percent of all male (and almost all female) golfers.

[Crooked Elbows or a Flat Lie with Hands Out Away and Eyes Inside the Ball.](#) A 35 inch putter causes problems! If you have a 35 inch putter and place your hands on the grip BEFORE you bend over at address, your bending will necessarily cause your elbows to

flex as your torso lowers your shoulders but your hands stay the same height. The arms have to collapse (elbows outward) to accommodate the shorter distance between shoulder height and hands height. The only other way to bend at address and keep the elbows from going out to the sides is to extend the putterhead farther from your body and stance as you bend, so your hands lower in height as your shoulders lower.

What's wrong with that (the tail wagging the dog)? Bent elbows during putting require upper arm and forearm tension to control the position of the elbows to keep the overall shape of the arms-hands-putter system constant during the stroke. This tension, even if maintained steadily, translates into added grip pressure and detracts focus from more important aspects of the stroke. A failure to pay attention to this problem leaves excess "play" in the system, so the system can vary in length going back and coming through in the stroke, making solid consistent contact very problematic. The great Leo Diegel in the 1920s took care of this problem by poking both elbows out sharply, in a style since known as "Diegeling."

In the same way, extending the putterhead away from your stance also causes defects in technique. First, this forces the eyes back from the ball, so your targeting suffers from defective sighting angles that cause misperceptions of the target location. Eyes inside typically cause the target to appear to the right of its actual location.

Second, this forces the hands farther away from the thighs and flattens the lie angle of the putter. The net effect is you cannot simply move back and through in the stroke, with the putter hanging from your light grip; instead you have to lift and carry the putter back, and this adds a requirement of constant tension to your arms and grip.

Third, the extended putterhead with eyes inside the ball forces a "gating" stroke path back around to the inside and then forward around back to square, with a follow through forward and back around again. Good luck having a square face at the precise instant of contact! In the 1920s and 1930s, Walter Hagen, Horton Smith, Bobby Locke and others tried to deal with this problem by "hooding" the left wrist to try to eliminate the gating effect -- letting the left wrist fold or break on the backstroke and then gradually returning the wrist to square as the putterhead approached impact, to keep the putterhead going straight back and through on a single line.

So what happens if you bend BEFORE assuming your grip on the putter, allowing your hands to sink down the club as your shoulders lower? Try it and see. Your hands will slide 5 or 6 inches down the handle before you feel you are in the old familiar address position. And you are probably at the very bottom of the grip material on the handle, or perhaps a tad onto the metal with your fingers.

The message should be pretty clear -- ALMOST ALL GOLFERS OUGHT TO HAVE A PUTTER THAT IS 5 TO 6 INCHES SHORTER THAN "STANDARD."

If you currently use a 35 inch putter, try letting your hands slip down the putter as you bend before taking hold of the grip. Your head and eyes should remain over the ball, your arms hang naturally without tension and elbow "play," your hands hang naturally beneath the shoulders, the putterhead is not artificially forced away from your body, and your stroke path does not have a huge "gating" effect.

[What's Wrong -- Too Flat a Lie!](#)

If the putter length is too long, you either have the elbows crooked or the putterhead out away from you. Neither is good. The "lie" of the putter is determined by the height of

your hands above the surface at address and by the horizontal distance from your hands out to the ball. The purpose of the lie is to set the sole of the putter flat on the surface, given the position of the hands back and above the ball. If you have a hands position that results in either the toe angling up or the heel angling up, your lie is incorrect. Such a lie also alters the sweetspot location on your putterface, so beware.

The "lie" is the angle between the two lines that meet at the ball: the line back to your feet and the line up along the shaft of the putter. That's where the "standard" 71 degrees comes in. But this is just odd jargon. The real point is that the shaft angles back FROM VERTICAL (90 degrees) by 19 degrees with the "standard" lie ($90 - 71 = 19$).

What's wrong with that? Well, the geometry is pretty straightforward: a typical 6 foot golfer using a putter 19 degrees back off vertical cannot possibly place his eyes directly over the ball unless he bends WAY LOW (with his hands going far down the metal or else his elbows point out to the sides). The reason is that the typical horizontal distance back from the eyes to the shoulder sockets and hands is pretty constant for people, and is around 7 to 8 inches. With the eyes over the ball, a shaft running up from the ball at a 19 degree angle meets the plane of the hands 8 inches back at a mere height of 23 inches. On a 35 inch putter, in order to put and keep your eyes directly over the ball, your palms must be gripping metal or your elbows must point nearly 6 inches out in either direction or a combination of the two.

Even if you can find a grip height that does not cause undue elbow "play," AND you can keep your eyes over the ball, if the lie is too far back off vertical you still have the problem of having to support the putterhead during the back and through motion with some lifting tension in the arms and hands. This requires the hands to float away from you as you lift slightly to keep the sole hovering above the turf, out from the hands' natural hanging line beneath the shoulders. And you still have the "gating" problem for solid, online, consistent impact.

As a test, lift the putter just off the surface and then relax your arms and hands. If the putterhead drops back towards your feet, your lie is too flat. In effect, the putter is trying to get to a more upright position by falling back towards the line straight down below your shoulder sockets.

So What's Good?

If you are 6 feet tall or under and believe in the following statements, a "standard" putter is very likely causing you problems in your putting:

- The setup should be comfortable;
- The eyes should be directly above the ball;
- The grip should be relaxed without tension in the arms;
- There should not be excess "play" in the system during the stroke;
- The putter sole should rest flat on the ground or just above the ground;
- The stroke path should remain pretty close to on line, without "gating," especially in the foot before and after impact.

To putt with these principles, you cannot allow the putter to dictate your position or technique.

To determine your proper length and lie, you should assume a setup position with a comfortable back and neck bend so the eyes are directly over the ball and your arms are

hanging naturally and completely beneath your shoulders. Then you need two numbers: A) the horizontal distance from the centers of your palms out to the ball, and B) the vertical height of the centers of your palms above the ground. Try holding a yardstick to get A. With these two numbers, your length and lie are simple geometry.

The Lie. The number A divided by B gives the "tangent" of the offset from vertical. The inverse of this "tangent" (called the "arctangent") gives the angle in degrees offset from vertical. So your "lie" is 90 degrees less this arctangent number. The formula is Lie = 90 minus Arctangent(A/B).

The Length. The length to the palms is the hypotenuse (longest side) of the 90 degree triangle having vertices at the ball, hands, and a point out from the hands directly above the ball. The two shorter sides of the triangle are A and B. From the Pythagoreum Theorem, (A times A) plus (B times B) = hypotenuse times hypotenuse. Or, the hypotenuse length is the square root of the sum of the two sides squared. Since this goes only to the centers of the palms, add about 4 inches to get the full length of your putter. The formula is Length = Square Root(A*A + B*B) + 4 inches.

Two Examples. A golfer is 6 feet tall and when he assumes his address position, his hands hang 25 inches above the surface (6 inches beneath his crotch, with the center of his palms about halfway down his thighs toward his knees), and the horizontal distance from his hands out to the ball and his eye line over the ball is 8 inches. His lie should be 17.75 degrees off vertical or 72.25 degrees. His putter length should be 30.25 inches, or just 30 inches.

Another golfer is 5 feet 6 inches tall and when he assumes his address position, his hands hang 22 inches above the surface (about 5 inches below the crotch, just above the knees), and the horizontal distance from his hands out to the ball is 7 inches. His lie should be 17.65 degrees off vertical or 72.35 degrees. His putter length should be 27 inches.

In both cases, the putter is considerably shorter than stock and the lie is more upright. The shorter the golfer, the more each of these is true. Unless you are very tall or have difficulty bending, stock putters very likely are hurting your game.

[Make This Part of Your Game.](#)

Shorter putters and more upright putters should be the rule of the day. Oftentimes, poor putting is caused by using putters that other poor putters choose to use. Manufacturers are in the business of maximizing sales, not improving your game. They sell putters mostly to poor putters, as the average golfer score is well above 90. These putters are designed to fit into this majority technique. Don't be a go-along sucker! Get fitted for a REAL putter under the guidance of someone who knows how to putt very well. If you can't find a custom fitted putter, take a hacksaw and cut down a "standard" putter and get it regripped. The long and short of putter lengths and lies is that you won't ever get rid of these problems until the dog starts wagging the tail!

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