

The Impact of Pistol Grips on Putting Performance

Erik Henrikson¹, Alex Hope¹, Matthew Jones¹

¹ Engineering Department, PING, Inc, Phoenix AZ 85029, USA

- Playing Equipment

Purpose: The “pistol-type” putter grip is characterized by a non-circular cross-section where the cross-sectional area increases approaching the butt-end and the axis of the grip tilts toward the player (figure 1). In some cases these grips also incorporate an angled core. Variations of this type of putter grip have been part of the game of golf for many years. They are considered to be incredibly popular and have become the “somewhat traditional” shape of a putter grip [1]. There are a number of different ideas regarding the effect and purpose of the shape. Some manufacturers have suggested the larger geometry helps “lock-in” a player’s grip leading to a more repeatable motion, or that it can provide unspecified performance benefits. PING’s founder, Karsten Solheim, viewed the pistol grip as an alternative to the Ballnamic bent shaft the company incorporated into iron and putter builds before it was deemed non-conforming by golf’s ruling bodies. His philosophy with the Ballnamic shaft was to incorporate a bend to align the grip with the center impact location of the club head, with the intention of reducing “twist” at impact [2]. Although this type of grip has been prominent in the golf community for many years, there has been little documented research exploring the effect of this type of grip on the delivery of the putter head during the putting stroke. A study was conducted to explore whether there is a measureable effect on putter head orientation at impact when comparing a pistol-type putting grip to a “straight” putter grip (uniform cross-section over the entire length of the grip).



Figure 1: Diagram of a typical pistol putting grip

Methods: Forty players carried out 5-putt sessions at a distance of 3.05 m (10 ft) with two different putter grips installed on the same model of putter. The grips chosen for this study were the Golf Pride Tour SNSR Straight and Contour models, while the putter head model tested was a PING Sigma G Tess. During each of these sessions the motion of the putter was measured using the PING Putting app [3]. Additionally, players were required to use each putter to hit five 2.44 m (8 ft) putts at one hole and five more at another. The miss direction and makes were recorded for every putt. Paired t-tests were used to compare the effects of the two levels of grip on specific dependent variables. The dependent variables evaluated in this study were the impact angle relative to address, impact lie angle, impact loft. Statistical significance was set at $\alpha \leq .05$ for all tests.

Results: Evaluating the delivered putter orientation data for each grip, there was a significant difference in impact angle between the two putters ($P < 0.001$) as shown in Figure 2, with the pistol grip being delivered more closed relative to setup. There was also a small, but statistically significant difference in lie angle at impact ($P = 0.03$), shown in figure 3. The delivered loft showed no significant difference ($P = 0.1$). Additionally, the putts where the miss direction and make percentage at 2.44 m were recorded showed a tendency for the Contour grip to miss to the left more frequently than the Straight grip.

Discussion: The results from this experiment suggest the pistol grip tends to promote a more closed face angle at impact when compared to a constant cross-section grip. Recorded misses on 2.44 m putts confirm that the players are delivering the face more closed at impact with the pistol grip, as opposed to setting up more open at address. A previous study investigating the kinetics of the putting stroke using two putters with different CG locations relative to the shaft axis showed a similar result. A putter with a

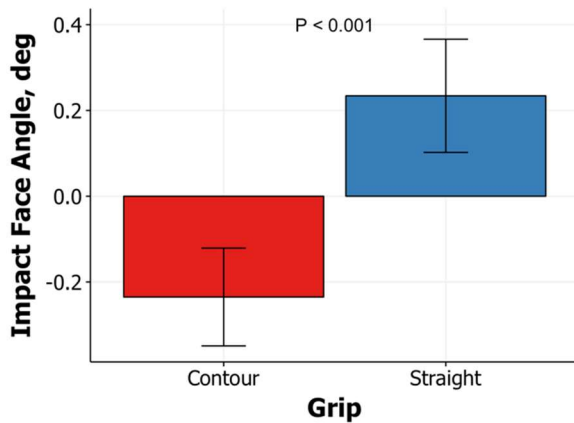


Figure 3: Impact face angle relative to setup for both grips. Negative values represent a face closed relative to the face direction at setup.

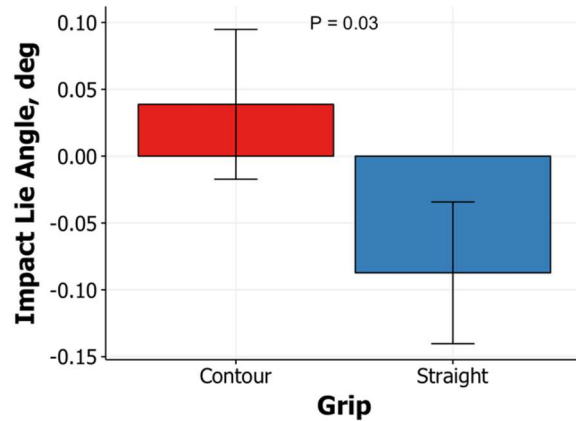


Figure 2: Impact absolute lie angle. A negative number represents a more toe-down orientation

shaft axis more aligned with the putter's CG delivered the face more closed relative to setup when compared to a putter where the CG was located toward the toe side of the shaft axis [4]. It appears that the design of the pistol grip orients the axis of the hands relative to the putter CG in a way that produces the same effect, requiring the player to exert less of a couple about the grip axis "square" the face at impact.

Practical Application/ Clinical Relevance: The most practical application of this insight is in the putter fitting environment. If a player being fit finds a putter model that they prefer, but they struggle with a miss in one direction or another, using a grip that is straighter or has more of a pistol design could help fight this miss tendency.

References:

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