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A review of Butler and Hardy's (1992) performance profiling procedure within sport

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Butler and Hardy's (1992) performance profile has received considerable support and use within applied settings since its inception 20 years ago. Developed as a natural application of Kelly's (1955) personal construct theory, the autonomy supportive assessment tool has been proposed to benefit its athlete consumers in a variety of ways, including increasing their self-awareness, intrinsic motivation and confidence, in addition to providing a useful template to set goals, structure training and facilitate communication within teams. Early research into the technique centred on descriptive accounts from practitioners utilizing the strategy with specific client populations. More recently, detailed evaluative research has examined consultant and client opinions as to the usefulness of the technique. Such research has highlighted the range of beneficial impacts that can be gained through profiling, but it has also put into perspective the distinct lack of rigorous, empirical research examining the efficacy of the procedure. Hence the present review seeks to provide an impetus for such research by critically evaluating the profile's procedure, theoretical underpinning, validity, benefits and limitations. It also seeks to highlight several important future research priorities that warrant attention.

Keywords: assessment; personal construct theory; profile

Introduction

The performance profiling procedure (Butler & Hardy, 1992) is an assessment strategy which aims to put the athlete at the heart of their performance development. Drawing upon elements of Kelly's (1955) Personal Construct Theory (PCT), performance profiling encourages athletes to identify, and reflect upon, the qualities that are needed to be successful in their sport, and then rate their ability in those attributes. Butler (1997) asserts that this process helps athletes to become more self-aware as to their performance strengths and weaknesses, in addition to providing a useful platform for athlete-focused goal setting and the development of future training interventions. Furthermore, central to the rationale for the client-centred profiling approach was Butler and Hardy's desire to overcome the damaging effect that traditional, externally controlled assessment approaches (i.e., via coach or psychologist) could have on athlete motivation.

Despite Butler's (1989) profiling procedure being in existence for over 20 years, little research has evaluated the efficacy of the technique within applied settings.

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Whilst providing unique insights into the practical applications of the technique, early research into profiling (e.g., Butler, 1997; Butler & Hardy, 1992; Butler, Smith, & Irwin, 1993; Dale & Wrisberg, 1996; Jones, 1993; Potter & Anderson, 1998) was limited by the use of descriptive case study methodologies. The descriptive weaknesses of these studies have in part been overcome by a few empirical papers examining the predictive (Doyle & Parfitt, 1996) and construct (Doyle & Parfitt, 1997) validity of the technique, in addition to its motivational properties (Weston, Greenlees, & Thelwell, 2011b). Furthermore, the case study limitations of the early research have to some extent been overcome with the recent broad systematic client (Weston, Greenlees, & Thelwell, 2011a) and consultant (Weston, Greenlees, & Thelwell, 2010) evaluations of the usefulness and impacts of the strategy. Whilst these studies have proposed a number of possible uses and benefits of profiling, there is a distinct lack of an empirical research evidence base to verify these findings. Furthermore, given the apparent frequent use of profiling within applied sport settings (Weston, 2008), it appears timely that a detailed review of the literature is provided in order to stimulate further experimental research.

The present paper thus aims to provide a comprehensive review of the literature examining the use of Butler and Hardy's (1992) performance profiling procedure. The paper will begin by summarizing the traditional profiling approach and providing an overview of the theoretical basis for its use. Adaptations to the original procedure will then be presented, followed by a critical evaluation of the research that has examined the technique's validity. The review will then progress to examine the benefits and impacts of profiling in addition to discussing specific avenues for future research. The final sections will examine the limitations of the procedure, in addition to providing more general areas for further research.

The traditional performance profiling procedure

The traditional performance profiling procedure follows three simple steps that can be employed with both individuals and groups (Butler & Hardy, 1992). The first step involves the deliverer introducing the technique as a way of raising athlete awareness as to the qualities important for successful performance in their sport/position, in addition to their perceived strengths and weaknesses. Typically a completed performance profile, either in the form of a circular target (see Figure 1) or column chart (see Figure 2), is presented to athletes to reinforce the basic procedure in addition to emphasizing what they will gain from the process. The final phase of this step involves instructing athletes that there are no right or wrong answers and that their completed profile could provide a useful basis for structuring future training programmes when discussed with their coach.

Step two involves the generation (by an athlete or group of athletes, depending on whether the session is delivered on a one-to-one or group basis) of qualities that underpin athletic performance in the sport/position in question. In a group setting, athletes are split into small groups which are typically based on positions within the team (i.e., soccer goalkeepers, defenders, midfielders and attackers). Each group is then asked to discuss the answer to the following question: 'What in your opinion are the qualities or characteristics of an elite athlete in your sport/position?' (Butler & Hardy, 1992, p. 256). Following a period of reflection (typically 20–30 minutes) to

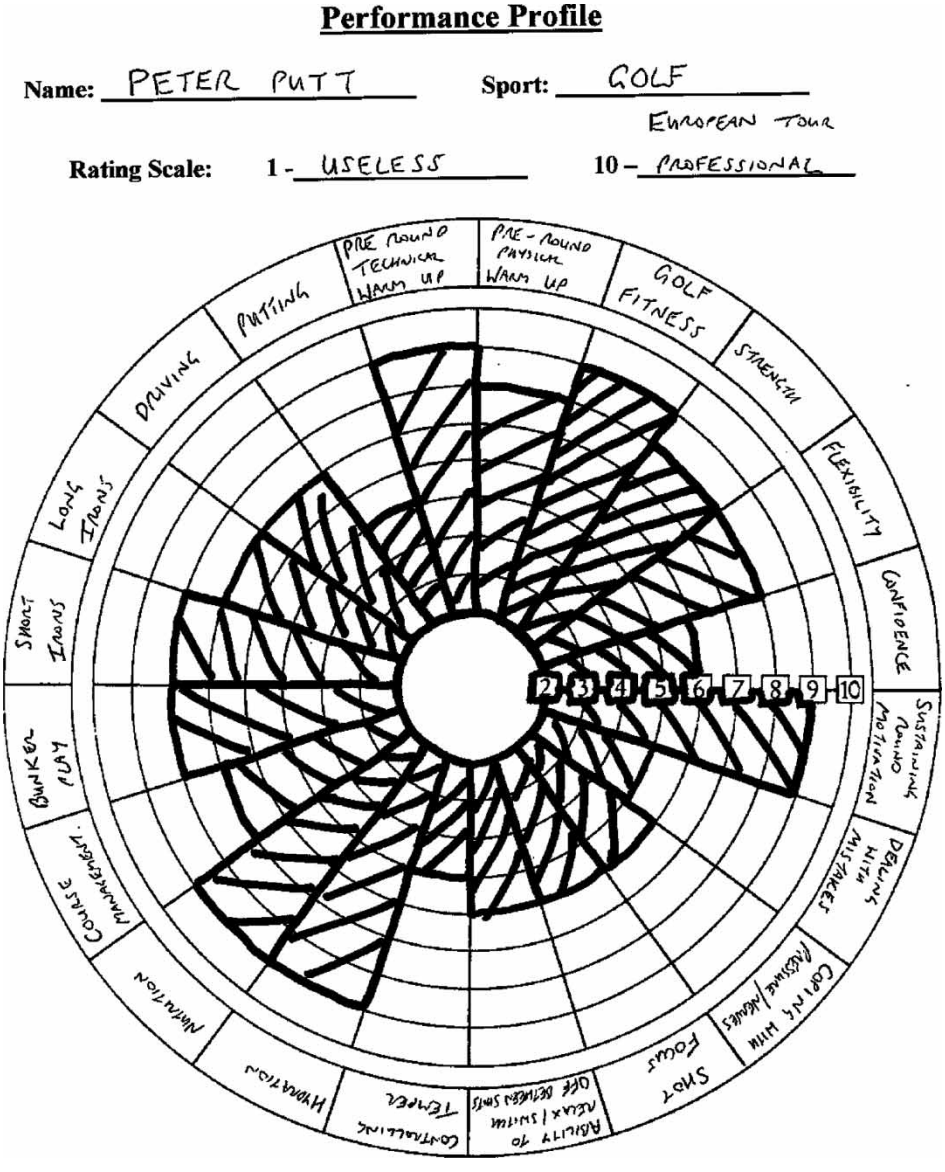

Figure 1. Example of a circular target performance profile in golf.

generate a list of qualities across technical, physical, psychological and tactical attributes, each group then briefly presents their findings back to the whole squad. Each athlete is then provided with a blank performance profile (see Figure 3) and asked to identify up to 20 attributes (from those presented by the groups) that they believe are essential for their position, taking into consideration their style of play. Importantly at this stage athletes must define each quality on a separate, attached sheet to minimize any differences in the interpretation of each quality phrase that may emerge should the athlete want to re-rate themselves at a later date or alternatively if they ask their coach to rate them.

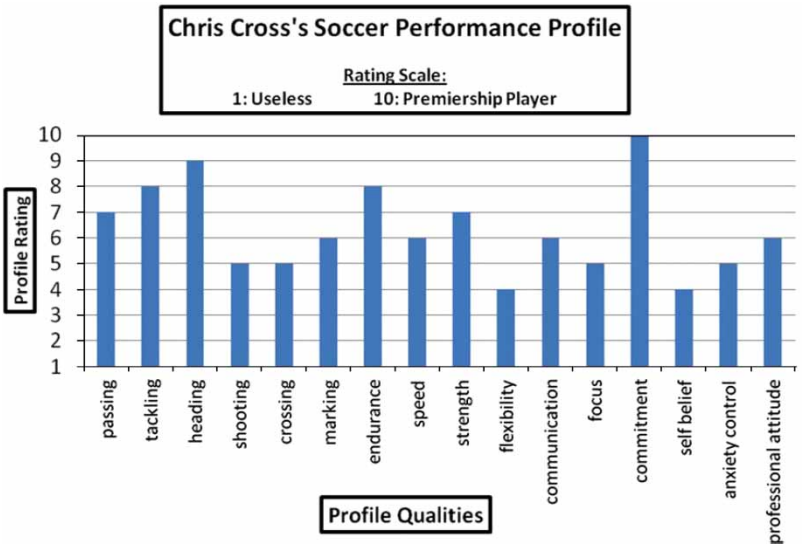

Figure 2. Example of a chart performance profile for a soccer midfielder.

This procedure differs in a one-to-one setting, where the athlete and psychologist (and/or coach) discuss the attributes together to produce an appropriate list. In individual profiling consultations, Weston (2008) suggests that it may be useful to introduce the profiling procedure a week before the actual session to allow the athlete time to develop their list of attributes which can then be discussed with the psychologist. He also suggests that presenting and discussing video footage of the athlete themselves (or an elite athlete within their sport) performing successfully could help to facilitate the discussion of key performance attributes.

The third and final performance profiling step involves the athlete's self-assessment of their ability in each of their chosen performance attributes. Athletes typically rate their current perception of their ability in each quality via a scale of 1 ('lowest possible ability') to 10 ('ideal level of performance'). However, other rating scales have been employed in the literature and the key issues when facilitating the rating of an athlete's profile are that the scale is meaningful to the athlete, the athlete has a good understanding for what constitutes a 1 and a 10 rating and that the rating scales are clear and specific. The resultant completed profile provides a useful visual display as to the athlete's perceived strengths and weaknesses, from which the athlete and their coach can discuss and prioritize future training interventions.

Theoretical roots of performance profiling

Personal Construct Theory (PCT)

In defining performance profiling, Butler and Hardy (1992) stated that their new approach to performance assessment had evolved as a 'natural application' (p. 254) of Kelly's (1955) PCT. Kelly's theory of personality attempts to explain the way in which people interpret, and thus behave in, the world. Essentially, Kelly believed that

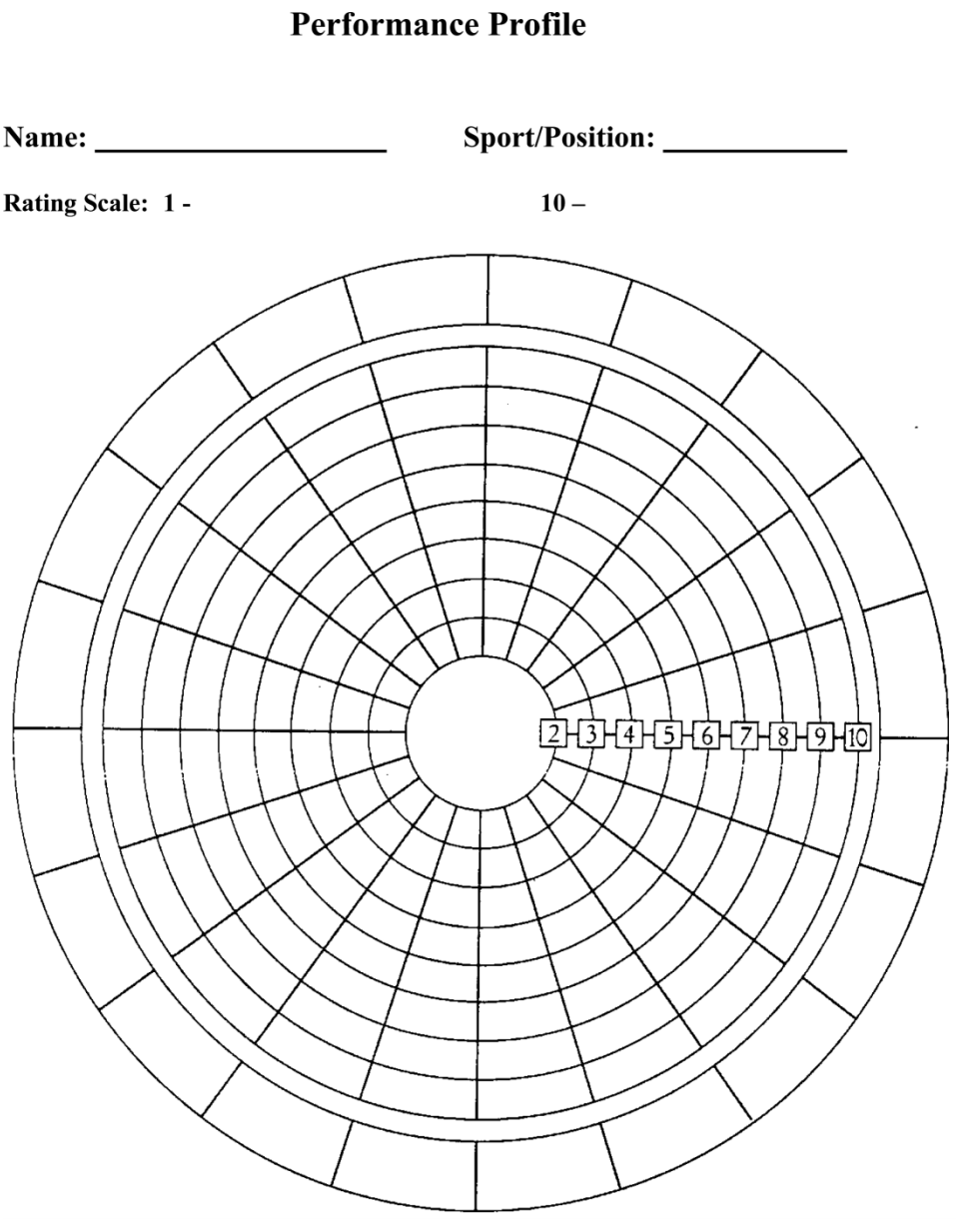

Figure 3. Blank performance profile.

people attempt to understand the world by continually developing personal theories. These theories, or constructs as he later termed them, help individuals to anticipate events in their life and can be revised based on their experience of those events over time (what Kelly refers to as the experience corollary). Relating this to a sport setting, the theory suggests that athletes will develop, over the course of their athletic career, a number of assumptions (theories) regarding their sport and their ability in

various sporting situations or environments, and that these will be revised as they continue to experience these situations over time.

A key rationale for the client-centred performance profiling approach evolved from Kelly's (1955) assertion that whilst individuals may share a similar interpretation of some events in their lives (i.e., Kelly's commonality corollary), individuals are fundamentally idiosyncratic and unique in construing life experiences (i.e., Kelly's individuality corollary). Therefore, in the context of performance assessment and subsequent athlete development, Butler and Hardy (1992) proposed that assessment procedures that fail to take into account athlete perceptions will result in valuable information being lost and might explain an athlete's lack of commitment to adhere to training interventions solely determined by the coach. Kelly further theorizes that in order for one to play a role in the 'social process' with another, one must attempt to understand the perceptions of that other person (i.e., sociality corollary). Thus, by employing the profiling procedure sport psychologists (and/or coaches) are able, firstly, to understand the athlete's perception of performance, secondly to discuss such issues more effectively as a result of the increased understanding, and finally to tailor training more closely to the athlete's perceived needs.

One further theoretical justification for the profiling approach emerged from Thomas's (1979) extension of PCT. He asserts that individuals will become more self-aware as a consequence of actively reflecting on how they construe certain events (i.e., his self-awareness corollary). Thus, the profiling approach which encourages self-reflection on a performer's current performance attributes will, according to Thomas, result in greater athlete self-awareness.

In summary, the performance profiling procedure provides a natural application of PCT into sport. The procedure acknowledges the individual nature of interpretation (i.e., individuality corollary) and actively encourages athletes to reflect upon, and thus become more self-aware of, the performance qualities necessary for successful performance in addition to their perceived strengths and weaknesses (i.e., self-awareness corollary). Furthermore, in enabling their coach/psychologist to view their interpretations, athletes can improve the social interaction between themselves and their performance specialists (i.e., sociality corollary). Finally, given that an athlete's interpretation is likely to be revised over time (i.e., experience corollary), the profile can provide a useful monitoring tool to record these alternative constructions (see Gucciardi & Gordon, 2009, for a more detailed description of the fundamental postulate and related corollaries of PCT).

Cognitive Evaluation Theory (CET)

In addition to PCT, Butler and Hardy (1992) stressed the importance of Deci and Ryan's (1985) CET in helping to justify the use of performance profiling. The fundamental postulate of CET is that social and environmental factors or events (e.g., feedback, coach behaviour, etc.) will influence an individual's motivation through three essential human desires (mediators) that people will attempt to satisfy: *relatedness* (i.e., feeling connected to significant others within the particular context), *autonomy* (i.e., having internal control over one's choices) and *perceived competence* (i.e., having confidence in one's ability to perform in that context). The theory further asserts that social factors which reinforce these mediators will

facilitate more self-determined motivation and thus bring about more positive cognitive, affective and behavioural responses (see Deci & Ryan, 2002, for a review).

The very nature of the client-centred performance profiling procedure provides a strong rationale that an athlete engaging in the profiling would enhance their perceptions of autonomy. Furthermore, the technique delivered within a group setting encourages team mates to interact and discuss performance-related issues and thus could help to facilitate higher perceptions of relatedness. Finally, employing the profile to monitor progress could improve perceived competence as athletes see their profile ratings increase over time. Research that has examined these propositions will be discussed in a later section.

Adaptations to the performance profiling procedure

Whilst the majority of performance profiling research has adopted Butler and Hardy's (1992) original approach, some variations to that procedure have been published, each of which will now be discussed.

Butler (1997) provided a unique approach to the generation of profile qualities to meet new scoring regulations enforced by the governing body of amateur boxing. Previously three judges subjectively assessed a boxer's ability to attack and defend over the course of the contest to determine the outcome of a bout. However, with the introduction of a new computerized scoring system, the importance of a certain style of boxing determined that it was more important to identify the critical attributes that would scores points, than to determine the athlete's individual perception regarding performance. Hence, a 'Scoring Machine Profile' was produced in which the opinions of boxers, coaches and sports scientists determined a set number of qualities that they agreed would meet the demands of the new scoring system. This template or fixed profile was then rated by the boxers and used as a basis for setting goals to improve areas of perceived weakness and monitor progress in the lead-up to competitions. A similar approach to the identification of profile attributes has also been adopted by D'Urso, Petrosso, and Robazza (2002) with Italian rugby union players. Differing slightly from Butler's approach, D'Urso et al. utilized a combination of qualities provided to the athletes (as a result of consultation between coaches, a former player and sports scientists) and those personally chosen by the athletes themselves in determining the profile qualities within their study.

Adaptations of the original *athlete* performance profile have come in the form of coach and team profiles (see Dale & Wrisberg, 1996, for more information). However, recently Gucciardi and Gordon (2009) have proposed the most radical alteration of Butler and Hardy's (1992) profiling approach. The authors assert that the original profiling procedure failed to draw upon several of the key tenets of Kelly's PCT and thus did not maximize the potential information that could be derived from an athlete via the performance profile process. Hence, the authors proposed an extended version of the original procedure to incorporate additional elements of Kelly's (1955) PCT and thus argue that in doing so a more detailed understanding of the athlete's perspective is obtained. Drawing upon the dichotomy corollary of PCT, the authors adapted the profile construct generation procedure to encompass a bi-polar classification of each profile attribute. Hence, rather than utilizing a singular term (e.g., self-belief) to define a profile attribute (as with the

traditional procedure), the authors argued that a bi-polar categorization (e.g., self-belief to self-doubt) would enable a greater and clearer understanding as to the athlete's 'psychological processes' (p. 100).

The second adaptation to the traditional profiling procedure incorporated within Gucciardi and Gordon's (2009) extended profile drew upon PCT's range corollary where the authors encouraged athletes to identify the contexts in which each profile attribute was most applicable (e.g., in preparation for competition, during training, etc.). The authors propose that each profile attribute that an individual identified would be restricted to a specific range of convenience (i.e., a certain number of situations by which it is applicable) and that the higher the number of situations in which the construct can be applied, the more important that construct is to the athlete's performance development.

The final extension to Butler and Hardy's (1992) profiling procedure encompassed the use of a scale to determine the relative importance of each quality. Athletes are asked to rank their profile attributes in order of importance for an elite performer in their sport. This is achieved on a scale beginning with 1 ('most important') and ending with the least important quality which obtained the number associated with the total number of attributes contained within the profile. For example, if there were 20 profile attributes the least important would receive a score of 20, the second least important 19 and so on. The authors assert that this rating would help to display the hierarchical order of importance that each athlete attached to their profile attributes and thus tap into the organizational structure of the athlete's interpretation system (i.e., the organizational corollary of PCT).

Linking in with Gucciardi and Gordon's (2009) theme of identifying the relative importance of attributes contained within an athlete's profile, Jones (1993) adapted the original scoring procedure to categorize which profile attributes require more urgent attention. In addition to asking his athletes to rate their current and ideal rating for each quality on the usual 1 ('couldn't be any worse') to 10 ('couldn't be any better') scale, he also requested that they rate each quality on an importance scale of 1 ('not important at all') to 10 ('of crucial importance'). He then took the current rating (CR) away from the ideal (I) and multiplied it by the importance rating (IR) to produce a discrepancy score (D): $D = (I - CR) \times IR$. This then provided an indication of the areas requiring the most improvement (e.g., a quality such as 'strength' where $CR = 7$, $I = 10$, $IR = 7$, resulting in $D = 21$ versus 'speed' where $CR = 7$, $I = 10$, $IR = 10$, resulting in $D = 30$). In adopting this procedure, Jones was able to identify not only those areas of weakness but also the most important areas that required immediate attention. This quantification of the profiling procedure has also been employed by Doyle and Parfitt (1996, 1997) in their examination of the profile's predictive and construct validity.

Validity of the performance profiling procedure

In their first study examining the validity of the performance profile procedure, Doyle and Parfitt (1996) examined the strength of the predictive relationship between profile ratings and performance in 39 track and field athletes. The athletes produced and rated their own individual performance profile and then re-rated their profile immediately prior to their participation in three track and field events. After each event athletes were asked to record a performance time or distance (depending

upon their chosen sport), in addition to their perception of performance on a scale of 1 ('could not have done any worse') to 10 ('could not have done any better'). Coach perceptions of their performance were also recorded on the same scale. The dependent measure for each athlete's profile rating was a discrepancy score between the athlete's current attribute rating (recorded prior to each event) taken away from their ideal score for each profile attribute. A mean of all profile attribute discrepancy scores for an athlete was then correlated with the athlete's and coach's perception of performance scores in addition to the actual performance (represented as a percentage of their personal best performance in order to account for inter-individual skill level variation).

The authors concluded that the predictive validity of the performance profile was demonstrated as a higher mean profile discrepancy score (i.e., athlete rating themselves further from their ideal score) was correlated with a poorer performance. This was evident in all three competitions when examining the coach's perception of performance and only in the final competition for the athlete's perception of performance and their actual performance. Further linear regression analysis indicated that the profile discrepancy scores were unable to predict the three performance-dependent variables in the first competition but were able to significantly predict them in the third and final competition. The findings provide moderate support for the performance profile's predictive validity (Doyle & Parfitt, 1997) and indicate that athletes may require some learning time in order to hone their ability to accurately rate their profile. On the basis of these findings it is advisable that athletes are afforded the opportunity to practice rating their profile before it is used to predict competitive performance.

Doyle and Parfitt's (1997) second study examined the profile's construct validity, hypothesizing that such validity would be displayed if 'a greater area of perceived need, identified by the profile, was reflected by a lower performance score' (p. 413). Twelve track and field athletes firstly devised, and then completed, their performance profile five times over the course of a winter training and competitive indoor season. The athletes completed their profile immediately prior to the training session or competition, with their actual performance score (time or distance) and the athlete's and coach's perceptions of performance recorded afterwards.

The findings revealed a significant decrease in mean profile discrepancy scores and a concomitant significant increase in actual performance scores as athletes progressed across the five testing points throughout the winter training and competitive indoor season. However, such significant findings were not observed for either the athlete's or the coach's perception of performance scores and thus only partial support for the profile's construct validity can be assumed. Closer inspection of the findings revealed that during the competitive indoor season where smaller changes in performance were more likely (in comparison to the sustained winter training period), the profile was not sensitive enough to detect subtle performance changes. Thus the authors concluded that employing the profile to monitor changes in performance may only be valid during heavy periods of training or rehabilitation from injury where large changes in performance and profile ratings are likely.

Each of Doyle and Parfitt's studies examining the predictive (1996) and construct (1997) validity of the performance profile provides a useful preliminary insight into the technique's validity. However, further empirical research is needed

across a variety of sports before more substantive conclusions can be drawn as to the validity of the performance profile procedure.

Benefits of performance profiling

Despite PCT and CET providing a strong theoretical justification for the profile's use, the research evaluating the benefits of the technique is rather limited (Weston, 2008). This is surprising given the apparent frequent applied use of the technique (Doyle & Parfitt, 1999; Weston, 2008) and suggestions as to the wide ranging benefits that can accrue from its use (Gucciardi & Gordon, 2009). Early research examining the use of performance profiling within sport settings drew primarily from the reflections of a few sport psychologists employing the strategy in their applied work (Butler, 1989; Butler & Hardy, 1992; Butler et al., 1993; Dale & Wrisberg, 1996; Jones, 1993). Doyle and Parfitt then proceeded to investigate the predictive (1996) and construct (1997) validity of the technique in addition to examining the impact of athlete mood on profile ratings (1999).

The last decade has seen articles employing the technique to evaluate the day-to-day reproducibility of profile ratings (Gleeson, Parfitt, Doyle, & Rees, 2005), and facilitate an understanding of role episode in sport (Mellalieu & Juniper, 2006), in addition to developing a revised version of the procedure (Gucciardi & Gordon, 2009). In a series of studies, Weston and colleagues have recently provided a systematic evaluation of the original technique from athlete (Weston et al., 2011a) and psychologist (Weston et al., 2010) perspectives, in addition to experimentally testing the impact of a repeat profiling intervention on athlete intrinsic motivation (Weston et al., 2011b).

This section will attempt to critically evaluate the main benefits of employing the technique within applied sport settings and outline specific avenues for future research.

Self-awareness

Raising athlete self-awareness as to the qualities necessary for successful performance and the athlete's perceived strengths and weaknesses has been proposed as one of the primary benefits of performance profiling (Butler, 1997; Butler & Hardy, 1992; Butler et al., 1993; Jones, 1993). Recent research suggests that British Association of Sport and Exercise Sciences (BASES) accredited sport psychologists ($n = 56$) believe performance profiling is useful in raising athlete self-awareness (Weston et al., 2010). These findings mirror those of collegiate team sport athletes ($n = 191$) who, following participation in a performance profiling session, perceived the procedure had helped them to highlight the demands of their position in addition to helping to clarify their performance strengths and weaknesses (Weston et al., 2011a). The procedure has also been suggested as useful in raising the coach/sport psychologist's awareness as to what the athlete believes to be the qualities that can facilitate elite performance in their sport/position, in addition to helping them understand their athlete's perceived strengths and weaknesses (Butler, 1997). Furthermore, both athletes (Weston et al., 2011a) and sport psychologists (Weston et al., 2010) have suggested that the brainstorming and subsequent presentation of performance qualities within a group environment is useful in

raising each team member's awareness as to the demands of other positions within their team.

Thus, experiential evidence suggests that profiling helps to raise athlete self-awareness, the awareness of coaches and psychologists as to the athlete's perception of performance and, finally, the awareness of athletes as to the demands of their fellow team players. Whilst the development of sporting self-awareness is an important applied issue, little research has been conducted examining this topic area (Ravizza, 2010). As the existing literature appears to reinforce the profile's usefulness in enhancing sporting self-awareness, further experimental research is needed to examine the characteristics of a performance profiling intervention (i.e., type, frequency, etc.) that would ensure significant improvements in this psychological attribute.

Intrinsic motivation

A fundamental benefit hypothesized by Butler and Hardy (1992) when they first proposed performance profiling was that the procedure would facilitate more self-determined athlete motivation. Drawing on Deci and Ryan's (1985) CET, Butler and Hardy proposed that their client-centred procedure would facilitate athlete autonomy and thus instil greater intrinsic motivation to adhere to future training interventions.

Until recently there has been limited research evidence to substantiate the profile's motivational properties. Anecdotal evidence from Jones (1993) and D'Urso et al. (2002) has suggested that their profiling interventions helped to enhance athlete adherence to a performance intervention and achievement motivation respectively. More systematic research evaluations of the profiling procedure's usefulness have found that BASES accredited consultants believe the strategy would enhance athlete intrinsic motivation, autonomy and self-determination (Weston et al., 2010). Furthermore, British collegiate team sport athletes have suggested that the procedure would motivate them to train and improve as well as encourage them to take more control and responsibility for their development (Weston et al., 2011a). Despite such evidence, Weston et al. (2011b) provide the only experimental study to examine the impact of repeated profiling sessions on athlete intrinsic motivation. Forty collegiate soccer players were randomly assigned to a performance profiling group (who produced individual performance profiles within a group setting as per Butler and Hardy's 1992 guidelines), a sports science educational group (who received interactive sports science educational presentations) and a control group (who received no intervention). Three sessions were performed for each condition, three weeks apart and lasting approximately one hour each time. Participants completed the Sport Motivation Scale (Pelletier et al., 1995) on four occasions (pre-intervention and following each session) to monitor the impact of the conditions on athlete intrinsic motivation.

The findings revealed that a single profiling session failed to significantly improve athlete intrinsic motivation, but three repeat sessions over a six-week time frame during the competitive season did. These results support the existing descriptive findings and the propositions of Butler and Hardy (1992), suggesting that repeatedly profiling athletes within a competitive season could facilitate improvements in athlete intrinsic motivation. However, further research is needed to verify these findings across various athlete populations (i.e., different sports, ages and skill

levels). Furthermore, the authors failed to monitor the impact of the intervention across other aspects of Deci and Ryan's (1985) CET, such as the motivational mediators and consequences. Hence, future research would benefit from also examining these variables in order to establish a detailed understanding of the motivational properties of profiling.

Task involvement

Athletes displaying task-involved goal perspectives have also been linked to more self-determined and intrinsically motivated behaviour (Deci & Ryan, 1985). Individuals experiencing such goal perspectives tend to evaluate their performance in relation to self-referent standards (Nicholls, 1984, 1989), in addition to orientating themselves towards skill mastery, learning and performance development (Pensgaard & Roberts, 2003). In contrast, individuals displaying ego-oriented goals focus more on evaluating performance in comparison to others (Duda & Hall, 2001). Such individuals, in situations where they perceive their competence to be greater than others, will display similar adaptive behaviour to task-oriented individuals. However, in situations where individuals have low perceived competence, ego-oriented people are likely to avoid challenges, exert little effort, lack persistence in the face of failure and may in some instances drop out of their sport (Duda & Hall, 2001).

Nicholls (1989) points out the important role situational factors have in influencing the relative strength of task and ego involvement in achievement situations. Evaluation of the performance profiling procedure suggests it could be a useful strategy in helping athletes to develop a more task-involved goal perspective (Greenlees, 2009). Not only does the procedure encourage athletes to think about the skills and qualities that are required to perform successfully in their sport, but it also gets athletes to rate their ability on each of those qualities in a self-referent way.

Descriptive support for the above proposition has been found in the form of British sport psychologists who supported the role of profiling in promoting athlete task involvement (Weston et al., 2010). If profiling is able to encourage a greater task-oriented focus, then theoretically more adaptive psychological and behavioural outcomes are likely, irrespective of whether the individual finds themselves in success or failure situations. Hence, future empirical research needs to identify whether profiling interventions can significantly improve athlete task involvement, in addition to monitoring any related changes in psychological and/or behavioural states.

Basis for goal setting

Despite overwhelming evidence reinforcing the effectiveness of goal setting as a performance-enhancing tool (Burton, Naylor, & Holliday, 2001; Gould, 2010; Kyllo & Landers, 1995), the availability of effective strategies to facilitate the use of goals is lacking. The self-referent and specific performance attribute focus of performance profiling has led sport psychologists to recommend it as a useful procedure on which to base performance-related goal setting (Butler, 1997; Dale & Wrisberg, 1996; Doyle & Parfitt, 1997; D'Urso et al., 2002; Weston et al., 2010). Indeed, O'Brien, Mellalieu, and Hanton (2009), in examining the efficacy of a goal-setting intervention on elite and non-elite boxers' performance, employed performance profiling prior to goal

setting in order to determine the key areas from which to base their goal-setting intervention on. The use of profiling in this way was supported by the boxers in the post-intervention social validation, where they felt the profiling had helped identify appropriate goals to which they felt committed. Further recent support for this combined approach has come from a range of team sport athletes who, following participation in a profiling session, believed the strategy would be useful to help them set goals in the future (Weston et al., 2011a). Given that research has found that athletes prefer to set their own goals (Weinberg, Burton, Yukelson, & Weigand, 1993) and that athlete-centred goal setting has been shown to be effective (Kyllo & Landers, 1995), the client-centred performance profiling strategy appears to be an ideal foundation from which athlete-involved goal setting can begin. Practitioners adopting this athlete-centred approach must, however, ensure that their athletes are setting appropriate goals, as failure to do so may negatively impact on an athlete's future motivation (Butler, 1997).

There is general agreement within the literature that goal setting has useful motivational properties (Vidic & Burton, 2010). Similarly, empirical evidence (Weston et al., 2011b) and a strong theoretical justification (via CET) suggest performance profiling could be useful in motivating athletes (Butler & Hardy, 1992). Therefore, given that there is a general consensus that the two strategies are well suited to one another, it would be worthwhile to examine whether a combined performance profiling and goal-setting intervention can significantly improve athlete intrinsic motivation over and above interventions on their own, or in comparison to a standard control group. Indeed, given the applied nature of such an intervention, employing a multiple baseline across individuals design (as employed by O'Brien et al., 2009) may be a more appropriate methodological approach to examine this area. Such research would provide practitioners with greater evidence, and thus confidence, to justify the combined use of the techniques to motivate their athlete clients.

Team-related benefit

Butler and Hardy (1992), in introducing the possible benefits of performance profiling, suggested that the strategy 'may have some potential' (p. 261) in positively influencing team cohesion. This proposition seems intuitively appealing as research has shown cohesive sports teams to exhibit greater collective efficacy (Paskevich, 1995, cited in Paskevich, Estabrooks, Brawley, & Carron, 2001) and work output (Prapavessis & Carron, 1997), in addition to performing more successfully (Carron, Colman, Wheeler, & Stevens, 2002; Mullen & Copper, 1994).

Cohesive teams are characterized by team members having a clear understanding and acceptance of their roles (Eys, Burke, Carron, & Dennis, 2010) and opportunities to interact and communicate within the team (Carron & Hausenblas, 2005). Furthermore, athlete-directed techniques or certainly strategies which facilitate more participative, democratic team decisions are linked to more cohesive teams (Carron, Shapcott, & Burke, 2008). A review of the profiling literature provides some descriptive evidence that profiling could indeed positively influence some of these team cohesion variables. For instance, research has shown the procedure to be useful in facilitating communication and discussion within teams (Dale & Wrisberg, 1996; Weston et al., 2010) and between athletes and their coaches (Butler & Hardy, 1992;

Butler et al., 1993; Dale & Wrisberg, 1996; Weston et al., 2011a). Furthermore, British-based applied sport psychologists have suggested profiling could be useful in identifying roles within the team and in generally improving team dynamics (Weston et al., 2010). Such suggestions are supported by Mellalieu and Juniper (2006) who utilized the performance profile to help examine role episode in soccer. The authors found profiling to be beneficial in helping players reflect upon, and evaluate, their roles within a team. Furthermore, they found the procedure helped to provide a basis from which the role sender (i.e., the coach) and role occupant (i.e., the player) could discuss and agree upon the athlete's role within the team.

Given the predominantly descriptive nature of the existing research in this area, future empirical research is needed to ascertain the characteristics of profiling interventions (i.e., type of profiles employed, frequency and length of profiling intervention, etc.) that can lead to enhanced team cohesion and performance (Weston et al., 2010). Furthermore, given the lack of research examining coach opinions of the profiling technique, it would be worthwhile to evaluate their perceptions as to whether they believe profiling to be useful in facilitating a more cohesive team and if so, what procedural characteristics would help to maximize this effect.

Monitoring progress

Descriptive research has proposed performance profiling to be useful in monitoring progress in the lead-up to competition (Butler & Hardy, 1992), and over the course of a training camp (Butler et al., 1993), competitive season (Dale & Wrisberg, 1996) and psychological skills intervention (Jones, 1993). More generally, research examining the perceptions of sport psychologists who have experience delivering profiling (Weston et al., 2010) and team sport athletes who have participated in a profiling session (Weston et al., 2011a) found that both groups believe the strategy could be useful in helping to monitor athlete progress over time.

Experimental research conducted by Doyle and Parfitt (1997) in track and field athletes found profiling over the course of a winter training and competitive season to be useful in monitoring performance, though only during periods where large performance changes occurred (i.e., pre-season training, or when recovering from injury). Given the lack of empirical research in this area, future research is needed to examine the impact of repeat profiling interventions over longer durations and across different sporting populations. Furthermore, Doyle and Parfitt's study was limited due the amalgamation of athlete responses (i.e., via mean data) which directly goes against the individual philosophy of performance profiling. Thus, future research may wish to adopt a multiple baseline across individuals design that captures the idiosyncratic impact of the profiling intervention on each athlete.

Evaluating performance

Profiling has been proposed as a useful strategy from which athletes can evaluate their performances (Butler & Hardy, 1992; Butler et al., 1993; Weston et al., 2010, 2011a). Inspection of the literature on athlete-centred performance evaluation suggests much of the research has centred on Weiner's (1986) model of achievement

attributions. Attributions are the reasons or causes that athletes give for performances and Weiner proposes that they can be defined along three complementary dimensions: *locus of causality* refers to the attribution as either an internal reason (e.g., ability) or external reason (e.g., weather) for the outcome of the event; *stability* pertains to whether the attribution given is likely to remain relatively stable over time (e.g., ability) or is likely to change (e.g., luck); and *controllability* refers to whether the attribution is under the control of the individual (e.g., effort) or not (e.g., an opponent).

Literature evidence has indicated that the attributions athletes give for performances will influence their expectations (Grove & Pargman, 1986; Le Foll, Rascle, & Higgins, 2008), affective reactions (Allen, Jones, & Sheffield, 2009; Robinson & Howe, 1989), self-efficacy beliefs (Coffee & Rees, 2008; Coffee, Rees, & Haslam, 2009) and behaviours in similar events in the future (Biddle, Hanrahan, & Sellars, 2001; Coffee et al., 2009). The influence of an athlete's attributions on these variables is dictated by whether the attribution is perceived functionally or not. Attributions following success that are external, unstable and uncontrollable in nature (e.g., opposition ability) are likely to negatively impact on future thoughts and behaviours. Alternatively, attributions in success situations that are internal and controllable (e.g., technique) are likely to maintain/enhance an individual's future expectations, emotions and behaviours towards similar situations in the future (Biddle et al., 2001). In failure situations internal, stable and uncontrollable attributions (e.g., ability) are likely to negatively influence such consequences, whereas internal, unstable and controllable attributions (e.g., effort) are more likely to preserve future expectations, emotions and behaviours.

Considerable time has passed since Hardy and Jones (1994) reinforced the need for further research examining the topic of attribution retraining. Despite a few studies in the area (for example Orbach, Singer, & Price, 1999; Rascle, Le Foll, & Higgins, 2008), there is a general lack of evidence on which sport psychologists can base their applied practice. Inspection of the profiling procedure suggests that the strategy could provide a useful basis from which coaches and psychologists can move athletes towards the choice of more functional attributions. Inherent within the procedure is the identification of a number of controllable, unstable and internal attributes that the athlete believes are integral to their performance. Thus, although tentative, it could be proposed that employing profiling in a performance evaluation capacity may help athletes to choose more functional attributions. In doing so, Weiner (1986) suggests that more positive affects, expectations and behaviours are likely to result. Hence, it would be worthwhile for future research to examine the efficacy of profiling interventions in facilitating more functional attributions in addition to improving athlete thought processes and behavioural responses.

Limitations of performance profiling

Although the existing literature has highlighted several potential benefits of performance profiling, it cannot be employed unreservedly. In a series of studies conducted by Weston (2005), athletes and sport psychologists identified a number of potential limitations in the technique that practitioners should consider before using the procedure. Firstly, whilst acknowledged as an important strength of the

procedure, the client-centred nature of profiling does present some potential problems when working with certain populations. For instance, young or novice sport performers may lack sufficient sporting awareness or knowledge to identify appropriate qualities for their sport/position, thus resulting in profiles that lack the required depth and/or attribute accuracy that would be expected of their position/sport. Hence, practitioners must be wary in such situations and may benefit from asking athletes to choose from a pre-prepared list of qualities (D'Urso et al., 2002) or simply providing a fixed profile from which the athletes can then rate themselves (Butler, 1997). An alternative approach would be to ask the athlete and coach jointly to produce the profile attributes and thus not only ensure a more accurate profile but also facilitate communication between these individuals regarding the athlete's performance development.

A secondary problem with the autonomous nature of profiling could emerge when athletes rate their profile attributes. Again, this may be particularly evident with novice or young athletes who may find it difficult to interpret what a 1 and 10 rating actually constitutes. In such instances it may be useful to start by employing the bi-polar quality classification as proposed by Gucciardi and Gordon (2009) within their extended profiling approach, in order to provide clear and divergently contrasting definitions at each end of the rating continuum (i.e., fully focused; totally distracted). It may also be useful to assign the extremes of the general rating scales (i.e., the 1 and the 10; see Figure 1) to fellow performers that the athlete is familiar with (e.g., 1 = player x on team a; 10 = player y on team b). In adopting this approach, athletes would rate their attributes against a criterion that they can identify with more closely than a generic rating scale classification. A final possible method of overcoming this issue would be to ask the athlete's coach to rate the profile qualities separately to the athlete and then discuss the rating differences together. However, caution must be taken in circumstances where large discrepancies between the athlete and coach ratings emerge, particularly if the coach's ratings are lower than the athlete's. In such situations the practitioner must make sure that the athlete's confidence is not negatively affected when they observe their coach's lower perceptions of their capabilities.

Contrary to the athlete-centred approach promoted by profiling, anecdotal evidence provided by athletes within Weston's (2005) programme of research suggests that athletes may prefer that their coaches determine their profile attributes in addition to rating them in order to identify critical performance priorities. Whilst this requires further examination to identify the extent to which athletes support this approach, evaluation of Deci and Ryan's (1985) Causality Orientations Theory might provide some explanation for this perspective. Deci and Ryan assert that an individual's motivation will be influenced not only by the environment (as theorized in CET) but also by the athlete's own personality (causality) orientation. Causality orientations refer to an individual's predisposition to construe events in a particular way which will then influence how that individual initiates and thus regulates their future behaviour. The authors propose that there are principally three orientations: *autonomy* orientation, where individuals use information to enable them to make choices, a disposition closely aligned to more self-determined motivation; *control* orientation, where individuals allow their behaviours to be dictated by external events/factors, a disposition more aligned to extrinsic motivation; and *impersonal* orientation, where individuals believe that outcomes in their life are determined by

external forces which are uncontrollable and independent of them and thus are more aligned to amotivation.

Using Deci and Ryan's (1985) propositions, we argue that athletes who have a predominantly control causality orientation would be more comfortable with their coach providing them with their profile qualities and/or solely rating these attributes. In other words, theoretically these individuals might prefer to have no involvement in the performance assessment phase and may indeed prefer to be told what they need to work on. Clearly further research is needed to examine the efficacy of these suggestions before more valid advice can be provided to practitioners employing profiling in the field. Moreover, although an Exercise Causality Orientation Scale has been developed (Rose, Markland, & Parfitt, 2001), no such scale exists to measure these orientations within sporting contexts. Hence the development of a sport-specific scale may be required before any of the above proposals can be fully tested.

Finally, Doyle and Parfitt (1999) in their study examining the impact of athlete mood state on profile ratings found that positive mood states (and not neutral or negative moods) are likely to influence profile ratings. The authors found that the more positive the mood state, the higher the profile ratings were likely to be, thus suggesting that practitioners should not use the technique unreservedly and that they need to be wary of the potential impact of an athlete's mood state on profile ratings.

Given the artificial and rather detached (from the competitive setting) manipulation of athlete mood states induced in Doyle and Parfitt's study, further empirical research is needed to substantiate their findings in a more ecologically valid competitive setting. In such settings, the emotions expressed will be more representative of the athlete's actual emotional response to performance and thus will provide a more accurate insight into the role emotions play in influencing profile ratings. Furthermore, given the important influence that a performer's attributions have on their subsequent emotional state (Weiner, 1986), it would be useful to examine the interplay between an athlete's attributions, emotions and the subjective ratings of their performance capabilities via the performance profile.

Future research directions

Several specific further research suggestions have been provided above. However, there are a number of important general areas for future research that require attention in order to fully evaluate the usefulness of the performance profiling procedure. Firstly, more research is needed to examine the efficacy of the profiling strategy from the athlete, psychologist and coach perspectives. Whilst Weston and colleagues (2010) have evaluated psychologist opinions of the profiling procedure, their investigation into athlete perceptions of the technique (Weston et al., 2011a) was limited to evaluating the efficacy of the procedure after just a single session. Given that the procedure has been advocated as a multiple use intervention (Butler & Hardy, 1992; Doyle & Parfitt, 1997), more athlete-focused evaluative research is required following their participation in longer duration profiling interventions, possibly across a competitive season. Furthermore, the coach is often seen as an integral partner in the construction, rating and subsequent discussion of an athlete's profile (Butler & Hardy, 1992; Butler et al., 1993; Dale & Wrisberg, 1996; Weston et al., 2010, 2011a), but no research has specifically evaluated coach perceptions of

the technique's usefulness. Hence, further research examining coach opinions as to the most effective ways of employing the profile in team and individual sports would be a valuable avenue for future research.

Weston et al. (2010, 2011a) have provided useful evaluative research into Butler and Hardy's (1992) traditional profiling procedure. However, these studies have focused on examining the production of individual profiles within a team setting. Further research examining the efficacy of the one-to-one profiling procedure is needed in order to inform its applied use. Innovative single-case research methodologies (see Barker, McCarthy, Jones, & Moran, 2011, for an overview) could provide an ecologically sensitive and practical means to conduct such research.

In addition, several variations to the traditional profiling procedure have been utilized within applied settings (e.g., team, coach and unit profiles, fixed profiles) but have received limited evaluation as to their usefulness. Further applied research examining the worth of these approaches to the athlete, coach and psychologist is therefore needed in order to justify their use. In particular, the extended profiling procedure developed by Gucciardi and Gordon (2009) requires further evaluation to determine its usefulness within applied settings. Indeed, comparing its usefulness in comparison to Butler and Hardy's (1992) traditional profiling procedure would help to clarify the most effective profiling approach to adopt with client populations.

Finally, a rigorous and detailed initial assessment is acknowledged as fundamental in accurately identifying performance areas that require improvement and in facilitating effective client–consultant interactions (Beckmann & Kellmann, 2003). An integral element of this process is the need for practitioners to triangulate their assessment findings from a variety of sources in order to enhance the confidence in the overall conclusions reached (Anderson, Miles, Mahoney, & Robinson, 2002; Beckmann & Kellmann, 2003). Such information sources may come in the form of various people (e.g., athlete, coach, sports scientist, parent, etc.) or assessment types (e.g., interview, questionnaire, behavioural observation, diary, profile, etc.) informing an athlete's assessment. However, examination of the profiling literature indicates that practitioners have tended to focus on evaluating just the performance profile procedure and not how the technique may be most effectively employed in combination with other assessment tools. Hence, further research should examine the use of profiling in combination with other forms of assessment. Such research would be a welcome addition to the existing literature, helping to bolster the relatively few articles that discuss the use of a multimodal approach to sport psychological initial assessment (see Hemmings & Holder, 2009, for case study examples).

Summary

The present review provides a comprehensive scientific critique of Butler and Hardy's (1992) performance profiling approach. Whilst the strategy does have some limitations, the literature clearly supports the usefulness of the technique, outlining a number of benefits to athletes, coaches and sport psychologists alike. Further research examining the efficacy of the traditional and recently extended profiling procedures is warranted to ensure that a rigorous and detailed knowledge base exists to inform the use of the technique within applied sport settings.

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