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Target Putting

Say goodbye to putting troubles and hello to Target Putting

I would like to extend my personal thanks to Geoff Mangum for allowing his work to be shared. Geoff's web site is a must see and his contribution to the body of golf knowledge available on the internet is without equal anywhere.

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PuttingZone Putting Manual

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Hi. This Manual on putting is really a quick and practical overview of the most important points for putting at your best. I've included some drills in each section that you might want to try on the practice green or at home to get a deeper appreciation of the subtleties of this black art, golf's game within a game. And remember, "*a golfer who can putt is a match for anyone.*"

The three fundamental skills for excellent putting are distance control (touch), stroke control (technique), and putt reading (targeting). Then there are special problems, practice, goals, and putter fitting.

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Topic 1: Tempo and Touch -- Distance Control

Many golfers play the game for a long time before they finally realize that distance control in putting is more important than stroke technique or putt reading. This is because the average length of the first putt that most golfers face is between 20 and 30 feet. Even the golfer with the best stroke and the best putt reading skills is going to sink only about 1 in 15 of these monsters! Pros on Tour also face a lot of long first putts. It's just too rare to be able to stick your approach shot inside 10 feet!

Because of this reality, the objective in putting most of the time is to get the putt REAL close so that the second putt is no more than a tap-in. Tiger Woods was quoted in his seventh year on Tour as saying that he had learned to love tap-ins for pars! If the long putt goes in -- and a few certainly will -- that's great. But you cannot lose sight of the fact that poor distance control is the surest recipe for three-jacking.

So, how do you get superior "touch"? Tempo, consistent setup and stroke mechanics, appreciation of green speed through experience, and targeting precision.

Tempo is the total time your stroke takes from start to finish or the time from top of backstroke to top of throughstroke. Different people have different tempos, but by far most golfers have a tempo that is too quick. Relax and slow down! This advice has been around since at least Walter Hagen in the 1920s, and Bobby Locke swore by this rule. You really don't need to swat the ball on the green, and a nice smooth tempo is plenty to roll any ball off any green on earth -- so take it easy. I like to think my stroke is seen as smooth and graceful. My tempo is nice and relaxed everyday, and this is more than simply an expression of an easygoing approach to life and golf. A relaxed tempo is a fundamental reason I putt well when I'm "on".

Your putter has its own tempo. To see it, just hold the putter in one hand, move it back some distance, and let it fall. Most putters swing from the top of the backstroke to the top of the through-stroke in about one full second. The smoothest stroke you can have is one that moves by itself. Ben Crenshaw said it took him decades to learn that the putter moves itself.

Don't let the advice to "accelerate through impact" get you confused. Every free-flowing stroke is naturally accelerating, so long as you don't let tension or ill-advised mechanical thoughts interfere with the flow. If you do, you'll probably decelerate the stroke or flip your wrists through impact.

Consistent setup and stroke mechanics channels the tempo from green to green and day to day. This makes your tempo consistent.

Appreciating green speed is a skill acquired by experience. But there are some ideas that can speed you along the way. Shaggy greens are slow, close-mown greens are fast; wet greens are slow; dry greens are fast; Bermuda greens are slow; bent greens are fast; and so forth. The color of the grass, the wind, the temperature, the humidity, the cloud cover, the shade, the feeling of the carpet beneath your feet, and many other clues inform your sense of green speed. These clues are more important than a number (Stimp Meter), because you really need to assess every green as you come to it.

Your tempo helps you in learning green speed. If the practice green is like the greens on the course, then a one-foot backstroke with the same stroke tempo will result in a level roll that is exactly the same length on each green. Trying a few of these strokes on the practice green in your pre-round warm-up will teach you the basic unit of length for your putting on these greens. Then, adjustments for putts longer or shorter than this basic unit, and for uphill or downhill or breaking putts, becomes much simpler. And your distance control will be sharper and more consistent.

Finally, targeting precision puts these other factors fully into play. You need to assess not only the exact location of the hole in terms of making a stroke that rolls the ball all the way there, but also assess the surface in between ball and target, visualize the rolling of the ball across the total surface in real time, and get a feel for any uphill climbing or downhill racing that may be involved. You are targeting not only locations, but paths and energy, speed or sluggishness as well.

Topic 2: Stroke Technique - Roll 'em Straight

"All putts are straight." What that really means is that golfers should always start their putts off on a straight line, even if the ball breaks thereafter. What else can you do by hitting a ball with a slab of metal? Even a cut stroke that initially imparts cut spin to the ball has to roll over the ground, and this rolling washes the cut spin out, so the ball ends up rolling in only one direction anyway. The real issue is how best to start the ball rolling on the line *you intend it to travel on, consistently*.

Physics teaches that for a slab of metal such as a putterhead to send the ball rolling on a straight line, the fewer variables the better. Fundamentally, the combination of impact point, face angle, and putterhead path that is simplest for rolling the ball straight is contacting the ball with the putter's sweetspot so that the putter's sweetspot moves squarely through the center of the ball on the line you intend. The three important dimensions for straight are "square face" and "center-to-center" and "online."

The setup and stroke needs to be consistent, not only because consistent is repeating, but because consistency allows you to learn more sharply from your ongoing experiences. When you setup and stroke the ball in the same manner, your feedback relates mostly to touch and putt reading, and you learn about touch and green reading quicker and better.

The body is a messy contraption. Humans are designed for a wide variety of movements, as any dancer or acrobat can tell you. That's not all that good for putting, where simple and repeatedly accurate motions are needed. Normally, the head doesn't move, the hips and lower body are stable, and only the shoulders and limbs are in action in a putting stroke. Again -- whether you are a handsy putter, or an arms putter, or a pure shoulder putter -- whatever technique you use should be kept simple and consistent.

No matter what technique you employ for the stroke, never forget that the putter's sweetspot needs to impact the back of the ball with the face square and moving straight through the center of the ball on the intended line. If your technique doesn't promote this in your putting, then you should change to something that does.

The setup needs to promote a straight rolling of the ball with the stroke. The simplest setup starts by placing the putterface squarely behind the ball, aimed through the center of the ball on the intended starting line to the target, with the sole of the putter flush with the green surface. Once the putterface is aimed, then the length and lie of the putter will guide the placement of your hands on the grip as well as the positioning of your feet, upper torso, shoulders, and head and eyes. The simplest setup -- assuming a "standard" putter 35 inches long and with a lie angle back off vertical of 19 degrees (a lie of 71 degrees measured from the ground up to the shaft) -- has all joint pairs in the body aligned parallel to the startline of the putt: ankles, knees, hips, shoulders, elbows, and wrists. This setup allows the golfer the benefit of multiple visual and feeling cues informing where the stroke needs to go to roll the ball down the line of aim.

Golfers have used a variety of setup positions and movement patterns for the putting stroke. The hanging of the arms requires at least a little leaning or bending forward of the upper torso, so the arms can swing back and through without conflict with the

chest. Some golfers park one or two elbows close to the ribs or hips in the way that a guitarist plants the butt of his strumming hand on the sound board of the guitar, to reduce extraneous movement and to have a reference during movement that promotes accuracy. Golfers who use a shoulder stroke like to keep the "triangle" shape of the arms, hands, and putter suspended from the shoulderframe "intact" or in the same shape from start to finish in the stroke. All movement comes from a simple rocking of the shoulderframe that moves the putter back and then through. Whatever choice you make, keep an eye on whether your pattern of setup and movement promotes a square face moving squarely through the center of the ball down the line.

Ball position matters for rolling straight and for making sure all the energy of the stroke is consistently transferred to the rolling. In any stroke pattern, the putter will necessarily rise somewhat on either side of the bottom of the stroke arc. The bottom is normally in the center of the stance. If there is any "gating" around the body in the stroke path, then there will be only a very precise point in the putter's path coming into impact when the face is really square and moving square to the target. If the ball is not positioned at this point in the putter path, the ball will not start off at the target, but will go either outside if the ball is too far back in the stance or will go inside if the ball is too far forward. For this reason, many top golfers prefer a shoulder stroke that keeps the putter path moving on the target line for a substantial distance on either side of the ball. With this stroke, the only variable to worry about is whether the putterhead at impact is moving downward, moving level, or rising into the ball.

The preferred path of the putterhead into the ball is one that slightly rises. So, the ball position needs to be a little bit forward of the bottom of the stroke arc, or about two inches ahead of the middle of the stance. For a right-handed golfer, with feet about as far apart as the shoulders, this ball position places the ball just inside the left heel. The pros typically send the ball rolling with the sweetspot of the face, but also just a bit below the midline of the face. This sort of rising impact into the back of the ball with the lower half of the face sends the ball rolling with full energy.

A helpful way to keep the putter path moving straight is to avoid allowing the sweetspot to get any farther from or closer to the parallel line across the toes during the stroke. Some people imagine gliding the elbows along a parallel rail, or sliding the butt of the hands along a leaning sheet of plywood, or something similar.

The reason many teachers encourage a "no hands" stroke is to help keep the putterface in the same orientation to the stroke path at all times. This way, the putterface will return squarely to impact without the hands having to do anything special other than stay out of the action. This "dead hands" approach also helps keep the stroke path in the correct channel. The biggest flaw in the backstroke is starting the backstroke with the hands instead of the upper torso as a unit, because the hands often send the

putterhead aslant the putt line and away from the feet. The putterhead should start back either straight or slightly inside, but not outwards beyond the putt line. Avoiding crossing the putt line in the backstroke goes a long way to eliminating odd compensations in the stroke and helps make solid, square, online contact more natural and simple.

A long-standing "rule" for top golfers in putting is that grip pressure should be relatively light. Probably a more important "rule" for grip pressure than this is that once the grip is adopted and the pressure established in the setup, the pressure should remain constant and unchanging throughout the stroke. That is, no snatching the putter back, no subtle tightening on the handle at the start of the downstroke, and no grabbing on right before impact. Almost always, these sorts of grip pressure changes do something bad to the putterface or the stroke path. So, adopt your grip, establish your normal pressure, and then feel in the stroke that the hands don't tighten (or, more rarely, loosen). Keep the grip steady.

While the fundamentals of moving the putterface squarely through the ball down the line are fairly clear, making this happen is at least as difficult as correctly reading putts, if not the most difficult part of putting. This brief overview is not adequate to cover all the many subtleties of what makes a reliable, simple setup and stroke that consistently rolls the ball where you intend.

Topic 3: Putt Reading - The True "Black Art"

The only putts that are straight are the ones where the green is perfectly flat and horizontal to gravity, or flat but tilted and the hole is straight uphill or straight downhill. First, no green is perfectly horizontal, because the green has to have a slight tilt at least for proper drainage and healthy grass. Second, since greens are mowed and walked on all the time, and subject to the forces of the weather, they really are never truly flat. Third, of all the 360 compass directions around a putting green's cup, straight uphill and downhill are only two of the 360, and all the other approaches into the cup will have some break across a tilted or non-flat surface. And forth, sometimes grain in the grass is a factor, and grain can alter the direction of the roll in ways similar to the way gravity causes break in a ball's path. In other words, almost every putt has at least some break, and the ball will not really stay rolling on a straight line

except in the rarest of cases. Putt reading is all about learning to anticipate and imagine the shape and energy of a rolling ball across these surfaces into the cup.

Many great golfers believe that putt reading cannot be taught, and is learned by virtue of long experience. But there are some basic ideas that every golfer can learn and come to rely on for every situation. But "green reading" is not the same as "putt reading," which is the more important of the two. There are five key "rules" for reading putts.

The first big "rule" is that the ball's rolling speed at different points along the putt determines how much the "break" (or gravity from the slope) will affect its path. At the start of most medium-length or longer putts, the ball is usually rolling too fast for the tilt of the green and gravity to affect it much. More often than not, the ball does not really start "taking the break" until it is well over halfway to the hole. As the ball begins to slow down near the hole (as it will, since you have great touch), gravity affects it more dramatically. Slope on a green is sort of like putting a little turn in the steering wheel of your car. How far you get down the road before the "turn" sends the car off the pavement depends on how fast the car is going forward. So the sharper curves due to break always come near the end of the putt. Slow greens make the ball slow down quicker, and also make you start the ball off a little quicker too to roll far enough across the "slow" green to get to the hole. This has the curious effect that slow greens generally have less break for the same slope from the ball to within a foot or so of the hole, but then right at the cup the more dramatic slowing of the ball can make for some sharper-than-usual breaking in the last foot or so. By the same token, fast greens have less slowing effect on the ball, so the ball's energy pattern from start to finish has a smoother slowing down. This means that the break "takes" effect a little earlier on fast greens, is generally bigger, and does not radically get tighter in curvature right at the cup.

The second big "rule" is that what really, really matters is being able to roll the ball so that the final piece of its path takes it right into the heart of the cup. This is true for very long putts, and also for very short putts. In a sense, putt reading needs to run like a movie in reverse -- get the end of the putt imagined properly, and the earlier parts have to fall in line with this. Because you have great touch, the ball will always arrive at the lip with the same, or nearly the same, drop speed. How far the ball will roll past the hole if you miss depends upon the green's speed and other factors, but generally speaking most putts ought to stop within a foot or two of the hole, sometimes three, and hopefully not much more except very rarely. A typical good drop speed is about two or three revolutions per second at the lip. And this "drop speed" is always the same! So in imagining how the ball will roll and take the break near the cup, you can pretty much count on this speed at the cup, and that makes reading the break here a lot easier. Visualizing exactly how the ball ought to roll into the cup at this speed allows

you to sense the curvature of the path over the last two or three feet. Working backwards from this critical section, you can imagine the rest of the putt fairly easily. There are all sorts of tricks in this, but basically you have to send the ball across the green surface with the intention of making it arrive into the final section of the path with the correct drop speed.

The third "rule" is that the fall-line through the cup shapes the final break more than anything else. The standard advice for reading "greens" (as opposed to reading a putt) is only relevant to helping you read the putt itself. If you get a handle on the general tilt of the green as a whole in the lay of the surrounding terrain, this is helpful but occasionally misleading. The surface right near the hole may be different from the green's overall layout. In order to get a precise handle on this surface at the hole, you can identify the exact line uphill and downhill that passes through the cup. Any putt approaching the hole from the side of this fall-line will break downhill towards the line at the end, regardless of the green's overall slope or a sense of fall-line through the green as a whole. To identify this fall-line, stand below the hole and look for the highest point of ground around the lip, and also look for the axis of tilt perpendicular to this fall-line so that on either side of the hole on this axis the ground is the same elevation. Once you see the fall-line through the cup, you can more accurately imagine the final path of a successful putt right as it enters the cup.

The fourth "rule" for reading putts is that you can only start the ball rolling straight out of your setup, so you have to be careful in aiming the putterface at the start. Imagine a green that tilts down from back to front, and that you are putting at a cup in the center of the green from 10 feet away to the side halfway from front to back, along the green's axis of tilt. This putt is ALL break. That is, aiming directly at the cup, the ball will start breaking immediately, as soon as it leaves the putter, and the curvature of the break will get sharper as the ball nears the hole and slows down. Putting directly at the cup results in the ball rolling way low. The shape of the path looks a little more like a fish hook than a rainbow. If you visualize this shape as "hinged" right at the ball's address position, and pivot the whole curve uphill until the endpoint of the path feeds right into the cup, then there are two important points about how this translates into aiming the putterface to start the putt off. First, the "break point" is too low to serve as your starting target. The "break point" is that point along the path that is highest up the hill from a direct line between ball and hole (the "baseline"). But at the break point the ball is changing direction from going uphill or across the slope to going downhill or with the break, and right at the "break point" the direction of the roll is parallel to the baseline. This is as it must be. But to make the ball correctly "take the break" through this "break point," you cannot aim "at" the break point to start with, but must aim somewhat higher. In other words, don't let your imagination of the final section of the putt path mislead you into aiming too low to start with.

Especially on fast greens, with bigger breaks. The second point concerns how high above the break point to aim the putterface at address. If you imagine the curve of the path back from the break point to the ball's address position, there will necessarily be some change in the path curvature as the direction of the roll changes from parallel to the baseline to running uphill from the starting position at address. Once you can see the shape of the curve between the break point and the ball at address, this defines how the putterface should be oriented to start the putt off. If you drew a line through the break point to the fall-line through the cup, the intersection can serve as a rough "aim spot" for aligning the putterface to begin with, but actually the correct aim spot will be a little higher up the fall-line in almost all cases. Commit to this starting direction in your setup and stroke, and then get back to great touch before pulling the trigger.

The fifth "rule" for reading putts is that if there is any substantial change in green contour between the ball and the cup, such as a ridge or swale or dome or tier, this doesn't change the fact that the last section of the putt's path is paramount. Negotiating these intervening undulations is still controlled by making the last path of the putt happen as needs be. So try to define the undulation as an isolated region with some sort of boundary that sets it apart from the last section of the surface, even if the real transition is very gradual, and focus on how the ball needs to exit this area into the final section so that it goes in the cup. This makes it clearer how the ball ought to roll through or over the undulation from entrance to exit, and makes reading the undulation itself more or less a separate problem.

The various technique to help read putts include crouching behind the ball to see the contour better, stand behind the hole to get a sharper sense of the final path of the putt and how this feeds back to the breakpoint, stand halfway along the putt on the low side to examine the distance and the section of the putt through the break point, and similar well-known techniques. What you are looking for is a feeling for the path and the energy of the ball as it rolls and slows nearing the cup.

With these "putt reading" rules in mind, you can incorporate "green reading" rules as a complement. The green reading rules are simple, but they are all only "generally speaking" rules, and the actual surface contour is what counts.

Greens are designed first and foremost to support healthy grass. So they are specialized structures placed into an existing terrain in such a way that the green "drains" correctly. If water is allowed to collect on the green or doesn't flow through the green at the proper rate, the grass suffers. So, generally speaking, almost all greens have at least some modest slope. Likewise, if the green has too much slope, the ball will roll off, especially on slick greens. So green slope is almost always somewhere between these minimum and maximum slopes. To see the overall drainage pattern

built into the green, you can imagine pouring a giant bucket of water onto the green at various locations and imagine how the water would run off. Many times, the surface of the green will be in lobes that drain in different directions, seemingly at odds with the overall drainage direction of the terrain. But these many drainage directions are ultimately collected together by underground pipes that channel the water all together into the terrain's general drainage flow.

Because of this, if you are standing in the fairway about 100 to 150 yards out, survey the lay of the land and the green in this context to get a handle on the terrain's drainage pattern. The terrain's drainage pattern has been set by eons of erosion, mostly from water. So the terrain almost always drains towards the nearest pond, creek, river, or the sea. But in rough terrain, like the mountains, where it would seem the green in context would drain down the mountain or generally downhill, there is room for illusion. These terrains are more in flux geologically than other terrains, and so there is an element of chaos in these regions that may mislead.

More often than not, the overall slope of a green is mostly canted back to front so shots from the fairway can be received. Rarely does the green slope away from the fairway, as this tends to send approach shots racing off the back.

In any reading of the green or the putt, it is important to get a sense of what is truly vertical to gravity and what is horizontal to gravity, no matter how the surface appears. Water in a pond or lake is always horizontal to gravity, just like a handy spirit level. Any time a green is next to a pond, use the pond to get a good read on the green's slope (which probably leans towards the pond). Local architectural features give good and bad references to the true vertical. The outlines of substantial buildings or new houses and their chimneys are vertical, but older wooden houses may have settled oddly. Trees are never vertical. The flag is supposed to be vertical, but that depends upon greenkeeper skill in cutting the hole and seating the flag each morning, on wind whipping the flag, and on treatment of the flag by previous players. If the flag aligns vertically with some other true reference, then you're in business. Regardless of these external references, you carry around with you an innate sense of what is straight up. This depends upon good posture and balance, but you really always rely upon this in reading greens and putts. Reverting to these references to vertical and horizontal will help sort out difficult or tricky surfaces.

Topic 4: Putting Psych - Stay Here & Now

All sports psychologists agree: to stay in the "Zone," you have to stay in the "moment." The "moment" is just the "here and now" of playing golf one shot at a time. There is no future and no past, just this occasion (and opportunity) to make an excellent golf shot or putt, no matter what the situation in the round or match, no matter what's at stake, no matter how difficult the predicament.

Learning to stay in the "here and now" one shot at a time is mostly about playing "smart golf" in your decision-making for planning what sort of shot to play (how much risk to take to try a heroic recovery shot from deep in the rough, for example) and then getting down to the here and now of executing this shot. The same is true on the putting green. After you size up the situation, read the surface, and plan the putt, you have to get out of your thinking head and get down to the physical skills of making the putt. Once you're at address preparing to pull the trigger, you should not be thinking at all, and you should definitely not be worrying either! The best way to train away thinking and worrying at address is first, to recognize that it doesn't help at all at this point; second, that it always hurts the putt to think or worry during the stroke; and third, therefore, there must be a point in the cycling of your routine when you banish further thinking or worrying and move on to the level of physically performing the putt. Your physical performance is best when the mind is calm.

Part of "smart golf" on the green is not getting greedy and trying for results above your (or other golfers') ability to pull off. Staring at a 30-footer for birdie and the lead in the closing holes, stay smart and remember that blowing the putt five feet past and missing the comeback for bogey will knock you out of contention. Patience always trumps greediness, as patience is in the here and now facing reality and greediness is a matter of hope for future outcomes.

"Confidence" is nice, but means different things to different people. Confidence is not so much a positive attitude or mood as it is an absence of doubt or worry. Negative thoughts and emotions during putting are the real culprits in harming performance -- moreso than a positive attitude assists good performance. There are two separate ways to get this sort of confidence: know that your usual technique is the best you can do to give the putt its best chance of sinking or at worst stopping close for a tap-in, or deluding yourself with positive self-talk. Both can be effective to dampening down worry and negativity, but the first way is obviously better. So, learning what really works and always trying to get better in your technique and putt reading is the true path to confidence on the green.

Stress and anxiety when facing a tricky putt or when facing a simple putt that matters a lot interfere with the mind's ability to do what is required to give the putt its best

chance of sinking. Stress or anxiety make the heart race faster and narrow the brain's ability to focus, perceive, and carry out smooth movements with your steady tempo. A great putting pro thinks to himself, if he misses this putt, his dog will still greet him when he gets home. After all, how many of the earth's 6 billion people know or care about your putt? In the game of golf, keep a healthy perspective. Since anxiety and stress on the course or on the green are always self-inflicted handicaps, ask yourself "why do that"?

Regardless, you will certainly find your heart racing and your hands unsteady on the green, from time to time. What to do then? The best way to handle this is to breathe deeply and slowly so the stream of breath enters your nostrils, travels down the back of your chest to your abdomen (not just stopping in the chest or lungs), and then evenly exhaling. This pattern of breathing reclaims the cardiovascular system from the adrenaline-fed chaos, and puts you back in control of your body so you can get on with doing what needs to be done. In this connection, sticking with your routine is not simply a comforting, mindless pattern that allows you to get through the stress on automatic pilot -- it's really what you know you need to be able to carry off successfully, one step of the routine at a time progressing smoothly from reading the putt, to setting up, to executing the stroke. The best approach to stress and anxiety is to stick with doing what you know needs to happen to make the putt roll into the cup.

Bad results? So what? You still have other shots to make and other putts to sink, so move on. As Tony Lema says, "Just because I missed that putt doesn't mean I have to pull my next drive into the woods."

Topic 5: Special Problems - Tiers without Tears

Putting surfaces often have tiers separating one level from another. A tier is a sharp steepening in slope over a relatively short span that connects a higher elevation level with a lower level. The difference in elevation is seldom much more than a foot or two, and the width of the tier is often not more than three or four feet. So, roughly speaking, while a green slopes about 2% or 3% usually, a tier slopes 20% or 30% or more -- a sudden tenfold increase in slope up or down. And tiers practically always slope in the general direction of slope of the two levels as well, so you are always putting uphill all the way going up (including up the tier), or all the way down going

down. So not only are tiers a special problem in themselves, putting up or down tiers is a magnified case of putting uphill or downhill generally.

It's easy to say that what matters in successfully negotiating a tier is what happens once the rolling ball gets clear of the top or bottom of the tier. That's true enough, but the question is how to manage the putt so the ball leaves the tier behind with the proper speed and direction from that point forward. To get this right, you need a sense of how the tier affects the speed and direction of the putt going over the tier.

Tiers affect the speed based on how high the tier is from top to bottom. Going up a tier, the putt needs all the extra energy it takes to lift / roll the ball the height from the bottom of the tier to the top edge; and going down a tier, the putt gains this same amount of roll. If you had a Stimpmeter ramp, the energy of the rolling ball coming off the ramp is directly determined by how high the back end of the ramp is lifted before letting the ball roll down the ramp. The length of the ramp doesn't matter at all. Intuitively, this means you can imagine the tier is a ramp and assess how far a ball perched on the top edge would roll past the bottom edge if pushed off the tier with a nudge. However far along level green the tier would send the ball past the bottom is how much of a roll you will need just for the tier itself to get up, or how much the tier will add to ball speed going down.

Tiers affect the direction of the roll just like any slope. If your putt is traveling either straight uphill or straight downhill when crossing the tier, the tier will have no effect. This would really only be the case when the level of green from which you start the putt is oriented straight uphill or downhill just like the tier itself. Of the 360 degrees in a compass, however, straight uphill and straight downhill are only 2 of the 360+ possibilities, so almost all putts across a tier have some break. More normally, the tier slopes aslant the two levels of green it connects. For these cases, the tier has its own fall-line, and the putt will inevitably break towards this fall-line on the tier. Once the putt clears the tier, it will come again under the influence of the surface on the next level.

So, here are some conclusions for speed control. Going up, assess how much it takes to get to the top of the tier, and from there, how much it takes to get the rest of the way to the hole. And don't forget the fact that the entire putt is very likely uphill all the way to begin with, so you will probably need to be aggressive. Going down, assess first whether just letting the putt topple over the top edge of the tier will send the ball off the bottom too fast so it rolls past the hole. If so, toppling the ball over the edge is your only option. Otherwise, if the tier itself only sends the ball part-way to the hole, you have to send it over the top with the rest of the energy built in. And don't forget that you are probably going downhill all the way.

For break across a tier, assess the break the tier will give the ball differently going up versus going down. After all, going up, you are likely to have a quick climbing pace on the ball, so break won't affect the roll too much, whereas going down, you are likely to send the ball over the top edge with only a modest roll that increases going down, and this allows the slope of the tier to give the ball more break. Once the likely break is visualized, handling the tier is just picking the spot where the ball rolls clear and heads to the target, and then working backwards to find the spot to start the putt into the tier going up or down.

Topic 6: Special Problems - Short Putts

Short putts are tough! The reason seems to be that short putts are short -- too short -- and this leads to casual or poor targeting as well as flaws in making the stroke itself. The pros average making 90% at 3 feet, but at 6 feet this average plummets to a mere 50%. Where'd the 40% of skill go in this measly 3 feet, a distance no longer than one putter length?

Part of the problem seems to be that from about three feet and in, all golfers can see the hole while looking down at the ball. This means they have full stereoscopic vision of the target and the ground over which the ball must roll, and the connection visually between the ball and path and hole is pretty clear in mind. But as the putt distance increases to about 4 or 5 feet, the golfer's nose blocks vision of the hole when looking down at the ball. From this distance out, all putts are "long" and have to be treated carefully as such, with the full aiming and stroke routine every time. And the same as is needed for a 20-foot putt, your head should stay still on these putts even though you are "close" to the hole and the temptation to peak during the stroke is strong. Aim carefully, set the putterface behind the ball carefully as aimed, and "commit" to making the stroke start this way, even if it breaks afterwards. Then the putt is all about touch and commitment. Don't let short putts make you nervous in the thought that you "should" make them -- instead, remember that short putts are tough and certainly no guarantee. So take your time and be careful. Don't pull the trigger until you're ready and know you've got the putt made.

Topic 7: Special Problems - Lag for Defense

Trying to sink 30- and 40-footers is great, so long as it doesn't cost you a three-putt. So don't get too greedy, and stay smart. The surest way of three-putting is to blow the putt too far past the hole -- this is much more common than leaving the putt way short, even though amateurs often have this problem. So the best of all worlds is learning how to lag putt while also giving a serious run at sinking the monster. Long putts are all about distance control.

The reason putts blow by the hole is that the golfer fears leaving the putt way short, and this fear causes him or her to quicken the usual tempo. A putt made with tension in the muscles and with too quick a tempo will almost always be too short or too long. The best way to lag is to relax. That's why lagging successfully looks graceful and good lag putters are said to have great "touch." They relax to lag and stay with their usual tempo. The phrase "trust it" is similar to the notion of "confidence" -- more important functionally for what it is not. Trusting your touch on long putts is really NOT getting in your own way with some "special" way to putt the long ones. Target well and stick with your tempo.

Since rolling the ball too far past is more common, great lag putters consider leaving the putt a little short preferable to running the ball by the hole. Jack Nicklaus uses a target that is a little short of the hole, to make sure he doesn't blow it by.

Combining lag putting with sinking monsters, then, is sticking with your touch, targeting well, and tempering your effort with the attitude that a little short is better than a lot long. This gets the ball all the way to the hole with a good chance of dropping.

Topic 8: Special Problems - The Fringe is How Slow?

The "fringe" is a swath of grass just off the green that is the same type of grass as the green, but mowed at a higher height than the green. Typically, greens are mowed somewhere close to 1/8th of an inch each day, and the "fringe" is a 1/16th inch or so higher. The "frog hair" is fairway grass right outside the fringe, and is mowed so it stands a lot taller than either the green or the fringe. But remember the "fringe" is not technically part of the green, and a ball that sits only on the fringe (not touching the

green at all), cannot be marked and lifted. However, the golfer can test the grain and thickness of the fringe, making a practice stroke on it or otherwise, whereas doing so on the green proper is illegal. And the flag can be left in the cup, if desired.

The fringe is usually not too wide -- perhaps a couple of feet. So putting from the fringe itself entails adding only a slight amount of extra speed to the putt. Roughly speaking, a foot of fringe is worth a foot and a half of green. Putting from the frog hair just off the green is a different matter. In many cases, the grass just off the green would "Stimp" at less than half the speed of the green, unless the weather has been especially dry and this part of the course is parched. So usually putting across a foot of this grass off the green is worth two feet or more of the green itself. Taking all this into account, putting from four feet off the green to a cup that is four feet in from the 2-foot-wide fringe -- which looks like a 10-foot putt, but is in reality closer to 8 feet of frog hair plus 3 feet of fringe plus 4 feet of green, or a 15-footer altogether.

Topic 9: Principles for Great Practice

Always be specific in what you practice. Whether you practice touch or lagging or making a straight stroke or reading breaks, or some other aspect of your putting game, you have to focus on perfecting that aspect specifically. This includes practicing on *integrating* all separate skills into the total action of the putt, if that's what you choose to work on. Only work on drills when you know what the drill is supposed to instill in your putting, so using the drill is purposeful and your feedback meaningful for that purpose. To be sure, some drills have more than one purpose, but understanding how the drill should affect your skill is key. Work on the putts you are likely to face day in and day out. Typically, amateurs face a lot of first putts around 30 feet or more when they hit the green in regulation, or putts inside 6 to 10 feet when they chip on after missing the green in regulation. So it makes sense to practice lagging long putts and making putts inside 10 feet. Pros aren't that different, since even though they face a lot of first putts in the 20- to 25-foot range, and often chip from beside the green to inside 4 feet, they need to practice a lot of 20-footers and a lot of 6-footers to stay in the hunt. Always practice putting with the same type of balls you play with, since soft-cover balls putt shorter than hardcover balls. Using more than two balls for putting practice is a little like cheating, and encourages you not to worry too much about the first putt but instead to treat it as a test putt to calibrate for the second and third putts. You really need to practice making every putt. If you stand in one spot and pull ball after ball to the same spot for putting, you should be paying attention to something about the feel of the stroke, instead of whether they are going in the cup -- from the same spot over and over, they ALL need to go in! The real quarry here is the feel of a good stroke consistently. Simulating on-course pressure in practice is always a good idea, but remember that once you're actually on the course, just putt as if you were on

the practice green -- don't add to the pressure or let the pressure rule you. If you're the boss, dominate the moss!

Pre-round warm-ups are different from general practice. The purpose of a warm-up session on the practice green is to hone your tempo and touch and get a sense of the green speed you will likely face on the course. Also, try to spot if you have a specific fault or flaw in your putting that day, and get it fixed if possible, or deal with it on the course. Making a nice string of short putts right before heading to the tee is always a good way to take your putting stroke confidently on the course.

Topic 10: Goals and Standards for Great Putting

The total putts per round is not really as important as the ability to get long putts in or close and to sink putts inside 10 feet consistently. While the pro "average" for sinking 10-footers is about 1 out of 4 in competition, don't let this fool you. Your goal is to sink 10 out of 10 at 10 feet -- in practice AND on the course! For long putts, pros almost never three-putt, and the average is three-putting only once every three rounds. This standard might as well be your goal also, even if it takes you a considerable time to achieve this goal. Then when you achieve it, replace it with a more stringent goal and keep improving. Eventually, you will see that to really go low in scoring, you have to hit greens in regulation and stick the ball close to the pin so your "scoring club" can shine. In the meantime, good putting will keep you in the hunt, take pressure off your long game, and allow you to score and compete even on days of poor ball striking.

Topic 11: Putter Selection and Fitting

As the saying goes, the dog wags the tails, not the other way around. Don't let a putter's length and lie and other features dictate your stroke. Instead, start with sound mechanics in the setup and stroke and get a putter that fits you and your stroke. Your setup and stroke pattern determines the length and lie of the putter that works best for you, so make sure the setup and stroke is sound first, then get fit for a good putter. If you settle for whatever length and lie is offered stock off the retail shelf, you are likely to catch a serious case of "average golferitis" because these specs are designed for the average player with poor putting skills and a handicap near 20 or 30. Beyond length and lie, a putter should have good aiming lines, a satisfying overall weight, and a balance that suits you and your tempo and stroke. Expensive putters may or may not fit your individual needs, so be open when trying out putters. Shopping different style

putters in the thrift stores is a good way to test out different performance features on the cheap. Once you get a putter that fits, keep it until it gets bent or lost or stolen, unless something clearly better comes your way.

Written by Geoff Mangum

Geoff Mangums Putting Zone