

Quintic Ball Roll – Key Parameters

How to interpret the numbers...

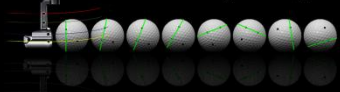
www.quinticballroll.com



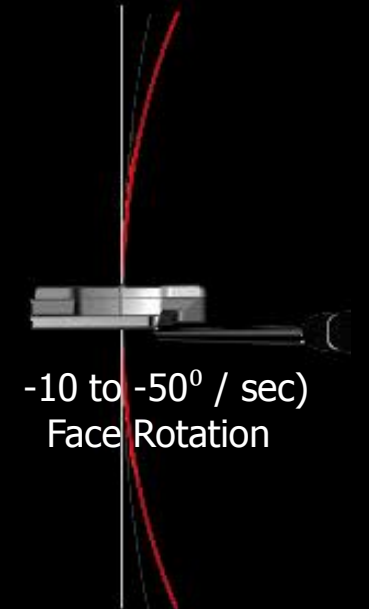
1. Face Angle & Start Direction
2. Clubhead Twist
3. Ball Speed & Pace Control
4. Launch Angle
5. Spin & Roll



Key Parameters for a single putt...



Face Angle



Individual Putt

- The Face angle at impact as close to 0.00° as possible.
(Face rotation will be determined by the amount of spine angle, distance from the golf ball and putter design)
- Minimal clubhead twist caused by impact location (less than 0.10°) – find the centre of the putter face!
- The ball started **forward rotation immediately after impact**
- The point of 'Zero Skid' occurs after 10 - 25% of the total distance travelled (depending on the surface)
- The 'Launch Angle' is positive and less than 1.50 degrees
- Positive Attack Angle less than 2 degree (up-swing) / with a low point of 1-2" prior to impact
- Below 10 rpm of side spin (this is negligible and will have no effect on the balls travel)
- Square face to path throughout the impact zone.
- Minimal Lie angle change of less than 0.50°

Quintic Ball Roll Summary

Consistency / Range Values

How to interpret the numbers...

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**What is your
RANGE over
6/10 Putts ?**

1. Face Angle & Start Direction
2. Clubhead Twist
3. Ball Speed & Pace Control
4. Launch Angle
5. Spin & Roll

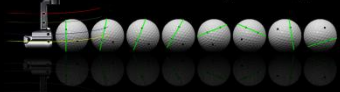


Blue / Eagle – Best of the Best!

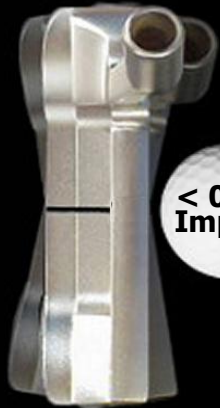
Green / Birdie – Very Good

Amber / Par – Average

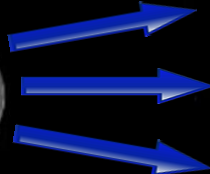
Red / Bogey – Poor



1. Face Angle & Start Direction

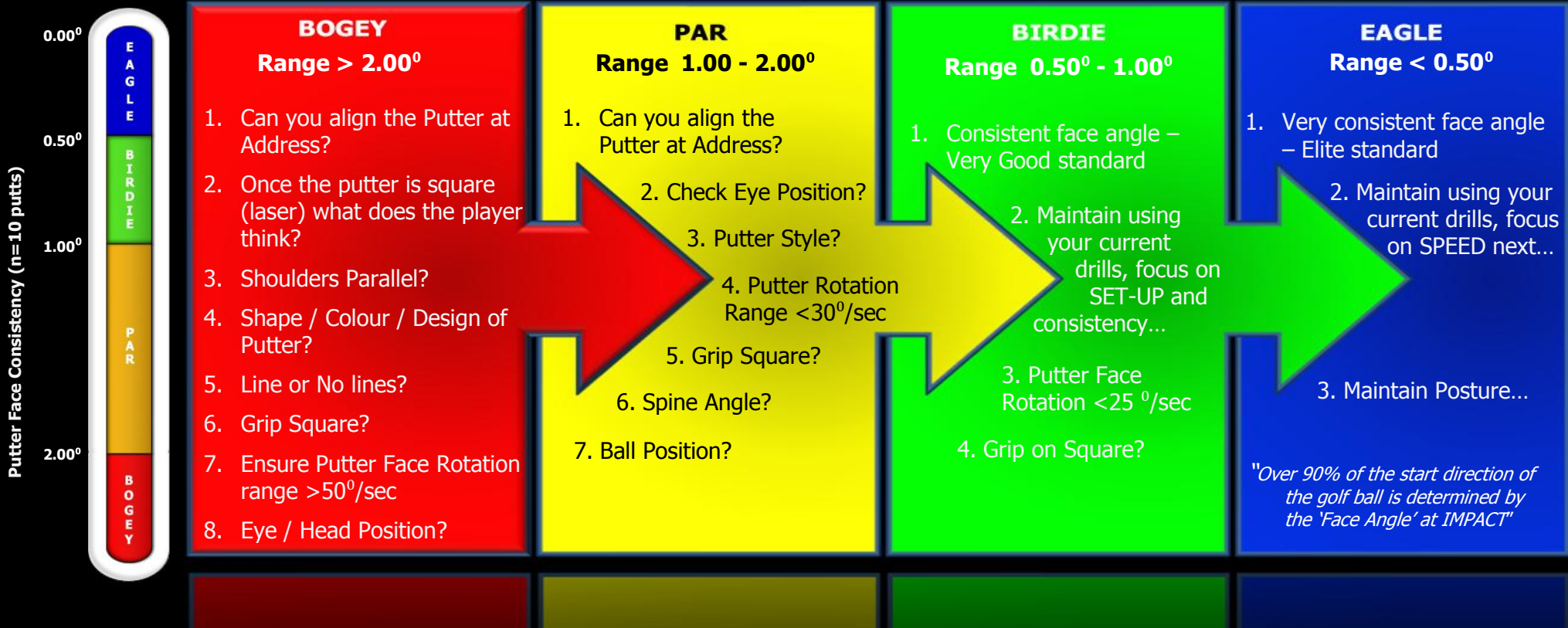
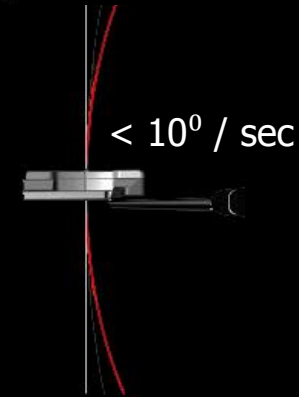


**< 0.50°
Impact**



Causes of Poor Face Angle - Range

- Poor alignment of the putter at Address – check eyes, head, shoulder & putter grip
- Upper spine angle is too upright (check the length of the putter!)
- Too much forearm rotation 'Hands on the club – are they neutral?'
- Manipulation of the wrists (flipping), weight moving away from the target
- Inconsistent 'Ball Position' – often too far inside the line with the eyes
- Anchor point of the putter is too low – belly putter...
- Check the amount of 'Toe Hang' – 'more face balanced may help?'
- Head weight / Shaft weight / Grip weight = all have an influence



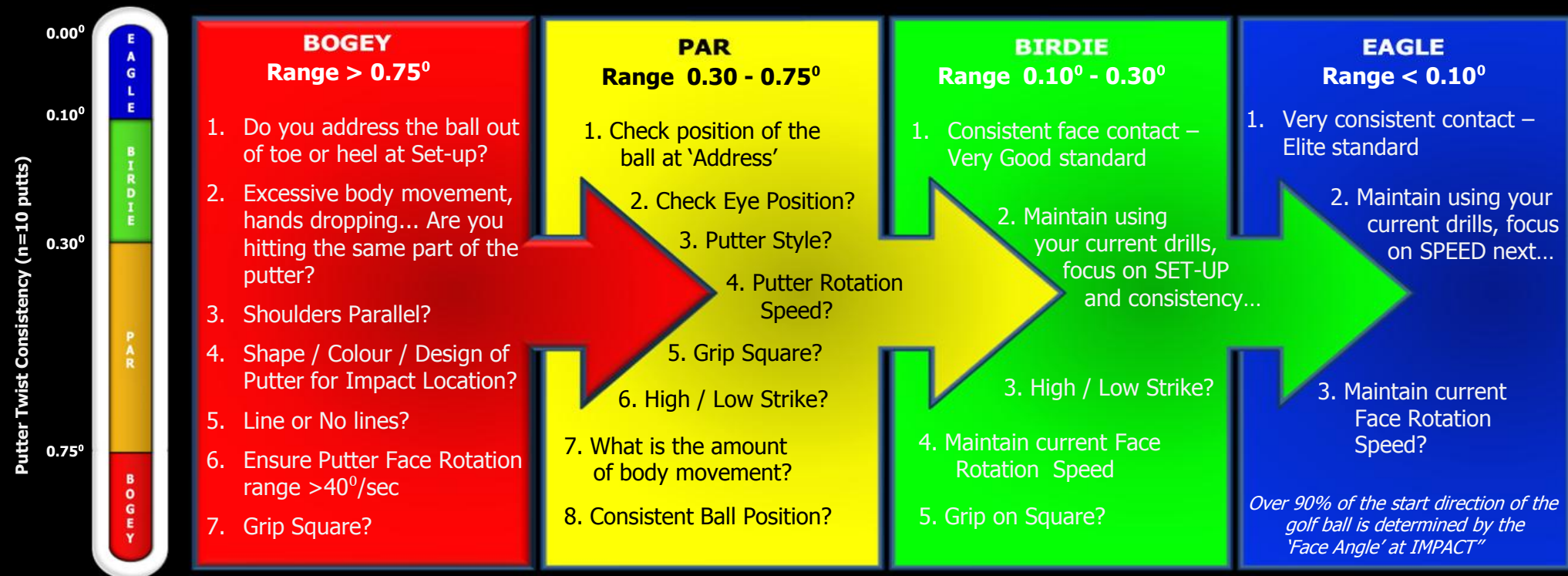
2. Clubhead Twist @ Impact

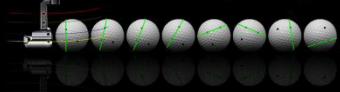


Causes of Clubhead Twist - Range

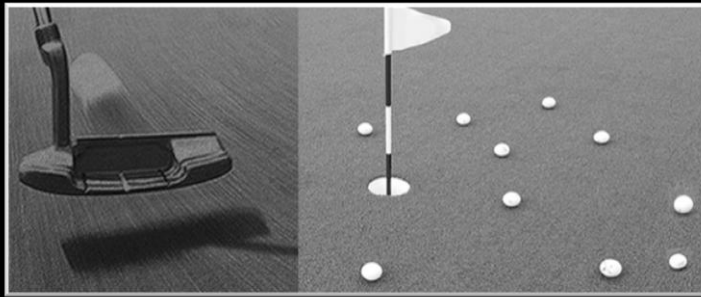
- Ball not struck in the stable part of the putter – centre of gravity of the putter
- Do you 'Address' the ball out of the middle at 'Set-up'?
- Are you hitting the ball out of the same spot? – Consistent **Ball Position**?
- Try a higher MOI (Moment of Inertia) Putter style?
- Excessive body movement and rotation
- Hands dropping at impact

"Clubhead twist will cause an inconsistent impact ratio leading to poor distance control"





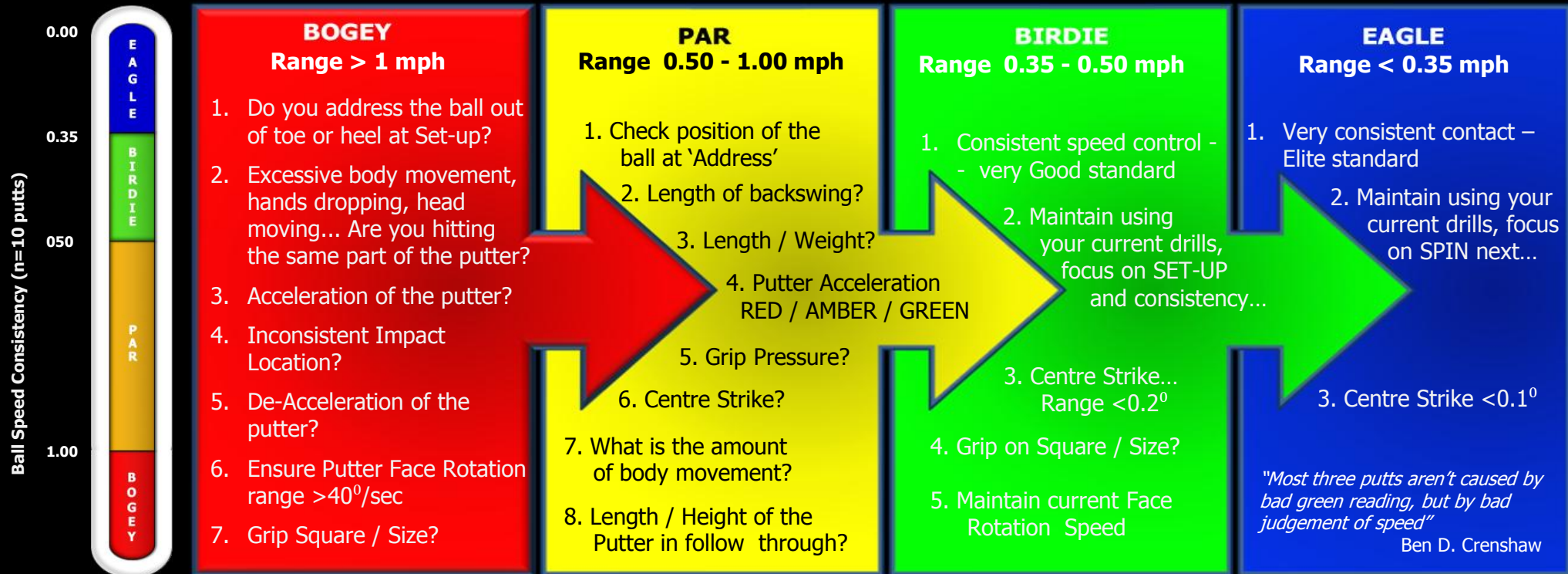
3. Ball Speed & Distance Control

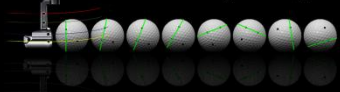


10 Putts, how good is your grouping?

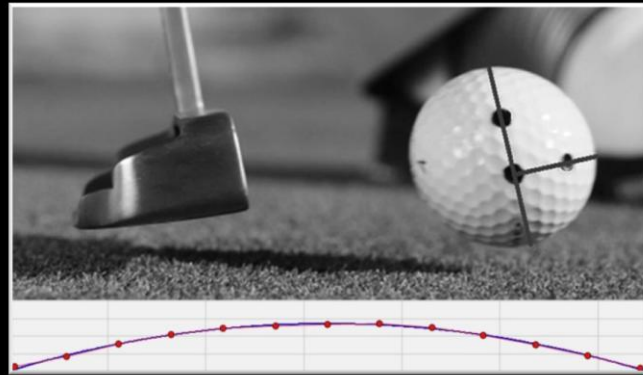
Causes of Poor Ball Speed & Distance Control - Range

- Inconsistent Club Head Speed / RED Acceleration prior to impact.
- Length of Backswing vs. Throughswing = Tempo & Rhythm
- Grip Pressure / Size / Style of Grip – leading to inconsistent club face rotation
- Club head twist ? Are you hitting the ball out of the same spot
- Inconsistent Ball Position – eyes often too far inside the line / forward or back in stance
- Excessive body movement, body moving backwards during impact
- Hands flipping at impact / Too high a launch angle / inconsistent rotation / spin ...
- Check the amount of 'Toe Hang' – 'more face balanced may help ?'



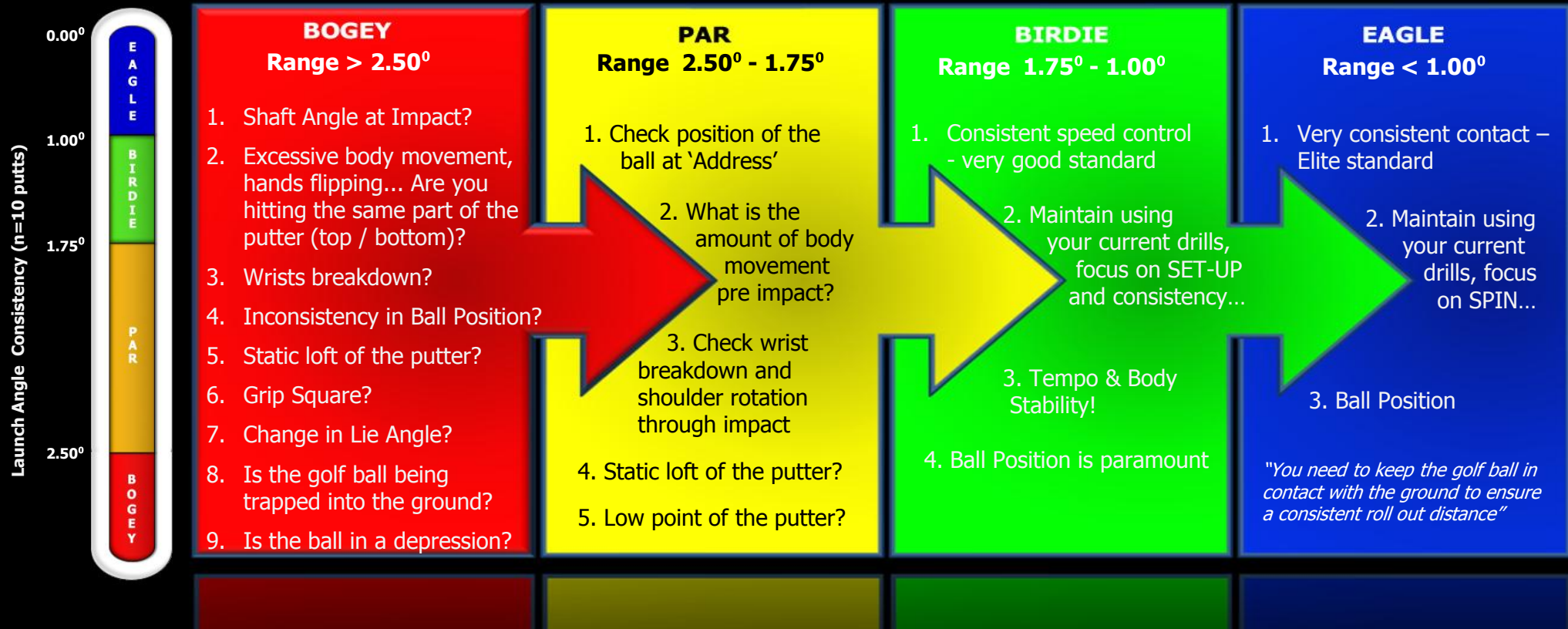


4. Launch Angle



Causes of Inconsistent 'Launch Angle' - Range

- Inconsistent shaft angle at impact (Hands flipping at impact / forward press)
- Attack Angle? Negative / Positive – (where is the bottom of the arc?) Body Movement?
- Inconsistent Ball Position – eyes often too far forward of back in the stance
- Excessive body movement, body moving during impact – poor strike...
- Variability in the clubface rotation
- Striking the ball low / high on the face
- Change in Lie Angle (hands dropping at impact is the most common)

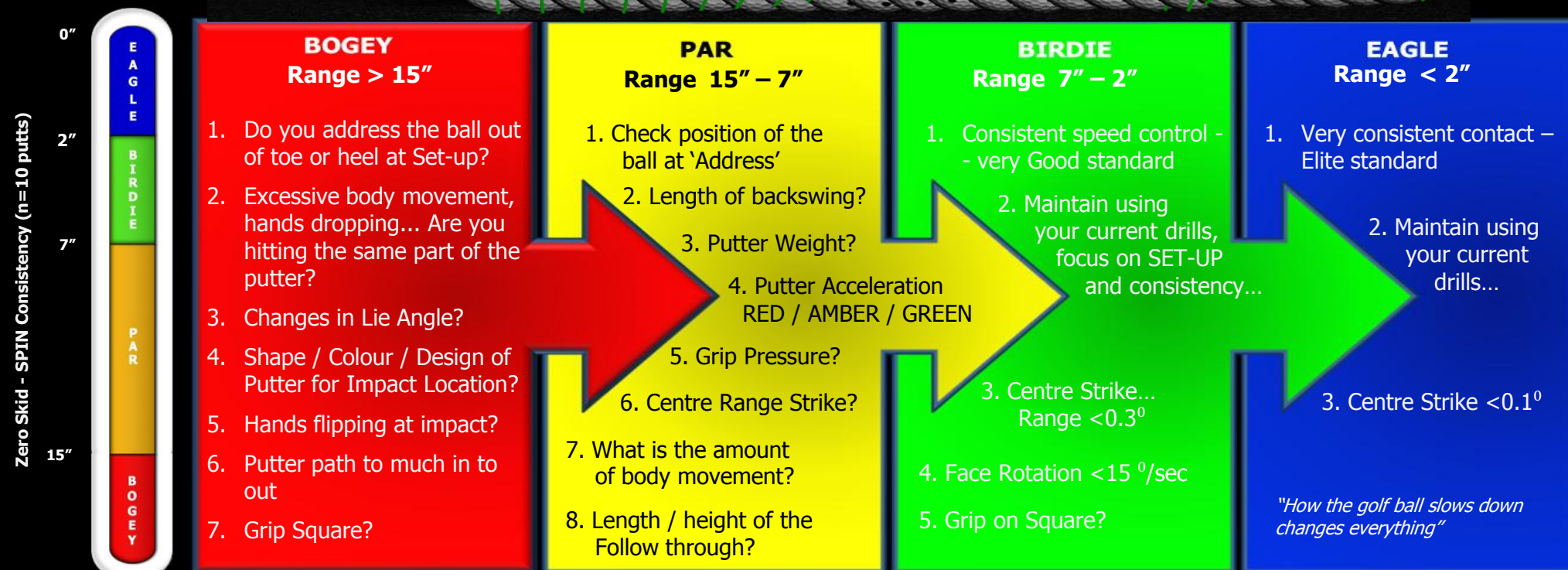
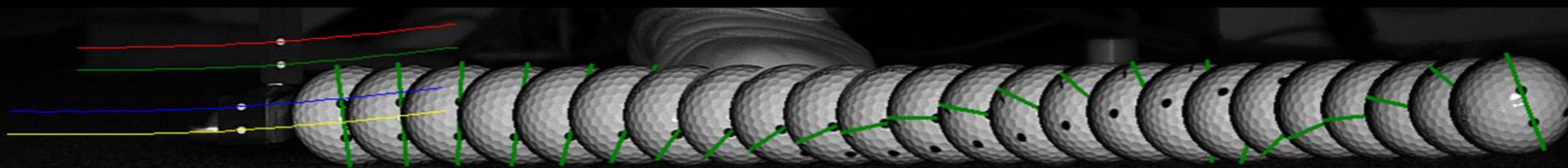


5. SPIN & ROLL – Zero Skid (Inches)



Causes of Inconsistent Zero Skid 'SPIN & ROLL Numbers' - Range

- RED values in all FOUR previous categories 'FACE / TWIST / SPEED / LAUNCH'
- What is the relationship of the players putter face and path? Are they working together...
- Inconsistent club face rotation or excessive club head twist? Are you hitting the ball out of the same spot (Heel / Toe / High / Low)
- Inconsistent Ball Position – eyes often too far inside the line / or ball forward or back in stance?
- Excessive body movement with hands flipping at impact creates backspin and inconsistent forward / backwards rotation
- Check the putter for the following : Degree of 'Toe Hang' / 'Weight' (shaft, grip & club head) 'Length' / 'Grip Size'



Summary – Range Colours

(Max – Min) 6/10 Putts of the same distance / alignment target

	Measurement	Blue	Green	Amber	Red
		<i>Elite / Eagle</i>	<i>Good / Birdie</i>	<i>Average / Par</i>	<i>Poor / Bogey</i>
FACE	Face Angle (deg)	< 0.50	0.50 - 1.00	1.00 - 2.00	> 2.00
	Face Rotation (deg/sec)	< 10.00	10.00 - 20.00	20.00 - 40.00	> 40.00
TWIST	Clubhead Twist @ Impact (deg)	< 0.10	0.10 - 0.30	0.30 - 0.75	> 0.75
SPEED	Impact Ball Speed (mph)	< 0.35	0.35 - 0.50	0.50 - 1.00	> 1.00
	Impact Club Speed (mph)	< 0.20	0.20 - 0.35	0.35 - 0.55	> 0.55
	Impact Ratio	< 0.02	0.02 - 0.04	0.04 - 0.08	> 0.08
LAUNCH	Launch Angle (deg)	< 1.00	1.00 - 1.75	1.75 - 2.50	> 2.50
	Shaft Angle (deg)	< 0.50	0.50 - 1.00	1.00 - 2.00	> 2.00
	Attack Angle (deg)	< 0.50	0.50 - 1.25	1.25 - 2.50	> 2.50
	Lie Angle (deg)	< 0.50	0.50 - 1.00	1.00 - 2.00	> 2.00
	Low Point (inches)	< 0.50	0.50 - 1.00	1.00 - 2.00	> 2.00
SPIN	Zero Skid (inches)	< 2	2 - 7	7 - 15	> 15
	Zero Skid (seconds)	< 0.02	0.02 - 0.04	0.04 - 0.08	> 0.08
	Initial Ball Roll (rpm)	< 15	15 - 40	40 - 75	> 75
	Start of Forward Roll (inches)	0	0.01 - 1.00	1.00 - 2.00	> 2.00
	Side Spin (rpm)	< 10	10 - 20	20 - 40	> 40

Quintic Ball Roll[®]

The Launch Monitor for Putting...

