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Article Title: Professional Tennis on the ATP Tour: A Case Study of Mental Skills Support

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Abstract

Success on the Association of Tennis Professionals (ATP) World Tour requires a specific blend of perceptuo-motor abilities, technical proficiency, tactical awareness and mental skills. This case study describes the competitive structure of professional tennis and outlines the programme of mental skills delivered to a professional tennis player over a three year period. The programme embraced five stages: (1) education; (2) assessment/profiling; (3) mental skill learning; (4) application of mental skills in context and (5) evaluation, and was associated with some positive outcomes. This case study provides some possible guidelines for sport psychologists who may wish to provide consultancy services within professional tennis.

Keywords: mental toughness, mental skills intervention, professional tennis

Success in professional tennis is associated with considerable intrinsic and extrinsic rewards. The world's leading singles players can earn in excess of $5 million a year from prize money alone, with financial sponsorship and other endorsements often accounting for even more (Beaton, Thompson, & Kutz, 2014; Flake, Dufur, & Moore, 2013; Morales, 2013). Whilst the prize money in doubles events is less lucrative, the financial rewards associated with successful doubles players are considerable. The mens' professional tennis tour is organised by the Association of Tennis Professionals (ATP) and includes competitive singles and doubles events at four different levels of investment and status. These events include the ATP 250 series, the ATP 500 series, the ATP World Tour Masters 1000 series and the ATP World Tour finals. The ATP event calendar also includes the Grand Slam tournaments (The Australian Open, The French Open, Wimbledon, and the U.S. Open) and the Davis Cup although these events are supervised and organised by the International Tennis Federation (ITF). Each of these events is associated with a total financial commitment that varies according to the level of event and ranges from approximately $500,000 (for ATP 250 events), $7,000,000 (for ATP Masters 1000 events) and approximately $18,000,000 for a Grand Slam event.

Entry to ATP events is made on the basis of a player's world ranking (or the combined world ranking of both players in the case of a doubles team) with the highest ranked players gaining entry to the highest level of event. A player's world ranking is determined by the number of ATP world ranking points achieved within a given time frame and reflects his results within the ATP structure (i.e., reaching a semi-final in an ATP 250 series event is worth 90 points, 360 points in an ATP Masters 1000 series and 720 points in a Grand Slam event). This results-based structure aims to create a transparent meritocracy that allows the best players to enter the most lucrative events.

Elite tennis players tend to develop performance through physical conditioning, tactical coaching, technical training and the development of mental skills that can encourage effective performance in competition (e.g., Fernandez-Fernandez, Sanz-Rivas, & Mendez-Villanueva, 2011; Gonzalez-Diaz, Gossner, & Rogers, 2012; Reid, Crespo, Lay, & Berry, 2007; Roetert & Groppel, 2001). Mental skills such as attention control (focusing), goal setting, imagery and positive self-talk have been linked to improvements in a wide range of motor tasks and sports performance (e.g., Burton, Pickering, Weinberg, Yukelson, & Weigand, 2010; Hardy, 2006; Morris, Spittle, & Watt, 2005) although the impact of mental skills on elite tennis performance has yet to be fully explored. Defrancesco and Burke (1997) found that male and female professional tennis players used imagery, pre-service routine, relaxation strategies, goal-setting and self-talk in mental preparation for events although the impact on subsequent performance was not carried out. Van Raalte, Cornelius, Hatten, and Brewer (2000) studied a group of competitive tennis players and found that although specific match circumstances were linked to use of self talk, no consistent predictions could be made about the likelihood of the next point being won (or lost) following the use of positive (or negative) self-talk.

Studies that link mental skills to improved tennis performance have rarely employed objective outcome-based performance measures during elite events. Perhaps the practical difficulties of collecting data from elite performers in competition may have encouraged researchers to focus on performance mediators (i.e. self-confidence, pre-competitive anxiety, arousal regulation), or performance indicators (i.e. biomechanical efficiency) rather than on objective tennis outcomes. Whilst studies have shown that mental skills application can yield positive results in performance mediators within a tennis context (e.g., Davis, 1991; Mamassis & Doganis, 2004; Shin, 2009), the impact on performance in competition remains uncertain. Research using biomechanical or notational performance measures has reported

some benefits of mental skills training on tennis stroke performance although studies tend to focus on the skill learning of novices in a non-competitive situation (e.g., Atienza, Balaguer, & Garcia-Merita, 1998; Hegazy, Sherif, & Houta, 2015). Despite a lack of empirical support to show causality between mental skills and elite tennis performance, there is substantive belief that a successful athlete is able to apply a wide range of psychological skills to cope with the pressures associated with elite competition and that these skills can be learned and acquired through practice and training (Jones, Hanton, & Connaughton, 2002; Sheard, 2010). This belief has encouraged some elite athletes to seek professional sport psychology support to improve or maintain performance in competition.

Sport psychology as an applied practice began to emerge in the early twentieth century through the work of Coleman Griffith who incorporated psychological principles to sports coaching and athletic performance at the University of Illinois (Gould & Pick, 1995). Traditional applied sport psychology was based around a cognitive-behavioural model that involved the teaching of basic mental skills (such as imagery, goal setting and relaxation) and was delivered by coaches or established psychologists that often lacked specific expertise within the athletic community (Andersen, Van Raalte, & Brewer, 2001). Much of the contemporary applied work is underpinned by the Individualised Zone of Optimal Functioning model (IZOF; Hanin, 2000) that links specific emotions to optimal performance in sport. The mechanisms that mediate the relationship are thought to include (a) motivational processes, (b) changes in physical arousal and (c) changes in the attentional focus of the athlete as they engage in the competitive act (Jones, 2003). Emotions associated with optimal performance are believed to encourage effort and the demonstration of skill, whereas non-optimal emotions tend to disrupt skills and are dysfunctional for performance (Woodcock, Cumming, Duda, & Sharp, 2012). The impact of mental attributes on performance is outlined in Fletcher's (2005) facet model which suggests that psychological skills moderate

the cognitive processes of the athlete to generate a particular emotional response. This model bears similarity to the Cognitive-Affective Processing System (CAPS; Mischel & Shoda, 1995) which explains how successful performers view environmental stressors as opportunities (rather than threats) and perceive themselves as having sufficient personal resources to cope in pressure situations. According to Fletcher and Fletcher (2005), athletes that apply psychological traits and skills to influence their stress appraisal and coping to produce a functional emotional response are considered to be "mentally tough", and this condition is thought to be a pre-requisite for successful performance in competition across a wide range of sports (e.g., Anshel, Kim, Kim, Chang, & Eom, 2001; Cowden, Fuller, & Anshel, 2014; Thelwell, Weston, & Greenlees, 2005).

Improvements in mental toughness have been linked to applied sport psychology interventions that focus on the development of affective mental skills (such as imagery, pre-performance routines, effective concentration, imagery and self-talk), although the methods of delivery and the philosophical underpinnings have varied widely (Connaughton, Wadey, Hanton, & Jones, 2008; Gucciardi, Jackson, Hanton, & Reid, 2015; Lyons, 2009). Different approaches have also been taken to ethical issues including the conceptual boundaries between research and applied practice, confidentiality, and how best to evaluate the quality of the work being delivered (Haberl & Peterson, 2006; Johnston & Farber, 1996; Kontos & Feltz, 2008; Winter & Collins, 2016). Evaluation of a sport psychology service is a central component of any applied work as it allows a credible knowledge base to be established, judgement on efficacy to be rendered, and knowledge for future practice to be generated (Chelimsky, 1997; Strean & Roberts, 1992). Although these rationales are not mutually exclusive, judgement-orientated and improvement-orientated evaluations seem more relevant here as they tend to focus on the value and worth of the program and the extent to which the

participant is progressing towards intended goals (Anderson, Mahoney, & Robinson, 2002; Patton, 1998).

Evaluating the effectiveness of applied sport psychology practice has involved the use of experimental and non-experimental methods although no single approach is considered to be a panacea. Experimental methods often lack ecological validity because of the artificial environment that is created, and the use of randomised controls may withhold a potential benefit from a particular group and compromise the commitment of the sport psychologist to prioritise the welfare of the athlete (Goldfried & Wolfe, 1996; Keegan, 2016). By contrast, non-experimental methods are often limited by sample composition, size and internal validity that make causal inference difficult to establish. Despite these reservations, the case study approach often provides a valuable insight to a participant's unique experience and creates an idiographic framework against which practitioners can document longitudinal intervention effects and enhance future delivery with individual athletes in the real world (e.g., Anderson, Mahoney, & Robinson, 2002; Robazza & Bartoli, 2003; Strean, 1998).

This article aims to provide a detailed case study of the mental skills training programme that was delivered to a professional tennis player on the ATP tour over a three year period. The case study outlines the participant, the mental skills programme, an evaluation of the work and makes some suggestions for the delivery of sport psychology services within the professional tennis environment.

Method

The participant

The participant was a 27 year old male tennis player who competed in Mens' Doubles events on the ATP tour. He had competed in various events throughout the world for eight years and reached an individual career high of 23 in the ATP Mens Doubles ranking. In the months that followed he experienced a drop in form, a diminished enjoyment of the game and

his world ranking had dropped to 73. Although he retained belief in his physical talents and tactical awareness, he identified the need for improved "mental toughness" in competition and decided to contact the sport psychologist whom he had met via a National Governing Body's Junior Development Programme some ten years previously. The participant provided informed consent that permitted details of the current intervention to be shared with the wider world.

The intervention

The intervention programme aimed to increase the "mental toughness" of the participant via the Facet Model (Fletcher, 2005), and through themes of problem-focused coping and learned resourcefulness to produce a state of self-sufficiency in elite competition (Akgun, 2004; Kaiseler, Polman, & Nicholls, 2009). It followed a multi-stage model that embraced the design and delivery guidelines proposed by Gordon (1990), Poczwardowski, Sherman, and Henschen (1998), Mathers and Brodie (2011), and adopted a "coaching" rather than counselling or clinical approach that has been shown to be successful with elite athletes (Andersen et al., 2001). The intervention stages were: (1) education; (2) assessment/profiling; (3) mental skill learning; (4) application of mental skills in context; and (5) evaluation. The work was carried out over a period of three years within the ATP tour schedule of events and used a variety of teaching and learning methods. These included face-to-face meetings, meetings via skype, attendance at training sessions, "live" observations (where the sport psychologist attended an ATP event), "on-line" observations (where the psychologist observed the participant in a competitive match via live web stream), e-mail conversations, text and telephone contact.

Stage (1) Education

This stage aimed to guage the participant's awareness, understanding and perception of sports psychology through a series of face to face meetings. Although the participant had

received some limited sport psychology support some years earlier, his commitment to mental skills practice and training had lost momentum since joining the ATP tour. This stage explored the concept of mental toughness in elite sport and the perceptions of sport psychology known to be held by particular athletic groups (e.g., Loehr, 1990; Pain & Harwood, 2004; Wrisberg, Simpson, Loberg, Withycombe, & Reed, 2009). By the end of this stage, the participant had acknowledged the level of commitment and typical time frame associated with the modification of established cognitive habits, had established a rapport with the sport psychologist, and had agreed a preferred method of delivery (Hill, 2001; Fifer, Henschen, Gould, & Rivazza, 2008).

Stage (2) Assessment/Profiling

This stage outlined the holistic success criteria within professional tennis then created a performance profile that identified possible areas for behaviour change (Jones 1993; Gucciardi, & Gordon, 2009). The success criteria were identified using the participant's professional playing experience, various instructional texts, research publications, and communications with the National Tennis Coach who had provided coaching input to the participant since he joined the ATP tour. The performance profile was established using a multivariate method of baseline assessment that included the participant's self-assessment, written reports from the National Coach, analysis of match statistics and observations of the participant in competition by the sport psychologist. Permission to contact the National Coach and obtain specific coaching information was granted by the participant during stage 1 of the intervention. The assessment was carried out over a six week period in the early part of the first year of the intervention and revealed that the participant's three main performance strengths were (a) volleying skill, (b) tactical awareness in competition and (c) a self-belief in his ability to compete with the world's best doubles players. The assessment process also uncovered some aspects of performance that were thought to compromise consistency in

competition and these included (a) a lack of commitment during the execution of the tennis service, (b) a lack of composure on service returns and (c) a tendency for low team cohesion with his playing partner. Semi-structured interviews confirmed the results of the assessment and allowed the participant to identify long term ambitions (outcome goals), medium term targets (performance goals) and shorter term processes (process goals) that could address the psychological dimension of the assessment process (e.g., Arksey & Knight, 1999; Locke & Latham, 1985; Steinberg, Singer, & Murphy, 2000). A summary of the participant's long term (outcome) goals and medium term (performance) goals are displayed in Table 1. The short term (process) goals were agreed during subsequent meetings between the participant and sport psychologist and centred on the development of specific mental skills (i.e. imagery, positive self-talk, thought control, relaxation training and pre-point routine) to modify the cognitive mechanisms, create a more favourable emotional profile and increase the likelihood of the higher level goals being achieved.

Stage (3) Mental Skill Learning

This stage enabled the participant to acquire and develop the psychological skills linked to mental toughness and used a cognitive–behavioural framework to embed goal-setting, imagery, positive self-statements, pre-point routine to daily physical practice based on the participant's individual strengths and deficits (e.g., Guillot, Collet, & Dittmar, 2005; Short, Tenute, & Feltz, 2005; Sinclair & Sinclair, 1994). The mental skills were developed, refined and integrated to existing training practices so that established strengths could still form the basis for performance in competition. This stage encouraged the participant to adopt mastery-based goals and strengthen the formation of preferred habits in both training and competition (Duda, Chi, Newton, Walling, & Catley, 1995; Puente-Diaz, 2013; Van de Pol & Kavussanu, 2011). Over the subsequent weeks and months, the participant collected a resource bank of images, key phrases, performance triggers and specific positive memories

that were designed to develop and enrich daily imagery practice during physical training and encourage the preferred goal behaviours (Frey, Laguna, & Ravizza, 2003). The participant also developed a pre-service routine to focus attention externally, recall optimal psychophysiological states and encourage service repeatability (Boutcher & Crews, 1987; Schucker, Hagemann, Strauss, & Volker, 2009). The shift in attention was achieved in a number of different stages where the mental content during the service action graduated from a broad/internal focus to the narrow/external focus that has been shown to be most effective in the reproduction of closed skill actions (Wulf, 2013). The pre-service routine was recorded on camera from a number of different angles and on different playing surfaces so that the footage could be used to enrich the imagery practice and strengthen the desired behaviour in daily training and competitive matches (Coelho, Campos, Da Silva, Okazaki, & Keller, 2007; Mesagno, Marchant, & Morris, 2008). The mental commitment to the pre-service routine was strengthened using a series of planned internal and external distractions in training sessions and practice matches. The participant was required to deliver his service within a temporal threshold of his ideal pre-service routine to encourage isochronicity (Collett, Guillot, Lebon, MacIntyre, & Moran, 2011), and to purposely vary his choice of service on successive points so that the pre-service routine was used to deliver variation in direction and velocity (Lonsdale & Tam, 2008). A relaxation script with positive instructional self-talk was established and practiced on a daily basis to trigger a state of "composure" during service returns (Landin & Herbert, 1999; Palazzolo & Arnaud, 2013). The participant also created a series of behavioural checklists that described the features of a positive "presence" on the court, the qualities of an effective doubles partner and developed a visual external imagery script of pre-determined rally patterns to be followed in training and in matches (Blickensderfer, Reynolds, Salas, & Cannon-Bowers, 2010; Lausic, Tennenbaum, Eccles, Jeong, & Johnson, 2009). All of these mental skills were practiced within a pre-match

routine that aimed to regulate the participant's level of emotionality, arousal and subsequent attentional focus for competitive games throughout the period of intervention.

Stage (4) Application of mental skills in context

This stage took place a few weeks after the mental skill learning had commenced and when the participant felt comfortable with the performance goals being the subject of self-assessment in matches. This integration built on existing habits and minimised the risk of mental overload that could be detrimental to decision-making performance (Zoudji, Thon, & Debu, 2010). The participant used a self-evaluation questionnaire to indicate the extent to which he felt that the performance goals had been achieved in matches. The questionnaire was designed around the performance goals that were established during the assessment profiling stage and used a seven-point Likert scale to convey the level of perceived success. The self-evaluation exercise was completed between 5 and 24 hours after each match to reduce the impact of any emotional affect of the match result whilst retaining the reliability of memory recall. The participant also made personal journal entries of mastery goal achievement and the perceived antecedents of success to enrich and embellish the quantitative assessment. During this stage, the sport psychologist observed some of the matches (either live or from a live stream) to provide additional feedback and comment on the level of mastery goal achievement. The evaluation forms were returned to the sports psychologist after each match and the results formed the basis of the subsequent consultation session. As the season progressed, the evaluation forms were completed for each *set* of tennis to enrich the data and provide a greater opportunity to reflect on key moments in the match and the extent to which the mental skill associated with mental toughness were being displayed or experienced. During the second year of the intervention, the self-reflection process began to take a more informal approach where the participant and psychologist became equal partners in the delivery and review of the work. The programme of support

evolved from a "practitioner-led", to an "athlete-led" approach in the third year as the participant became more autonomous in problem solving and operated more self-sufficiently.

Stage (5) Evaluation

The programme of intervention was evaluated using a formative approach (every six months) and a summative approach that took place at the end of the three year period of intervention. The formative evaluations were carried out using the Sport Psychology Consultant Evaluation Form (SPCEF) (Partington & Orlick, 1987) and were used to guide the gradual shift in delivery style that encouraged the participant to assume a greater level of control and self-sufficiency as the intervention progressed. Data from the SPCEF was triangulated through semi-structured interviews that allowed qualitative information to clarify and enrich some of the questionnaire responses provided by the participant. The summative evaluation was carried out using the SPCEF and against the long term (outcome) goals that were established at the onset of the programme. The extent of goal achievement was evaluated using (1) a comparison of the number and level of ATP events that were entered in the seasons before and during the period of intervention (2) a comparison of performance in Grand Slam Events in the seasons before and during the intervention period (3) an analysis of the participant's ATP world ranking before and during the intervention period and (4) the number of Davis Cup matches that were played before and during the intervention period.

Results

The results of the qualitative evaluation suggest that the mental skills intervention was associated with the successful application of key mental skills including imagery, goal setting, pre-performance routine and self-talk that enabled the participant become more mastery focused during competition and less distracted by concerns about the outcome of points as the matches took place. The participant stated:

> I started to be a lot more process orientated on the match court and I had little reminders [key words] for certain situations or shots that allowed me to stay in the moment and keep my mind focused on the point patterns.

The process of evaluating performance against these performance goals (rather than the outcome) seemed to create a natural feedforward process that created stability, structure and a feeling of control, and this was acknowledged by the participant who also stated:

> The post-match evaluations helped me to reflect on my performances and also helped me to set goals for my forthcoming match based on what had happened in the previous match … this helped me to go into my matches with some clear goals that would help me to perform better.

The results also suggested that the imagery practices and the pre-service routine were associated with a noticeable improvement in commitment to the service technique. As the intervention progressed, there was a perception that the speed, accuracy and consistency of the service had improved and this too was noted by the participant:

> There is little doubt that the mental skills practices I worked on in training allowed me to be more committed to the service technique in matches. The service is such a key weapon in mens' doubles and the improvement in my service was pretty noticeable.

The mental skills programme also seemed to encourage a greater commitment to the doubles partnership, team unity, energy and physical presence in competitive matches as the participant reported:

> [As a result of the behavioural checklists]… I definitely showed more effort and commitment to setting the emotional climate for the team and I began to value my contribution to the team in terms of how well I could support my partner after he had made an unforced error. This seemed to get us through matches that could have gone either way.

The participant also claimed that the intervention had helped him perceive competitive matches as an opportunity to demonstrate skill mastery rather than be dominated by the need to win the match and progress to the next round of an event. This perspective seemed to help the participant re-connect with the thrill of competitive tennis and noted the following:

> I really enjoyed the [mental skills] work that I did with [the psychologist]. I managed to find my enjoyment for the game again … which was massive for me. My main focus became less about "winning the game", and more about the opportunity to showcase my skills…which invariably helped me to play better, and win more matches.

The summative evaluation also uncovered the extent to which the long term (outcome) goals were achieved after the three year intervention period. Table 2 shows the number and profile of ATP events that were entered and the results in Grand Slam events from the season immediately prior to the intervention to the end of the three year programme. The results show that the participant competed in a greater number of ATP 500 series events from the pre-intervention season (n=2) to the third year of the intervention programme (n=7), and that a similar pattern was observed in ATP 1000 series events over the same period (outcome goal 1). The results also show that the participant reached the last 16 of the Mens' Doubles events in at least two of the Grand Slam events in year 2 and year 3 of the intervention programme (outcome goal 2). Figure 1 shows the ATP ranking history from pre-intervention to the end of the programme and reveals that the participant achieved an ATP world ranking of 7 (outcome goal 3) by the end of the three year period of intervention. Table 3 shows the number of Davis Cup matches that were played from pre-intervention to the end of the programme and reveals that the participant had competed in 4 Davis Cup ties by the end of the intervention programme (outcome goal 4). The results of the outcome goal achievement and the qualitative data from the interviews and questionnaires suggest that the programme of mental skills instruction was associated with improved performance, better results and increased enjoyment within the sport of professional tennis.

Discussion

The results of the SPCEF and interview data suggest that the intervention was associated with improved application of mental skills such as imagery, goal setting, attentional focus and positive self-talk before, during and after professional tennis matches.

The improved psychological skills may have moderated the participant's appraisal and coping mechanisms and the resultant emotional profile may have encouraged an optimal physical and mental state consistent with the Zone of Optimal Functioning theory (Hanin, 2000). The ability to produce an optimal physical and mental state during stressful competition is a characteristic of mental toughness and may well explain any upturn in performance (Fletcher & Fletcher, 2005). Although cognitive changes were reported by the participant, it should be acknowledged that changes in mental skill use or application were not monitored using recognised questionnaires or inventories through the intervention period. The use of such assessment methods would have provided an opportunity for triangulation of data, but were perceived as a departure from the "coaching approach" that was the participant's preferred delivery method (Andersen, Van Raalte, & Brewer, 2001).

The results also revealed that the period of intervention was associated with improved focus, more effective communication on court and a perceived improvement in serving performance. Perceived improvements in serving performance may have been brought about by a change in emotional profile that facilitated the participant's ability to focus on external cues during the execution of the skill (Wulf, 2013). Unfortunately, it was not possible to corroborate any improvement in serving performance from a quantitative perspective. ATP statistics on the velocity and percentage of 1st service success for a single player within a doubles team are not routinely available, and objective analysis on service accuracy is possible only if a valid and reliable measure of the service target (intention) can be established.

The three year programme of intervention coincided with the achievement of the four outcome goals that were established in the early part of the intervention. Although the increased number of higher profile ATP events, improved results in Grand Slam events, improvement in ATP world ranking and participation in Davis Cup matches are encouraging,

it should be acknowledged that the data are associative and cannot be taken as evidence of causality. The ATP's results-based structure makes the outcome goals rather interdependent and an improvement in ATP ranking makes entry to higher profile events more likely. Improved ATP ranking may also result in a higher seeding in the Grand Slam draws which reduces the likelihood of the top doubles teams being drawn together until later in the event, which increases the likelihood of progression to the latter stages. Lastly, the number of Davis Cup opportunities in any given year is dependent upon selection to the team and the overall match result between competing teams in the "knock-out" stages of the event. So whilst the four outcome goals established at the start of the programme were achieved, it is likely that other factors may have contributed to these favourable outcomes. Firstly, it should be acknowledged that the three year intervention programme was carried out with a participant who represented only one half of a doubles team. The achievement of the outcome goals could have been influenced by improvements in the performance of the participant's doubles partner that were independent of the intervention. However, it is also possible that the participant's commitment to better communication, task cohesion and support may have contributed to any such improvement within the other member of the team. The improved results may have been the result of greater tactical awareness and decision-making acquired by the doubles team which was independent of the intervention, although other elite teams would have had this same opportunity for competitive experiential and tactical growth. Perhaps physical or technical improvements made during the three year period of psychological intervention may have contributed to the improved results, or simply that the change in results were merely the result of natural fluctuations of form and a regression to the performance mean.

Although these possibilities cannot be ignored, the qualitative results of the interviews and the data from the SPCEF suggest that the intervention enabled the participant to apply the

mental skills associated with effective performance and demonstrate the characteristics of mental toughness in competition more regularly. More consistent demonstration of mental toughness may have encouraged minor improvements in competitive matches and subsequent achievement of the outcome goals (Cowden, Fuller, & Anshel, 2014). Although the level of contribution is difficult to quantify, it should be acknowledged that *any* improvement in performance can be important in elite sport where the difference between success and failure is small (Briki, Den Hartigh, Hauw, & Gemigon, 2012; Hughes & Bartlett, 2002). In summary, the qualitative evidence seems to indicate that the participant perceived the intervention to have a positive impact on performance and the remainder of this article will focus on the delivery features that may have contributed to the positive outcomes.

The data revealed a number of delivery features that may have encouraged the participant to engage fully with the mental skills programme and obtain some of the perceived performance benefits. The intervention programme had a clear rationale and was delivered using a coaching (rather than counselling) approach which resonated with the participant's preferred learning method (Andersen, Van Raalte, & Brewer, 2001; Sharp & Hodge, 2014). The interpersonal connection between the participant and the psychologist became particularly strong and may have encouraged participant compliance with the mental skills training work (Lubker, Visek, Watson, & Singpurwalla, 2012). This connection was strengthened through the exploration of common links between the participant and the psychologist's sporting background which provided evidence of expertise and credibility in the real world. The feeling of trustworthiness that was reported may have encouraged greater adherence to the mental skills training programme, deeper learning and development of skills and has been widely reported as a key feature in the success of mental skills and coaching interventions of this type (Jowett & Cockerill, 2003; Gould, Guinan, Greenleaf, & Chung, 2002). The participant seemed to value the time taken by the sport psychologist to become

immersed in the work and provided unconditional and consistent social support irrespective of whether matches were won or lost and stated:

> I liked that the sport psychologist genuinely took an interest in my competitions and was always available to communicate through various means.

The intervention was delivered using a flexible approach that built on existing strengths and allowed the participant to take more responsibility for the mental skill learning as the programme developed. These delivery features have been previously recognised as beneficial by Lubker, Watson, Visek, and Geer (2005) and in other delivery work of this type (Mathers & Brodie, 2011). The participant welcomed the integration of daily mental skills training with other aspects of physical training (including technical coaching sessions and practice matches) rather than as a replacement or a departure from existing practice. The importance of habit modification within a holistic context has been emphasised by Sinclair and Sinclair (1994), and more recently in consultancy work delivered within a team sports community by Gilbourne and Richardson (2006). The intervention also recruited the support of the participant's close social community ensuring that the coach and participant's spouse were aware of the work and provided the social support process that re-inforced the commitment to behaviour change (Rees & Hardy, 2004). Finally, the intervention programme included regular (weekly) contact in the early stages of the work despite the geographical and temporal constraints of a global competitive programme and this was acknowledged by the participant who stated:

> In an ideal world I would prefer more on site observations and meetings but we both knew that this was difficult to set up.

Although the face-to-face meetings seemed to be the preferred option, the participant recognised the need for a blended delivery approach that allowed a more complete integration with the participant's other tasks, duties and commitments.

The programme of mental skills was perceived to have a positive impact on the performance of the participant, however there were a number of delivery dilemmas and challenges that had to be managed within the three year period including (a) the ethics of providing applied support whilst collecting data for the purposes of research (b) maintaining a professional relationship with the coach and the other member of the doubles team and (c) knowing when to the applied work should come to an end.

The initial stage of the intervention established the ethical boundaries for the applied work and this created a climate of trust and openness between participant and psychologist within which the intervention could be framed. The circumstances under which the relationship would be terminated by either party were also agreed in accordance with the BPS (2009) guidelines. Early discussions explored the risks and benefits associated with applied work and the potential conflict between the delivery of services and planned research output. The participant understood this ethical dilemma, was adamant that any new knowledge should reach the coaching and academic communities and provided informed consent for information obtained to be used for this purpose.

Agreement was reached on the clarification of the psychologist's role whilst attending training sessions and competitive events, and the way in which performance themes were to be approached in partnership with the coach (Keegan, 2016). The fact that the other member of the doubles team did not wish to embrace the sport psychology support created a self-selected solution to the ethical issues surrounding multiple relationships in this particular case. Great care was taken to ensure that intervention was delivered within the psychologist's area of expertise rather than to become overly pre-occupied with coaching per se. Applied sports psychologists should become immersed in the particular sport in which they are working, but should be very aware of the boundaries of their expertise. Most coaches have a wealth of knowledge and experience from a lifetime within a sport and should be respected as

the authority figure within their domain (Sharp, Hodge, & Danish, 2014). Establishing ethical boundaries and a working relationship with the coach was seen as essential for athlete buy-in, the reinforcement of good practices in day to day training sessions and the identification of emerging issues that may require more specialist psychological support (Burton & Raedeke, 2008).

By the end of the three year period of intervention, the participant had achieved the outcome goals that had been established at the onset of the programme, renewed his enjoyment of the game and was able to operate more self-sufficiently. These factors seemed to signal a natural conclusion to the existing delivery structure and level of support that had been provided over the previous three years. It was felt by both parties that the need for frequent meetings and regular contact had diminished, but that the relationship should continue in the form of occasional match observations and follow up consultancy should it be deemed necessary by the participant. In the immediate season that followed, the participant and his doubles partner decided to discontinue their partnership and pursue their respective careers with new partners. Despite the change in team dynamic, the participant continued his commitment to the development of mental toughness in competition through existing practice and training. He competed with a new doubles partner on the ATP tour and enjoyed considerable success in the events that followed. Some months later, the participant reached a career high of 1 in the ATP Mens Doubles ranking.

Conclusion

The mental skills work that was delivered to this elite tennis professional seemed to coincide with some improvements in performance and outcomes. Although these outcomes were associated with a programme of mental skills instruction, it is the nature of the delivery that may be of interest to sports psychology practitioners. Sports psychologists should ensure that there is a clear logic and rationale for the work and should aim to build a working

relationship during the initial contact with the participant. Care should be taken to ensure ethical boundaries are established, participant expectations are managed, and a working relationship is established with the coach who has the overall responsibility for performance planning and management. Sport psychologists might connect with clients through obvious parallels and links that exist between different sport domains of common interest then immerse themselves in the sport-specific context to become culturally educated and more able to communicate in the common language of a chosen sport. Finally, the ultimate goal of the intervention should be to teach a state of participant self-sufficiency such that the frequency of consultancy can be reduced as the participant becomes empowered to function effectively in the pressure environment.

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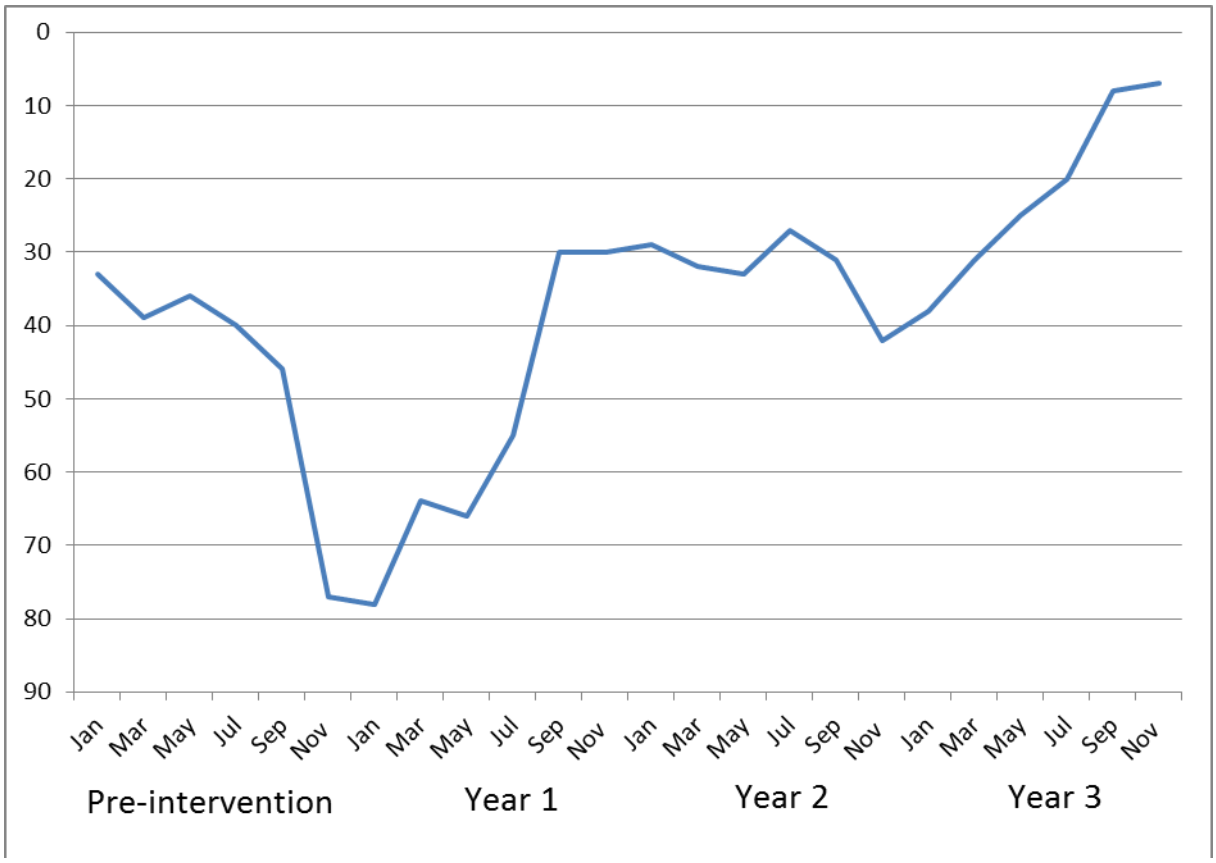

Figure 1. ATP world ranking from pre-intervention to the end of the three year programme of mental skills training

Table 1 Summary of the participant's long term and medium term goals

Long term goals (outcome)
To compete in a greater number of higher profile events (i.e. ATP 500 series and ATP 1000 series)
To reach the round of 16 (and beyond) in at least two Grand Slam tennis events in competitive seasons
To obtain an ATP World Ranking within the top 20
To compete in Davis Cup matches
Medium term goals (performance)
To portray a positive 'presence' on court during the warm up and between points, games and sets of tennis
To maintain a feeling of 'composure' during service returns
To execute specific pre-determined rally patterns in matches
To vary the service returns effectively
To commit to an aggressive rhythm on the first (flat) service
To maintain high racquet head speed during the second (kick) service
To communicate effectively with my playing partner during training and matches
To support my partner when he produces an unforced error

Table 2. ATP event schedule and results in Grand Slam events from pre-intervention to completion of the programme

Number (and level) of ATP Series events competed in from pre-intervention to year 3 of the intervention)

Season	ATP 250 Series (low level event)	ATP 500 Series (mid level event)	ATP 1000 Series (high level event)
Pre-intervention	7	2	2
Year 1	6	3	1
Year 2	7	5	6
Year 3	5	7	7

Results in Grand Slam events from pre-intervention to year 3 of the intervention

Season	Australian Open	French Open	Wimbledon	US Open
Pre-intervention	Last 64	Last 64	Last 64	Last 64
Year 1	Last 64	Last 32	Last 64	¼ Final
Year 2	Last 32	Last 16	Last 16	Last 64
Year 3	Last 16	Last 16	Final	Final

Table 3. The number of Davis Cup matches played from pre-intervention to the completion of the programme

Number of Davis Cup Matches played (actual/possible)

Season	Number of Davis Cup matches played
Pre-intervention	0/2
Year 1	0/2
Year 2	0/2
Year 3	4/4