

# THE SCIENCE OF PUTTING

BY DR PAUL HURRION

**I**f you thought that launch angles and spin rates were the sole territory of woods and irons, then think again. Even when it comes to the humble putter, faults and fixes become clear when dipping into the world of science and technology. Dr Paul Hurrion employs both via his Quintic system, used to help many of today's tour players sharpen up their skills on the greens.

## WHAT IS QUINTIC?

It's a software system that will track the ball as it comes off the putter's face, recording sidespin, launch angle and forward rotation. Using that data, it is possible to pinpoint any problems in the putting stroke and set about correcting them.

One degree of loft is ideal at impact, but if that varies by over half a degree either side, then you could be looking

at a problem that will cause you to miss putts.

More than 20rpm of sidespin – and consistently striking your putts more than 5mm outside the centre of the clubface – can also cost you strokes.

Hurrion has hundreds of tour players' statistics logged into his computer. The ones displayed here offer a typical cross section of the problems that are found in all standards of golfer.

## ACCURATE

Once the system is calibrated then you can go ahead and putt balls from the same spot on the green. Some other systems require you to attach a measuring device to the putter shaft, which changes the balance of the club and alters the stroke. It's just not as accurate.



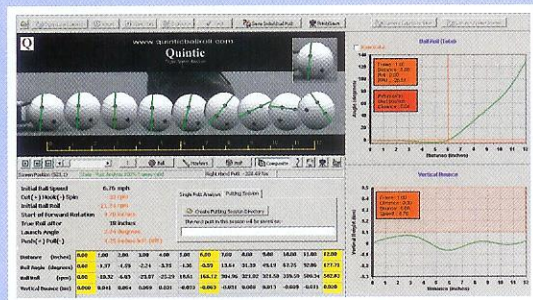
# OLIVER WILSON

## PUTTER TOO MUCH LOFT

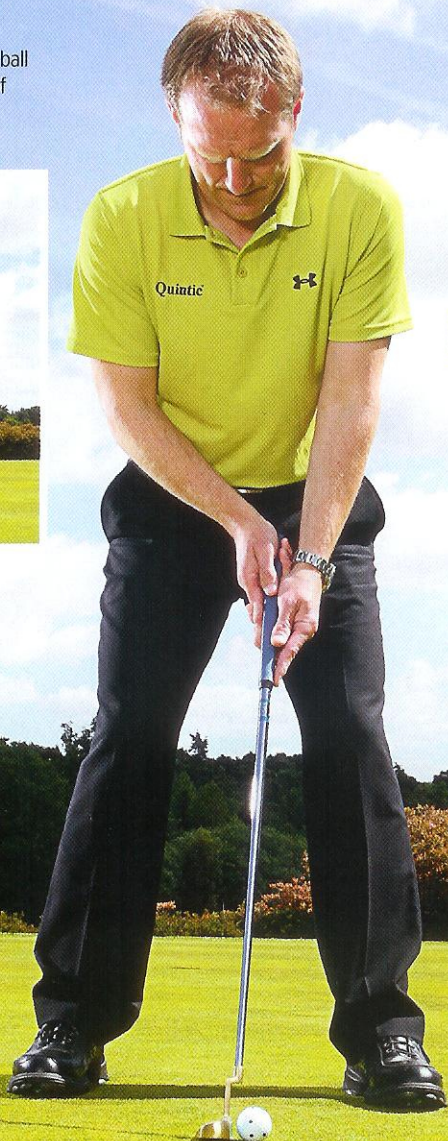
With Oli we quickly found that he was launching the ball too high. He played the ball too far forward in his stance which added loft to the putter and made the standard 3° more like 4° or 5°.

### COMMON CAUSES OF HIGH LAUNCH ANGLE

- too much dynamic loft at impact
- breaking the lead wrist (flipping) just before impact
- swinging the putter on an excessive upward arc through impact
- having the ball too far forward in the stance



This is how Oli addressed the ball with the putterhead in front of the sternum and the hands behind the ball.

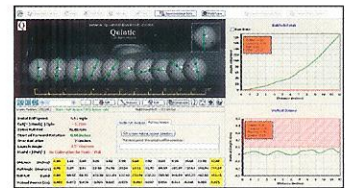


### LEANING

This is much better. The butt of the club needs to be in front of the ball, giving you a very slight shaft lean towards the target. A bit more weight on the left is good. If you have a forward press like Phil Mickelson, then you need much more loft on your putter. Some players don't like to lean the shaft, so the alternative is to take some loft off the putter to compensate.

# SAM WALKER

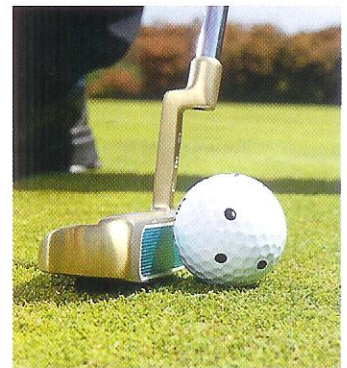
## STRIKING TOO HIGH OR LOW ON THE FACE



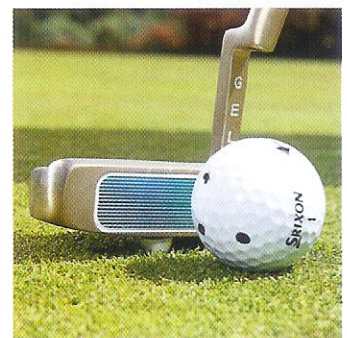
This example shows a putt that has been struck very close to the bottom of the putter, striking the ball on the upswing... so much so that on some putts, contact was made with the metal rim and not the soft insert.

### CAUSES OF HIGH OR LOW STRIKES:

- breaking the wrist (flipping) just before impact (low)
- ball too far forward in the stance (low)
- hitting down on the ball (high)



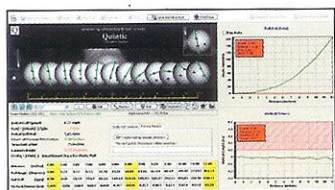
If you hit the ball too high or low on the face then you are not going to get a consistent roll or distance control. If you are using a soft insert putter and occasionally, hit the ball off the surrounding metal, you will send the ball much further than intended.



If you strike the putt too high on the clubface, then this drill can be very useful. Put a tee peg in the ground and rest your putter on top. Now try and complete a stroke without getting the putter snagging on the peg. This way you are ensuring that the club will not come into the ball too low.

# PADRAIG HARRINGTON

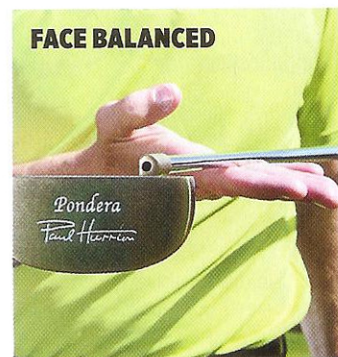
## TOO MUCH HOOK SPIN



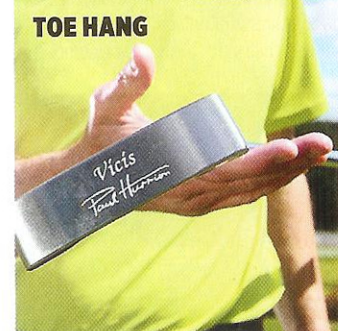
Padraig was an example of a player where we didn't adjust his technique, but we did fiddle about with his putter. He was getting too much hook spin because the putter he was using had a slight toe hang. This means when you balance it on your finger the toe drops below the heel.

### COMMON CAUSES OF TOO MUCH HOOK SPIN

- inside-to-outside putting stroke
- a toe hang putter, when trying to use a 'straight back and straight through' putting stroke
- putter face closed at impact
- striking the putt out of the 'toe'
- putter with lie angle too upright (toe high at address)



FACE BALANCED



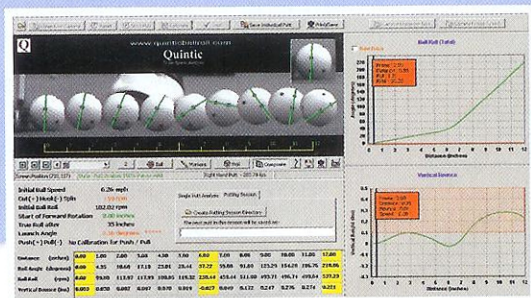
TOE HANG

Harrington has quite a square-to-square stroke so we had a new putter made for him with a longer neck so that it was more face balanced. The result was he rolled the ball with less sidespin than before.

A simple rule here is that if you have a long stroke then you'll probably need a little toe hang. The shorter, back and through players, like Padraig, will benefit from face-balanced models.

# PAUL McGINLEY

## NOT ENOUGH LOFT



A launch angle that is too low will cause the same problems (ball bouncing as it leaves the putter) as a high launch angle. The example here has a positive launch angle (2.16°). The putter has struck the ball on a descending angle, causing it to have more than 100rpm of overspin. You can also see that after the first bounce, the second bounce is actually higher than the first!

The majority of putters come as standard with 3° or 4° of static loft. This may or may not be right for you. Analysing your personal putting stroke, your own hand position at address and impact and your preferred ball position will allow for the correct calculation. It is advisable to hit 10 putts and look at the range in launch angle. This is crucial in order to optimise the correct static loft of the putter. Ideally it would be advisable to select putters with different lofts depending on the type of green (grass type/depth/speed/weather) you are playing to optimise the correct launch angle.

### COMMON CAUSES OF LOW LAUNCH ANGLE

- not enough dynamic loft at impact
- hitting down on the ball with the putting stroke
- having the ball too far back in the stance
- the putter not having enough static loft

### TRAPPED

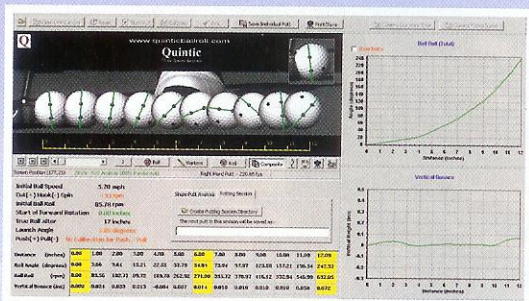
The problem we had with Paul's stroke was that he had an excessive forward press and then trapped the ball as he hit it. His set-up was quite good, but he led with his hands and had a slight move onto his left side that didn't help.



A great way to work on stability in the putting stroke is to play putts on one leg. This way you stay more centred over the strike, rather than sliding into impact like you might with a full swing. This is a great drill to try: do it with your eyes closed to make the task harder and intensify those feelings of stability.

# ROBERT-JAN DERKSEN

## PATH PROBLEMS: CUT SPIN



This example shows the negative effect of too much cut spin on the performance of the golf ball. The cut spin number (+33) turns RED to highlight more than an acceptable amount of cut spin imparted on the ball at impact. This cut spin caused the ball to skid for two inches before starting any significant forward rotation, even with a 'Launch Angle' of 1.89°.

### COMMON CAUSES OF TOO MUCH CUT SPIN

- an outside-to-inside putting stroke
- an open putter face at impact
- striking the putt out of the 'heel'
- putter with lie angle too flat (heel high)

We've worked hard with Robert to get rid of the cut spin he was putting on the ball. It was primarily caused by setting up with his shoulders open at address. If you are not square to your path then you are always going to be inclined to chop across the ball. Danny Willett is another who can come from the outside, a failing that is quite common.

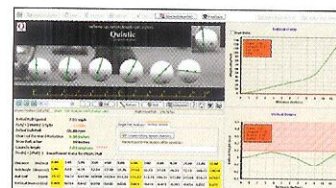
### SQUARE

A lot of the path problems come from poor aim with the body. It's worth checking how your shoulders and knees are lined up every time you practise on the putting green.



# RHYS DAVIES

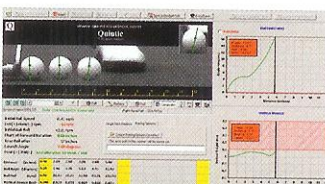
## PATH PROBLEMS: HOOK SPIN



Rhys Davies might be one of the best putters on the European Tour, but even he has a tendency to take the putter too much on an in-to-out path. I could give you umpteen players with path problems; it has to be the single most common cause of misses. Rhys hit 12 putts; six had hook spin and six cut spin. However, he had an ideal amount of forward rotation, plus the ball position, hand position and loft of putter was ideal for his stroke.



This drill is used a lot by Tiger Woods. Place a tee peg either side of your putter head leaving a gap of about five millimetres. Now try and stroke the ball without hitting the pegs. This is a lot more difficult than it looks and if you can do it five or six times out of 10 then you're doing well. It's a great exercise for straightening up the path of the stroke and ensuring that you hit your putts out of the middle of the face.



### RORY McILROY

We saw the problem that Rory had missing putts left at the Masters. He does have a tendency to address the ball out of the toe and gets hook spin. It's not so much the stroke, but the fact he's not hitting the putt out of the centre. Be careful of the old myth that says address a very fast six-footer out of the toe to deaden the speed because you'll impart hook spin that'll take the ball off line.