



# The effects of avoidant instructions on golf putting proficiency and kinematics

John Toner<sup>a,\*</sup>, Aidan Moran<sup>b,1</sup>, Robin Jackson<sup>c,2</sup>

<sup>a</sup> School of Sport, Health and Exercise Sciences, University of Hull, Cottingham Road, Hull HU6 7RX, UK

<sup>b</sup> School of Psychology, University College Dublin, Belfield, Dublin 4, Ireland

<sup>c</sup> School of Sport and Education, Brunel University, Uxbridge UB8 3PH, UK

## ARTICLE INFO

### Article history:

Received 11 July 2012

Received in revised form

21 November 2012

Accepted 28 January 2013

Available online 13 February 2013

### Keywords:

Implicit overcompensation

Ironic processes

Expertise

Kinematics

Golf putting

## ABSTRACT

**Objectives:** Although the effects of avoidant or negative instructions on skilled performance in sport has received little research attention, [de la Pena, Murray, and Janelle \(2008\)](#) reported recently that novice golfers who were instructed not to leave a putt short of a circle, overcompensated by leaving their putts significantly longer than at baseline, and vice versa. It is unclear, however, whether athletes' propensity to engage in over-compensatory behaviour is affected by their level of expertise.

**Design:** To address this unresolved issue, the present study investigated the influence of avoidant instructions on golfers' putting stroke proficiency (i.e., as measured by an index of putting performance and the direction in which putts are missed) and on their putting stroke performance (as measured by motion analysis).

**Methods:** 14 high-skilled and 14 low-skilled golfers were required to putt from a distance of 2.5 m on a sloped surface which caused the ball to move left-to-right as it approached the hole. All participants performed in a condition in which they were given no instructions and in a condition in which they were instructed not to miss a putt in a specific direction (i.e., left or right of the hole).

**Results:** High-skilled golfers' overall putting proficiency was unaffected by avoidant instructions. In contrast, low-skilled golfers' performance was significantly degraded due to disruption of certain kinematic features of their putting stroke (e.g., putter path and forward-swing times).

**Conclusions:** Over-compensatory behaviour was more prevalent amongst low-skilled than high-skilled golfers. Theoretical and practical implications of these findings are discussed.

© 2013 Elsevier Ltd. All rights reserved.

Research on mental control (or people's ability to implement their intentions successfully) suggests that skilled athletes may be subject to performance impairments when they focus on avoidant instructions during the execution of a complex motor skill (e.g., [Binsch, Oudejans, Bakker, Hoozemans, & Savelsbergh, 2010](#); [Dugdale & Eklund, 2003](#)). However, contradictory evidence exists regarding the precise influence avoidant instructions exert on performance. Specifically, consider the rival predictions emanating from the ironic processes theory ([Wegner, 1994, 2009](#)) and the "implicit overcompensation hypothesis" ([de la Pena et al., 2008](#)). On the one hand, [Wegner's \(1994\)](#) model predicts that self-instructions *not* to perform in a certain manner will lead to the very behaviour the individual seeks to avoid – if the person is anxious or otherwise cognitively overloaded. By contrast, the implicit overcompensation hypothesis

([de la Pena et al., 2008](#)) predicts that avoidant instructions will produce the opposite outcome to that intended by the performer – regardless of cognitive load. Surprisingly, there is a dearth of research examining the role of expertise in implicit overcompensation so we do not presently know whether or not skilled performers are susceptible to over-compensatory behaviour when focussing on avoidant instructions. Against this background, the present study sought to test the predictions of the implicit overcompensation hypothesis by determining the extent to which high-skilled and low-skilled golfers' putting performance and swing kinematics are influenced by focussing on avoidant self-instructions.

[Wegner \(1994\)](#) postulated the theory of ironic processes of mental control to explain how avoidant instructions (i.e., self-instructions not to behave in a certain manner), together with mental load (e.g., anxiety, information-processing demands) can lead to an individual carrying out the very behaviour that he or she had sought to avoid. In postulating an explanation for this latter phenomenon, [Wegner \(1994\)](#) referred to two hypothesized processes that work together to maintain mental control: the operating process and the monitoring process. The "operating process" searches consciously and effortfully for items consistent with the

\* Corresponding author. Tel.: +44 (0)1482 463399.

E-mail addresses: [john.toner@hull.ac.uk](mailto:john.toner@hull.ac.uk) (J. Toner), [aidan.moran@ucd.ie](mailto:aidan.moran@ucd.ie) (A. Moran), [robin.jackson@brunel.ac.uk](mailto:robin.jackson@brunel.ac.uk) (R. Jackson).

<sup>1</sup> Tel.: +353 17168189.

<sup>2</sup> Tel.: +44 (0)1895 269769.

desired goal or state. In contrast, the “monitoring process” is usually unconscious, less cognitively demanding and seeks signals of failure to achieve the desired state. Wegner (1994, 1997) proposed that when mental load increases (e.g., as a result of anxiety), fewer attentional resources are available to the operating process, and the latter is superseded by the monitoring process. This subtle change in mental control results in the contents of the monitoring process (unchecked by the operating process) becoming prioritized. Herein lies the ironic effect as the monitoring process activates the very thoughts or actions that the person had intended to avoid.

An example of such a lapse in mental control during motor skill execution is provided by Wegner, Ansfield, and Pilloff (1998). In this study, novice golfers putted in two conditions, one requiring them to land the ball on a spot and one in which they were instructed not to hit the ball past the spot. With the addition of cognitive load, which involved keeping a six-digit number in mind and reporting it after the experimental putt, the tendency to hit the ball past the target significantly increased. Wegner et al. (1998) interpreted these findings as evidence of thought rebound in motor actions. In short, attempting not to perform certain actions under mental load may ironically lead to execution of the very action that performers had sought to avoid. Empirical support for the ironic processes theory has been found in a number of recent studies (Bakker, Oudejans, Binsch, & Van Der Kamp, 2006; Binsch, Oudejans, Bakker, Hoozemans, et al., 2010; Binsch, Oudejans, Bakker, & Savelsbergh, 2009; Binsch, Oudejans, Bakker, & Savelsbergh, 2010; Dugdale & Eklund, 2003; Woodman & Davis, 2008). For example, Bakker et al. (2006) used eye-tracking technology to show that soccer players who are instructed to avoid aiming their kicks at a particular part of the goal tend to direct their gaze at the very location to be avoided.

Interestingly, in experimental psychology (e.g., Russell & Grealy, 2010) and sport psychology (de la Pena et al., 2008) evidence is emerging to suggest that negative or avoidant instructions may actually produce the *opposite* effect to that proposed by the ironic processes theory. For example, de la Pena et al. (2008) found that novice golfers who were instructed *not* to leave a putt short of a circle, left putts significantly *longer* than at baseline, and vice versa, irrespective of whether or not they had been burdened with mental load. In an effort to explain these findings the authors implicated implicit overcompensation processes whereby instructions *not* to leave a putt short somehow triggered an implicit message to the performer that it is better to putt firmly than to leave it short. Conversely, they suggested that instructions not to putt the ball long occasioned an implicit message that it is better to putt it short. In another study (Beilock, Afremow, Rabe, & Carr, 2001), novice golfers were instructed to imagine the ball rolling towards the target, but to be careful not to imagine leaving the ball short. Again, participants in the imagery suppression conditions tended to overcompensate and putt the ball significantly past the hole.

When scrutinized heavily, it becomes evident that the theory of ironic processes and the implicit overcompensation hypothesis make contradictory predictions. In fact, Russell and Grealy (2010) summarized these contradictory predictions by stating that ‘Wegner (1994) predicts that instructing participants to avoid making specific movements should, ironically, cause them to make these movements more intensely, whereas de la Pena et al. (2008) predicts that such avoidant instruction should cause participants to overcompensate by making movements in the direction opposite to those that were forbidden’ (p. 1673). In addition, there are methodological issues that compromise the ecological validity of some studies in this field that have examined these competing predictions in golf settings. To explain, the Wegner et al. (1998) study required participants to land a golf ball on a spot (glow spot, 4 cm in diameter) while the de la Pena et al. (2008) study required the ball to be landed in a circle (10.8 cm chalked outlined circle). Unfortunately, both of these tasks

are rather contrived and unrepresentative of the normal goal in golf putting, simply because golfers are trained to putt the ball over or through the target, particularly for short putts. For example, it has been calculated that a putt has its best chance of being holed if the ball is struck at a velocity which ensures it would roll 12–18 inches past the hole (Pelz, 2000). Striking a ball at such velocity ensures it has the best chance of going into the hole at all angles (i.e., left edge or right edge of the hole) and minimizes the impact of putting surface variations that can have a significant impact on a slowly rolling ball (Pelz, 2000). The lack of ecological validity in some golf studies in this field presents a potential confound both for the instructions given, and for subsequent interpretation of resulting data. This issue of ecological validity is crucial for the elucidation of any expertise effects in psychology. Thus Farrow and Abernethy (2003) claimed that it is central to ‘any attempts to determine experimentally the underlying source of the expert’s advantage’ (p. 1127).

In the current study we addressed this issue concerning the ecological validity of the golf putting task in two ways. First, we required participants to putt the ball into a hole and recorded the final location of each task attempt (i.e., short or long/left or right). Second, we focused the avoidant instructions on the lateral movement (or “break”) of a golf putt, the correct judgement of which is critical in sloping putts (van Lier, van der Kamp, & Savelsburgh, 2010). Thus the current study enhanced the ecological validity of the methodology employed by both Wegner et al. (1998) and de la Pena et al. (2008) by creating a left-to-right slope on the putting green and requiring participants to avoid missing putts to the left or the right of the hole.

The primary aim of the current study was to examine how avoidant instructions influence high-skilled and low-skilled golfers’ putting performance – specifically the direction in which they strike the ball when instructed not to miss on one side of the hole. We predicted that highly-skilled performers would be relatively immune to the effects of avoidant instructions because they have *more conscious attentional resources available* to enable them to process the demonstrably complex demands of this type of instruction (Janelle, 1999). Interestingly, recent cognitive research (e.g., Panizza, 2012) shows that the comprehension of negative sentences or instructions requires more attentional resources than does that of positive equivalents. A likely explanation for this effect comes from the fact that the meaning of negated instructions can be understood only *after* a cognitive representation of the positive equivalent has been created. As Panizza (2012) put it, “the meaning of a negated sentence is fully understood in a subsequent stage, after the representation of the positive version of the negative sentence is built and evaluated” (p. 477). In the light of such findings, it seems plausible that highly-skilled golfers will have sufficient spare attentional capacity to successfully process avoidant instructions.

By contrast, as the low-skilled performers in our sample started golf at a later age in life and had significantly fewer years playing experience than their high-skilled counterparts, we predicted that they would be *more vulnerable* to the effects of avoidant instructions. Support for this latter prediction is derived from Hernandez, Mattarella-Micke, Redding, Woods, and Beilock’s (2011) suggestion that the ‘learning of a task later in life requires more overt or explicit cognitive processing’ (p. 255). Based on such reasoning, and by contrast with their high-skilled counterparts, the low-skilled golfers in the present study should have *fewer* attentional resources *available* to process the cognitively complex demands of avoidant instructions.

In summary, based on the preceding rationale, we suggest that avoidant instructions are more difficult to process than are standard (or permissive) instructions. Furthermore, because high-skilled athletes have more spare attentional resources available

Download English Version:

<https://daneshyari.com/en/article/7254152>

Download Persian Version:

<https://daneshyari.com/article/7254152>

[Daneshyari.com](https://daneshyari.com)