A STUDY OF ELITE RUGBY UNION GOAL KICKERS AND THEIR USE OF MENTAL REHEARSAL.

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I would like to take this opportunity to thank the ten participants who took time out of their busy season to take part in my study. Without their cooperation the research could not have taken place and for that I am very grateful.
ABSTRACT

This research presents a study into ten male elite Rugby Union goal kickers and their use of mental rehearsal. A semi-structured interview was used to establish their use of mental rehearsal in a competitive match and when they were away from competition, for example in training and at home in preparation for a match. The interview was also used to establish the content of the players’ mental rehearsal. Players discussed the level of consistency within their mental rehearsal and the possible circumstances in which their routines may change as well as discovering how their mental routines developed. The results indicated that all used mental rehearsal during a competitive game in the form of consistent performance routines. There was also evidence of players using similar routines at training and other forms of mental rehearsal in preparation for a game. A number of players, however, described not engaging in formal mental rehearsal prior to a match. The implications of such findings are discussed.

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Introduction

In elite sport the athlete is often required to successfully execute skills under intense pressure time and time again. The execution of these skills may also be affected by a number of external variables, the opposition or the playing conditions for example (Singer, 2002). The challenge for the athlete is therefore to create a stable environment in which they can perform, so that a consistently high level of performance can be attained (Marlow et al, 1998). Bauman (2000) also identifies that it is the ability for athletes to focus on what they can control that will make them successful. In elite sport the pressures are magnified with a huge emphasis placed on outcome success (Lyle, 2002), consequently such pressures give rise to greater levels of anxiety that can lead to physiological and psychological processes that seriously undermine the performance of the athlete (Boutcher, 1990).

Within the game of Rugby Union, goal kickers are often required to perform in a highly pressurised situation without the direct help of teammates. They are suddenly on their own and required to perform a skill under intense pressure (Marlow et al, 1998). To deal with such pressures elite athletes, such as goal kickers, are required to practice physically but it is their mental rehearsal or mental practice that is fundamental to coping with the physical and psychological demands placed on them (Harwood et al, 2003). Highlighting the importance of mental practice in addition to physical practice was Jack Nicklaus arguably the greatest golfer of all time. He commented how he would not hit a shot, not even in practice, without imagining how he was going to hit it, the trajectory of the ball and where he wanted the ball to end up (Grove et al, 2001). This study will focus on ten elite Rugby Union goal kickers and report on their use of mental rehearsal.
LITERATURE REVIEW

This section will introduce the concept and uses of mental rehearsal within sport. It will explain how mental rehearsal can be an effective performance tool, with athletes giving personal accounts of their experiences. Part of an athlete’s mental rehearsal can be the use of performance routines. These too will be explained along with their associated effects within sports involving self-paced skills and in particular Rugby Union goal kicking. Personal evidence from a variety of sources will again be highlighted, showing the vital role routines play in an elite goal kicker’s performance.

Mental rehearsal, often termed imagery or mental practice, is the process by which memory pieces of experience are shaped to form meaningful images (Weinberg and Gould, 1995). It is similar to a real sensory experience but the entire process occurs in the mind (Weinberg and Gould, 1995). To be clear, throughout this research unless otherwise specified, when discussing the notion of imagery or an image it refers to all sensory modes, not just visualisation (visual imagery), and is just part of the ‘mental package’ an athlete uses with regard to their mental preparation.

The most common use of mental rehearsal is the rehearsal of skill (Bull et al, 1996) and in those terms, mental rehearsal is the imaging of performing a skill with no related overt actions (Cohn, 1990). The more an individual pictures a skill done correctly the greater the likelihood of it happening (Bull et al, 1996). This was evident in Epstein’s (1980) study that found male dart players’ performances to improve significantly following mentally rehearsing the skill. Schmidt (1988) suggests that such improvements are due to the performers going through the specific motor programme of the skill during their mental rehearsal thus priming the neural pathways readying for the actual execution of the skill. Another proposal offered by Schmidt (1988) to the effectiveness of mental rehearsal is that the individual can learn the cognitive elements of a task rather than physically practicing. With knowledge of previously acquired skills of a similar nature, the individual is able to mentally rehearse what may or may not work thus saving time when physically required to practice (Schmidt, 1988).
Mental rehearsal should involve as many of the senses as possible and create or recreate the emotional feeling associated with executing the particular skill (Orlick, 2000). Elite skiers for example, who are not permitted to practise on the competition course, will often use their five senses when visualising the route they will take (May, 1987). They focus on the ‘feel’ of the course, how the snow will feel under the ski, the different sensations at the bottom of their feet or how the ski edges will feel as their weight shifts. Emphasising this ‘feel’ factor during their mental rehearsal gets them into a race state, both physically and emotionally (May, 1987). Orlick (2000) suggested that the best athletes involve feelings in their detailed imagery.

Mental rehearsal can be used to recall past experiences but also to deal effectively with a problem or challenge before it occurs (Orlick, 2000). For example a lineout forward in rugby union may picture the moves he will use against the likely defence of the opposition. Using mental rehearsal as part of a preparation for future events creates a state of mental readiness that is a vital factor in influencing athletic performance (Gould et al, 1992). Mental rehearsal prior to performance also takes the elite athletes mind away from the worry of competition and boosts confidence allowing the body to perform (Orlick, 2000). Indeed it is those individuals who rely so heavily on their mental rehearsal that make the fastest progress in reaching their potential (Orlick, 2000). Examples of the influence mental rehearsal can have prior to performance include a test by Gould et al (1980) who asked subjects to perform an isokinetic leg exercise on a cybex machine. Those who used mental rehearsal prior to the test displayed superior performance in testing. Former tennis player and now tennis coach, Brad Gilbert, testifies how much of an edge he gained from his mental preparation prior to his matches. He learned through heavy defeats that good, early mental preparation was key to seizing an advantage even before a ball was hit (Gilbert and Jamison, 1993). Orlick and Partington (1988) described Olympic athletes using mental rehearsal in preparation for training. They discovered that athletes who were focused at training found that focusing in the pressures of competition happened almost automatically.
The way in which an athlete creates images, or scenarios as part of their mental rehearsal may differ. Internal imagery refers to those images created that are viewed in the first person. These images are potentially kinaesthetic and can lead to muscular activity and physiological arousal (Epstein, 1980). Alternatively the athlete may use external imagery whereby they view themselves through the eyes of an external observer. These images have a lesser physiological effect and are predominantly visual (Epstein, 1980). There were some early suggestions by Mahoney and Avener (1977) who stated it was successful athletes that used internal imagery and those who were less successful relied on external. In contrast later research by Meyer et al (1979) found no relationship between performance results and the use of internal versus external imagery. It must be said however that to achieve the ‘feel’ of an image, associated with successful performance, then internal imagery is recommended (Orlick and Partington, 1988). Many performers actually switch back and forth between both types (Weinberg and Gould, 1995). Perhaps more importantly are the meaning and clarity of the image rather than the image itself (Evans et al, 2004) and also the extent to which the athlete has control of what they are imagining (Weinberg and Gould, 1995). This was demonstrated in a study of 235 Canadian Olympic athletes who competed in the 1984 Los Angeles games. The male participants in the sample reported how the quality or clarity of their mental imagery directly related to their performance (Orlick and Partington, 1988).

Whatever the type, or combination, of mental rehearsal used or the image that is created it is the application of mental rehearsal that separates the ‘great from the good’ (Bauman, 2000). At arguably the highest level of sporting prowess, the Olympics, it is the athletes’ mental ability that distinguishes them from other non-Olympic athletes and many Olympians attribute 90% of their success to their mental preparation (Bauman, 2000). For example, Michael Johnson the former 200m and 400m Olympic champion commented how he visualised every race down to the last millisecond (Harwood et al, 2003). Fellow American Olympian Brad Gilbert was often described as having the best ‘mental’ game in tennis. His consistent victories against top ranked players gave him the nickname of ‘Giant Killer’ (Gilbert and Jamison, 1993).
Other athletes in a wide range of sports testify to the importance of their mental rehearsal. Kathy Colin for example, former number 1 US kayaker, states her mental preparation is key to her performance (Bauman, 2000). Similarly Ray Floyd, the former PGA Masters and US Open Golf champion, describes how he saw mental rehearsal as the most vital part of his preparation (Bull et al, 1996). Rugby Union player Johnny Wilkinson, the most successful goal kicker in world rugby, uses mental rehearsal in the build up to his kicks at goal by picturing an imaginary ‘Doris’ sitting in the stand. He aims to land the ball on her lap, which helps him with the strike of the ball ensuring he follows through (Williams, 2003). Former motor racing great Jackie Stewart used mental rehearsal to reduce the sensation of speed when racing to help him to dominate and win so many of his races (Hemery, 1986).

The mental skills an athlete will use during their mental rehearsal can also be applied to another useful mental strategy, a pre performance routine (PPR) (Boutcher, 1990). A PPR is a systematic sequence of task relevant thoughts, relaxation and self talk for example, and actions for example aligning the target or a practice swing, that can aid athletic performance (Moran, 1996). It is one way in which an athlete can create a stable environment and establish an optimal physical and psychological readiness prior to executing a skill (Marlow et al, 1998) by ‘priming’ the neural pathways of a movement (Cohn, 1990). These routines are based on previously acquired psychological skills that are refined over time and grouped together to form a coherent routine (Boutcher and Rotella, 1987). For example, Boutcher and Rotella (1987) studied golfers and described how part of the PPR for a swing involved a ‘setting’ phase where the player would establish an optimal level of arousal. The ‘setting’ part of their PPR may have evolved from general relaxation methods. Other mental skills such as visualisation or attentional control may also have been refined and practiced separately to become part of a complete fluid routine (Boutcher and Rotella, 1987). Routines and can be also used after executing a skill, in a stoppage in play or when an individual is waiting to join the action (Boutcher, 1990). As Boutcher (1990) describes, the challenge for the athlete is to find the most efficient routine to meet his or her needs and then repeat this routine before every performance or before the execution of a skill. He goes on to note how PPR’s will vary
between sports and also within the same sport. The skill level of the athlete will also influence the routine. Those individuals still acquiring a skill will use less complex, abbreviated routines (Boutcher, 1990), which focus more on the mechanical movements of the skill (Cohn, 1990). In contrast with elite athletes, all stages of the skill are well learned and indeed run automatically as an entire action (Hansen et al, 2005). The chunking of these separate skill units means an elite’s focus is taken away from the individual components of a skill (Hansen et al, 2005) and drawn more towards the feel of the movement, the positive outcome of their skill or trusting their automatic process for example (Cohn, 1990). It is important to recognise however that a well-created PPR will enhance performance, whatever the skill level of the individual (Lidor and Singer, 2002).

PPR’s are used in a number of sports but a more prevalent usage is found with the execution of self-paced skills (Cohn, 1990). Examples of self-paced skills include a golf swing, basketball free throwing or rugby union goal kicking. Self-paced skills often involve a degree of target aiming, where the target is usually stationary and the performer has adequate time to perform the skill (Singer, 2000). In executing a self-paced skill the athlete will initiate the movement (Boutcher, 1990) and from a decision making perspective will have few variables to consider (Jackson and Baker, 2001). It is important to note that PPR’s can also be used in reactive skills (Boutcher, 1990) but for the purpose of this study the focus will remain on self paced skills and the use of PPR’s.

During the execution of a self-paced skill, with extended time available to perform the skill, the athlete can often become distracted and over-think the situation they find themselves in. This can elevate their levels of fear or negative perceptions of their ability; they begin to think about what not to do (Singer, 2000). This feeling is commonplace in team sports when an individual is required to execute a skill in isolation, during crucial moments, and is known as the self-awareness theory (Carver and Scheier, 1981). In certain pressurised situations the performer may start to focus too greatly on consciously controlling their movements, rather than letting things occur automatically (Hardy and Mullen, 2001). Indeed this automatic state is the norm for elite athletes and switching to conscious control can have catastrophic effects on performance (Marlow et
It is in elite sport where such pressures are magnified; the individual is expected to execute the skill perfectly, the execution of skill could prove decisive and also the intense pressure on the individual within the team, for example an elite rugby goal kicker (Marlow et al, 1998). A PPR, in conjunction with previously learned psychological skills such as self-talk, imagery and negative thought stopping, is the ideal tool to deal with these distractions (Jackson and Baker, 2001). A study into Neil Jenkins for example, the second highest points scorer in Rugby Union history, described how he used a PPR enabling him to control negative thoughts and maintain a rhythm with his goal kicking (Jackson and Baker, 2001).

Further evidence of the importance placed on the use of PPR’s was highlighted by Marlow et al (1998) who encouraged the use of a pre shot routine to three experienced water polo players to help with their penalty shooting. She showed how an implemented pre-shot routine significantly improved penalty shot conversions. Similar strategies were employed by Wrisberg and Anshel (1989) to basketball players and their free throw shots. Using imagery and attentional control as part of their pre shot routine enhanced the shooting performance of the athletes. Heishman (1989) also concluded that a pre-service routine in volleyball was effective in improving the form and the outcome of the serve.

Studies have also showed the calming influence a PPR can have. Once again Neil Jenkins, as part of his pre-kick routine, took a deep breath to help him relax before a kick (Jackson and Baker, 2001). Studies into golf putting highlight the calming effect of a mental routine. According to Boutcher and Zinsser (1990) the elite golfers were able to reduce dramatically their heart rates prior to a putt that led to significant improvements in their performance. Using a PPR to reduce heart rate is commonplace within many self-paced skills. Elite rifle marksmen for example demonstrated a reduced heart rate prior to the trigger pull (Landers et al, 1980). In a study into skilled archers the same pattern arose; their heart rates progressively dropping seconds before the release of the arrow (Wang and Landers, 1990). It has also been shown that a PPR can be used to increase arousal levels. Shelton and Mahoney (1978) reported how mental routines were used in
weight lifting to ‘psych up’ an individual prior to a lift, which in turn led to improvements in strength gains.

Throughout these examples and looking at the work of Boutcher and Crews (1987) it can be suggested that there are three factors that help explain the effectiveness of a PPR:

1. PPR’s helps the athlete focus on task relevant cues while ignoring task-irrelevant cues. Gaining attentional control through a PPR means the athlete doesn’t become overly aroused, they remain concentrated, their anxiety levels are controlled and they do not allow external or internal distractions to affect them (Boutcher and Crews, 1987).

2. The loss of motor performance following the resumption of play after a short break is a challenge in intermittent sports and is called warm up decrement. The athlete does not forget how to perform the skill, but the break in play dulls the psychological and physiological readiness for optimal performance (Boutcher and Crews, 1987). Thus a PPR ‘warms up’ the psychological and physiological processes prior to executing a skill (Boutcher and Crews, 1987). With rugby union being an intermittent game the importance of goal kickers adopting a PPR is therefore clear to see.

3. A PPR helps enable the automatic execution of sport skills. The greater the conscious control of a skill the more compromised the performance (Singer, 2002). By using a PPR an athlete can avoid thinking of specific movements and focus on general cues allowing a fluid automatic state to be reached (Boutcher and Crews, 1987).

Through the examples given, the structure of an ‘ideal’ PPR of a self-paced might also be suggested. Singer (2002) described seven key aspects of a PPR. First it should involve narrow, deep and sustained concentration. The athlete should also have a high level of expectation as well as a quiet mind. It is suggested that an ideal PPR should occur
effortlessly and automatically as well as having a consistent content. The athlete should be solely focussed on the present as well as being in an optimal visual state with regard to the target.

One such method ensuring all ‘bases are covered’ within an athlete’s PPR is the use of the Five Step Strategy (Chung et al, 1996). The five-step strategy is based on a combination of sub-strategies that have a greater effect as a collective. The five steps are readying, imaging, focusing, executing and evaluating and are the thought processes associated with one’s readiness to perform the execution of the skill (Chung et al, 1996). In Chung’s et al (1996) study they showed how the use of the five-step strategy, guiding PPR’s, significantly improved air gun shooting performance in elite shooters.

The purpose of this study attempts to broaden significantly the work of Jackson and Baker (2001), who looked at a single elite rugby union goal kicker, by researching a group of ten male elite rugby union goal kickers. It will investigate how their pre kick routines (PKR’s) were created and developed, whether they have evolved over time and whether they had assistance in creating them. In contrast to Jackson and Baker’s work this study will exclusively look at the mental side of the players’ PKR. It will look specifically at the content of the performers’ mental rehearsal and PKR, a need recognised by Evans et al (2004). The effects the PKR’s and mental rehearsal have on the players will also be researched, a further need identified by Shaw (2002). It will assess if at any stage the players’ mental routines change during different times of the season furthering the work of Munroe et al (2003). Many of the self-paced skills mentioned have a standard level of difficulty the basket being always the same distance from the free throw line for example. This differs in rugby union where the angle and distance from the target can affect the difficulty of the kick. There has been limited research in how task difficulty effects the mental preparation of the performer (Jackson and Baker, 2001) so this study will look to see if the athlete’s mental routine takes into account the difficulty of the kick, or whether it changes with various degrees of difficulty. An effective use of a post performance routine can help athletes ‘park’ their mistakes and move on to focus on their next job (Boutcher, 1990) so this research will identify the
performers post kick routines and report on the effects. The participants will be asked about their routines at training, both physical and mental, and also when they are away from the playing and training environment. When away from their working environment they will be asked if their mental routine changes throughout the season as well as fulfilling the need to identify the ease with which the athlete can mentally rehearse (Evans et al, 2004).

There are several expectations that have emerged for this research from the literature. First with regard to the creation of a PKR it might be suggested that the performers had some degree of external help in generating their PKR as indicated by Cohn (1990), who actually stresses the need for a PPR to be taught. It is also recommended, however, for the athlete to personalise their PPR (Singer, 2002) and it can be expected that this will be the case in this study. It might also be expected that the participants took time, as their PKR evolved, before implementing it into a game by testing the routine in a training setting first (Bull et al, 1996). The specific content of the players’ PKR can be expected to vary from player to player as suggested by Boutcher (1990). It is likely that effects of a PKR in this study will be similar to those in Jackson and Baker’s (2001) research into their elite goal kicker. It can be expected that the content of the PKR’s will remain constant and consistent, in line with the work of Singer (2000). With regard to the players post kick routine it is expected that the individuals will have a structured method in dealing with mistakes (and also with success) as suggested by Orlick (2000) who commented how best performers review what went well and what needs to be improved as well as not dwelling on their mistakes. When analysing the kicker’s mental routines at training it can be expected that their use of mental rehearsal will be regular and structured, as the literature would suggest (Janelle and Hillman, 2003). For example in Orlick and Partington’s (1988) study into Canadian Olympians found the best athletes used mental rehearsal during training to make technical corrections and to imagine themselves being successful in competition. It would be a fair assumption that the elite athletes in this study will do the same. However Harwood et al (2003) reported how some athletes do not approach their mental training with the same structure as their physical practice and that they only use their routine during a competitive match (Orlick,
1990). Perhaps in this instance there may be a split between those that use mental rehearsal at training and those that do not. Finally it can be expected that athlete’s mental rehearsal, in preparation for a game, will also be regular and structured which is consistent with the testament of a number of elite sports people and studies featured in this literature review.
Methodology

About the Researcher
The researcher has played Rugby Union for twenty years. He began playing at Moseley RFC where he progressed through the mini and junior system to become a full time professional for the club in 2000. The following year he moved to Glasgow Warriors where he spent four years as a professional. After his time in Scotland he then moved to South Wales to join the Gwent Dragons where he is in his fourth season with the region. His playing position is Lock and he has represented Scotland at age group level up to full international.

The fact that the researcher is a fellow professional rugby player, and in most cases a familiar face with the participants, helped with building an immediate rapport and trust with the players which is essential when asking individuals to divulge sensitive information like aspects of their personal match preparation (Patton, 2002). It was also believed that the researcher being an elite player helped minimise the power relationship between himself and the interviewee. Moreover although not a goal kicker, the researcher had sufficient knowledge to engage with the participants using familiar ‘rugby’ language and terms (Patton, 2002).

Participants
The participants were approached in advance and all purposively chosen for the research (Lincoln and Guba, 1985). A sample of ten male rugby players, all of whom were recognised goal kickers within their team, were chosen their ages ranging from 22 to 34. Each of the participants were at the time of the research playing as an elite, full time professional player. The term elite for the purposes of this study refers to those players playing as a full time professional in the Magners League or the Guinness Premiership. Participants had played rugby for 10 to 26 years and as elite players from 3 to 13 years. Nine of the ten currently play fly half, with the remaining participant a full back, and nine out of ten have all played more than one position. Seven of the players were British, six
from Wales and one from Scotland. There were two New Zealanders and one Australian. Two of the players were based in England, playing in the Guinness Premiership the remaining eight players in the Magners League, six of whom were based in Wales. The remaining participants were based in Scotland. Seven out of the ten players had represented their country or adopted country at Full International level and two of those players were also British Lions.

Procedure
The type of research that was carried out was qualitative in nature and a semi-structured interview was used to understand and access the realities and experiences of elite goal kickers (Miles and Huberman, 1994).

Before the interviews took place, an Informed Consent Form was handed to each player to sign. This form not only highlighted the purpose of collecting the information but also explained why the individual was chosen to take part in the research. The signed form indicated the participants’ willingness to take part in the interview process. It also stressed that the interview was entirely voluntary and could be stopped at any stage. Most importantly the signed form ensured, in accordance with Kent’s (2000) ‘rules’ for ethical research and indeed the Data Protection Act (1988), that the confidentiality of the interview and the anonymity of the participant be maintained. The consent form also included a short questionnaire asking details of age, years as an elite player, highest level played and their contact details. An example of this form is listed in Appendix A.

To arrange the interviews two of the players were met face to face and the remaining eight were contacted by phone. Three of the participants were contacted directly with the remaining players contacted through their team manager or head coach. Each player was met at an agreed location that was familiar to the participants which is important in making them feel comfortable (Gratton and Jones, 2004).

The ten interviews lasted between forty-five minutes to one hour and prior to each an interview statement was also provided. This clearly explained what was required of the
participant and disclosed the researchers intent to record the interview. The statement again stressed that the entire process was voluntary and that at any stage the interviewee could stop proceedings. The opening statement also gave the interviewee an opportunity to ask any questions of his own before starting. The interview statement is listed in appendix B. All interviews were recorded using a Dictaphone and micro-cassette. As well as the Dictaphone, spare tapes and batteries were taken in the event of a malfunction as well as writing equipment. Prior to the interview starting, a sound check was carried out on the recording device as recommended by Gratton and Jones (2004). Notes were also taken alongside the recordings to help generate new questions as the interview progressed as suggested by Patton (2002). The interviews were split into five main areas:

- Brief background questions to get a sense of how the player had progressed in the game and as a goal kicker
- Participants were asked to consider their pre kick routine during a competitive match
- Players reported of their use and effects of a post kick routine
- Players described their routines at training
- Players described their use of mental rehearsal when they were away from the training and playing environment

On completion of the interview the tape was checked to ensure a full and clear recording. The full interview can be viewed in appendix C.

**Data Analysis**

Once the interviews had taken place the researcher transcribed them. One of the benefits of this was that it enhanced the familiarity of what was said (Andrews et al, 2005) leading to early conclusions being drawn up (Miles and Huberman, 1994). Each interview took between four to six hours to transcribe. Non-verbal communications were not recorded on the transcriptions. As Noaks and Wincup (2004) suggest this is often un-necessary and certainly for this study it was the understanding that additional information on the behaviour of the participants would not enhance the results. What were important for this
study were the answers themselves (an example of one of the transcripts is listed in appendix D). To help validation all transcripts were member checked as advised by Gratton and Jones (2004). Each participant was shown their interview transcript and asked to verify that it was indeed a full and true account of what was said. In all cases the transcripts were validated and signed as a brief declaration form as listed in appendix E.

The transcripts were then coded which is a key process in the reduction of the raw data and enables the data to be organised into conceptual categories (Gratton and Jones, 2004). Each of the transcripts naturally split into five sections due to the structure of the interview, each section being split further during the coding process. All coded sections were distinct with no overlap and all relevant data fitted into each code as recommended by Gratton and Jones (2004). The coded sections were:

(a) Creating the pre kick routine
(b) Components of the pre kick routine
(c) Effects of pre kick routine
(d) Post kick routine
(e) Routines in training
(f) Routines away from the competitive environment
(g) Other emerging themes brought forward by the interviewee.

In this procedure we see the use of both deductive and inductive content analysis, something that is common within qualitative research (Schwandt, 1997.) The pre-determined sections set out in the interview, generated through prior reading on the subject matter, were designed to give clear distinct sections from which to analyse (deductive analysis). It is the answers, which offer emerging themes and categories that can be described as inductive.

Each coded section was assigned a particular colour and any quotes fitting into the sections were highlighted accordingly. Once colour coded, the transcripts were analysed for emerging patterns. The raw data quotes were subsequently grouped into common
themes as suggested by Biddle et al (2001). These groups were termed first order themes and were themselves also grouped forming second order themes. This was repeated as far as possible leading to a singular general theme (Biddle, et al 2001). Each section emerged with a singular general theme and for each section a flow diagram was created. Similar to the diagrams in Gould et al’s (1992) study and Jackson and Baker’s (2001) research, the flow diagrams clearly highlight the steps from the raw data quotes to the general theme. Evident in the diagrams are the raw data themes (in italics at the bottom of the page) leading up to the first order themes, the second order themes and finally the general theme at the top of the page.

Design
For this research an interview was the most suitable qualitative instrument, a sense of ‘real life’ being effectively exposed (Miles and Huberman, 1994). The type of questions encouraged detailed, descriptive answers from the participants, answers that would not have been possible through survey based approaches (Silverman, 2006). With the sample being appropriately small an interview was ideally suited as it has the capability for gaining rich information from a small population (Gratton and Jones, 2004). In short it is an interview that gives the reader the strongest impact with the thick detailed descriptions and experiences required to answer the research question (Miles and Huberman, 1994).

To obtain the detailed answers required, a semi-structured interview was designed. That is, although there was a predetermined list of questions ensuring a similar line of enquiry to all participants, it allowed flexibility for the interviewee to expand and go beyond answering the ‘basic’ question (Patton, 2002). Specific probes were built into the interview that actively encouraged spontaneity whilst keeping within the confines of the particular subject matter (Patton, 2002). Another advantage of a semi-structured interview is that it makes best use of the limited time available for the purpose (Patton, 2002). During the collection of the data this was an issue with all interviews taking place within the players’ season and with three of the interviewees within their international calendar.
During the interview process the use of a Dictaphone was deemed the most appropriate tool for gathering the large amounts of information. It allowed for greater accuracy recording what was said allowing the interviewer to remain engaged with the interviewee and not lose their way trying to write down every detail (Patton, 2002). Attempting to write all that was said could have lost the rapport established with the interviewee as well as the interviewer’s focus being disrupted (Gratton Jones, 2004).
RESULTS

The purpose of this section, in conjunction with the flow diagrams 1 to 7, is to describe a summary of the key findings. The material that follows is based upon the qualitative analysis of the interview transcripts. The analysis involved splitting the transcripts into sections and then coding the participants’ responses. These quotes or raw data were then grouped leading to the emergence of lower and higher order themes. Examples of the player’s quotes will be used throughout to illustrate the themes arising from the interviews. As indicated in the literature review a Pre-performance routine (PPR), or in this case a Pre-kick routine (PKR), contains both physical and mental aspects. As this study is focused on the use of mental rehearsal by elite goal kickers, when subsequent references are made to the athletes PKR the focus, unless otherwise stated, is on the mental aspect of the routine.
Pre Kick Routines

This section will describe the key findings with regard to the players’ PKR. Specifically it will look at; the development of PKR’s; the components of a PKR; their effects; and finally the players’ post kick routine.

Developing Pre Kick Routine

Within the interview guide, participants were asked to consider how their routine developed over time and from this four themes emerged.

1st Theme – Varied level of support in developing their PKR

In terms of the mental side of their PKR’s only two players identified receiving external guidance; one described receiving advice from his father and the other from a qualified kicking coach. For the majority of players, however, it emerged that the mental part of their PKR evolved through trial and error with no external help. Furthermore many kickers commented that this important part of their PKR just occurred naturally over time. This is highlighted in quotes from participants 2 and 4:

“No, I’ve never had any help…I have taught myself.”
“I backed that I could figure it out for myself.”

In the development of their physical routines many of the participants talk of utilizing vicarious experience (ie, watching established players on television or on the training ground) and also having specific kicking coaches to help them develop their routine. This is illustrated in the following quotes taken from participants 1 and 7 respectively:

“Frano (Botica) came down and was a role model for me. I used to nag him and find out when he was going goal kicking and go with him and try and pick his brains…That was the type of kicker I wanted to become.”
“I’d watch TV and probably copied someone from there and just adapted my routine from there really.”

2nd Theme - Routine evolved over time
In terms of the development of the routines over time the majority of the evidence suggests that they have evolved for the players. There is one example though of a player who described how they settled on a specific routine early in their career and continued with that throughout. The kickers commonly described that, whether the routine had been refined over time or largely remained the same, the key point was that when happy with the content of the PKR, it should not be changed.

3rd Theme – Not always a single routine
Generally players had a repeatable routine, though certain players used more than one routine. The reason for these alternative routines concerned kick difficulty. Among the performers 7 of the players chose to develop one routine for all kicks and the remaining 3 players developed two routines, depending on the ease of the kick. Player 1 who chose one routine explains why in the first quote and player 6 who uses two routines explains his rationale in the second quote:

“You’d become too much of a scatter head…you would complicate things. You have to keep things very simple.”
“If it’s an easier kick I wouldn’t take too much time with it, I’d just step back and bang it over.”

4th Theme – Time taken to implement PKR
There was evidence from the players’ responses that their PKR’s were tested in training before implementing them into a competitive game. Among the players the time taken before they were happy to use their PKR in a game varied considerably ranging from days up to a whole year.

In a separate finding from the four emerging themes Player 8 felt strongly that whilst the development and practice of a PKR is important, what he sees as more influential is a solid foundation of practical ability. Whilst this single player’s opinion did not emerge as a theme, he was explicit when he stated that without the technical knowledge and expertise it would matter not that a routine was developed and remained consistent, the kick would fail:
“It doesn’t matter how strong you are mentally, if your technique isn’t right, it’s not going over.”

Components of a Pre Kick Routine
Within the interview guide, participants were asked to consider the components of their PKR and from this four themes emerged.

1st Theme – Target aiming
While this may be considered a behavioural or physical aspect of the routine the descriptions also highlighted the mental aspects of this part of the kickers preparation. Six of the players described how they would assess the weather conditions and align the ball appropriately, imagining how the conditions would effect the flight of the kick. The importance placed on how the ball is aligned was highlighted by player 1:

“… ball placement is key.”

2nd Theme – Focus on technique
Once the ball has been aligned to their satisfaction the goal kickers continue with the physical side of their routine. It is at this point that the players describe their mental focus changing to aspects of their technique. A selection of the kickers described how they use self-talk to remind themselves not to hit the ball too hard and many use the word ‘strike’ to emphasise this point as player 4 illustrates in the following quote:

“…and not try to kick the ball too hard…so I just try striking the ball.”

Further emphasis on the technical side of the kick relates to the player’s non-kicking or ‘plant’ foot. The majority of the kickers mention the importance of positioning their plant foot and they strongly relate a ‘good plant foot’ to a successful kick. Subsequently many of the players focus on this aspect of technique during their routine. Player 2 illustrates how vital he sees his non-kicking foot in the following quote:
3rd Theme – Consistent Routine
Most of the players described keeping their entire routine as consistent as possible. While some described developing two routines, one for easy kicks and another for the rest, this does not constitute inconsistency. Inconsistencies refer to those found ‘within’ routines and with the kickers in this study none were reported. Within the interview guide the kickers were also asked to consider if their PKR would change under other circumstances, such as in response to a kick of greater importance or if their previous kick had been missed for example. Once again all of the kickers described how their routine remains consistent whatever the circumstance. Player 6 illustrates this point by saying:

“*I try and keep it exactly the same for every kick…everything’s gotta be the same.*”

Specific references were made to the consistent rhythm and tempo with which players kick the ball. Players described how they again used self-talk to control the speed by which they approach each kick. Player 8 for example commented how he tries to approach the ball as slowly as possible and says to himself:

“*…just keep that good rhythm.*”

4th Theme – Autonomous state
As elite performers many of them described how the execution of their kick occurs automatically and player 5 describes how his kicks occur without too much thought:

“*I think your muscle memory takes over.*”

Certain players also made reference to their natural ability. Four of the kickers in particular make explicit comments on the importance of their natural ability, leading to their autonomous state. Two of the players comment how it was a transfer of skill from playing football, as a result of which they knew how to kick a ball. The other two
describe how from an early age they have kicked a ball so they find striking the ball for a goal kick occurs ‘naturally.’ Player 2 illustrates this point by saying:

“I kicked so much when I was young that I know how a ball moves so I know how to strike it.”

Effects of a Pre Kick Routine

Players were asked in the next section of the interview to consider the effects of the component parts of their PKR. Two themes emerged from their comments.

1st Theme – Confidence

The participants indicated that their PKR gave them confidence. Primarily this confidence stems from trusting their technique and routine. A point stressed by Player 9:

“I will tell myself to trust the strike.”

Maintaining confidence is also reliant upon the player’s ability to, not only trust their routine and technique, but to stay in a positive mindset. This is another effect of their PKR and a number of players use cue words to help them visualise a positive outcome for the kick. Player 4 tells himself:

“I’m gonna kick it, I’m gonna kick it.”

One of the kickers ensures a positive mindset for every kick by thinking about a perfect strike, visualising the ball through the posts and also by telling himself he’s not going to miss. Player 3 also goes into every kick with a positive mindset:

“,,just feel I’m gonna clear the posts every time because it’s going to be such a nice kick.”
2nd Theme - Staying Relaxed

The players acknowledged the importance of having a moment of calm or a method to relax prior to a kick, particularly if they had been heavily involved in periods of play leading up to the kick at goal. Such methods include deep breathing as player 3 indicates:

“...yeah deep breaths just so I’m pretty relaxed and not too tired going into the kick.”

The kickers ability to shut out external distractions, such as crowd noise, is also part of their relaxation. Some relax by isolating themselves from the importance of the kick and simply focus on the ball and the target while others describe how they picture themselves at the training ground, again to reduce the pressure and stay relaxed. Four players in particular made reference to these relaxation techniques examples of which are illustrated by players 1 and 3:

“Soon as you get into that routine its ‘close the doors’ basically.”

“Most times just forget about the occasion or the score line...and pretend you’re on the training field.”

Another method by which the players stay relaxed is by feeling comfortable about their kick. The majority of kickers express this view and they describe when they are in the back of their stance, looking at the target, prior to their run up, they are searching for a ‘comfortable’ feeling.

Post Kick Routine

Routines can also be used after an athlete has performed a skill and are important in controlling how an athlete thinks and reacts (Boutcher, 1990). It is common place for an athlete to focus on the negative aspects of an unsuccessful performance and subsequently, following a failed kick at goal for example, this negative feeling can affect other aspects of a players overall performance (Boutcher, 1990). Components of a post kick routine may included affective catharsis, post-performance analysis or coping strategies for example (Boutcher, 1990).
In describing their post kick routine five themes emerged.

1st Theme – Immediate reflection
What became evident was that the players’ kick reflections occurred immediately, in some cases as soon as they struck the ball, and are of a technical nature. The players described questioning why the ball went in a particular direction and in cases when the ball had missed, trying to identify how and why the kick failed and use mental rehearsal and self-talk to rectify the errors for the next kick. This is demonstrated in the following quote by player 1:

“Yeah, it would be assessment again. What’s the reason for it going wide? Why?
You’d ask yourself, you’d go through the processes in your head, what was good?
Yes. What wasn’t good? Why?”

2nd Theme – Ability to self-coach
There were three players in particular whose precision of feedback was so accurate and instantaneous that they were able to tell where the ball had gone without looking up. This ability is described in detail in the first quote by player 9. As mentioned when reflecting on a kick, specifically following a miss, the players will ask technical questions of themselves. In all cases the players have the ability to answer these questions making adjustments and improvements for the next kick. This ability to self-coach is identified from the second quote from player 4:

“When it comes off the foot you know…I’ll know how I’ve hit it and where I am in relation to the tee. I’ll know where the ball has gone without looking up.”

“If I miss a kick I know exactly what I’ve done wrong…I can self coach myself now.”
3rd Theme – Affective Catharsis (emotional release)

Player 1 described how he chooses not to display any emotion following a miss because he feels this shows a weakness to the opposition. In contrast he does display a level of affective catharsis after a successful kick at goal. He clenches his fist and sees that as giving himself a pat on the back. There are other examples of players showing their emotion following either a success or failure and various levels of emotion. One player simply smiles on his way back to his position after a successful kick where as player 5 describes a far more overt release following a miss:

“Swear a lot, kick the tee a lot, throw the tee…I’m upset with myself so I need a quick release.”

4th Theme – Ability to park kicks

It was evident that players were able to ‘park’ their kicks (successful and un-successful) enabling them to focus on their next job. The following quote by player 5 describes his shift in focus following a successful kick and player 7 illustrates the importance of staying positive following an unsuccessful kick at goal:

“It’s just job done. What’s your next job…you think right next job, next job, next job.”

“When I jog back I’m just focussing on the next kick off, making sure we retain the kick off and making sure the next phase of play is in their half.”

5th Theme – Ability to isolate kicking game

Player 4 commented how important is to ‘park’ an error so as not to affect the rest of his game. Indeed many of the players share this feeling and it is their ability to isolate their kicking game from the rest of their key jobs that is a crucial mechanism for dealing with a miss. Player 2 illustrates this important skill in the following quote:

“…my goal kicking is an add on, a bonus…like I said I can separate it from my game.”
Routines Away From Competition

The next stage in the interview moved away from the specifics of the players’ PKR and asked them to consider their routines (mental and physical) at training and also when away from the training and playing environment. The first section below identifies the players’ routines at training and in this instance 7 key themes emerged.

Routines at training

1st Theme – Session content
This included the frequency and duration of the sessions. Differences were largely based on individual preferences, and reflected in variations of content, duration and frequency of practice. For example, some choose to kick once a week on the day before a game, whereas others prefer to kick up to three to four times a week. In terms of duration some of the players kick for up to 35 minutes while other just described taking 10 kicks. A common aspect was that the kicking sessions were non-structured, meaning they were not part of their structured weekly training timetable issued by their coach. Any practice that was carried out was done so in their own time. Another common aspect was the area on the pitch that the kickers chose to kick from during their practice. Players described similar distances and angles from which they practised their kicks and player 3 explains this rationale in the following quote:

“It pretty much covers all the angles that are gonna come in the game.”

More similarities became evident when the players talked of their use of mental rehearsal at training. Firstly, all ten kickers described how they use the same PKR in practice as they would in a game. Player 1 illustrates this point in the following quote:

“Yes everything in constant…To getting back in your stance, to your mental process, everything is constant…Whether its game day or whether you’re out there practising.”
The majority of players use other mental strategies during their training sessions. These include self-talk and visualisation. The kickers also try and replicate the pressure of competition. One player describes how he likes to have a kicking competition with one of his team-mates, which adds a little more pressure. Others describe how they imagine particular scenarios, an important kick for example or a kick to win a game. These examples are evident in the following quotes by players 1, 4 and 7:

“I’ll be saying, ‘Come on then, I know it’s been slow out there but now it’s time to switch on...’ It gets you into a mindset for kicking.”

“I use visualisation as well...I’ll try and imagine a good kicking day I’ve had.”

“I suppose you visualise that it’s an important kick to win the game...I put myself under pressure there.”

2nd Theme – Session length may vary
The session length varied depending on how well or how poorly they were kicking. There are examples of players who prefer to stop training short if they were kicking badly, whereas others described how they prefer to kick through the bad form. When the player felt he was kicking well that, in the majority of cases, was also an indication to stop the session. Players commented that if you’re kicking well, to continue to do so can ‘kick yourself’ out of a good rhythm. Player 5, however, described how he kicks more when he’s kicking well and indeed challenges himself with more difficult kicks as the following quote illustrates:

“Where things have gone well, every now and then I’d try and put an extra long session in to try and test myself with harder kicks or kicks into the wind.”

3rd Theme – Variations in practise regimes
One of the factors that affected the nature of practice was the weather condition. These played a significant part establishing when the player can train. One player commented how he would stick to the same number of sessions throughout the year unless the weather was bad. Generally, however, players maintained a consistent training routine throughout the season as player 1 describes:

“I do exactly the same all year, the number of sessions all the same.”
Many players described how changes in their training routine occurred during the off-season. They often chose this time to rest from goal kicking and would only resume their practice when the new season was only weeks away. This served as a ‘mental break’ from the pressures of goal kicking and meant the players were refreshed and eager to kick following their summer break. There were other players though who preferred kicking more in the off-season and explained that was the time to try new techniques or improve their existing one.

For all of the kickers the aspect of training that remained constant was their mental routine. Player 1 describes how this aspect of his training doesn’t change under any circumstance:

“If it’s the last game of the season with nothing on it, I’ll still gee myself up cos it’s about your own personal standards.”

4th Theme – Effects of mental rehearsal at training

It was evident that many of the players used mental rehearsal in preparation for their kicking sessions. Most of these occurring directly after a rugby session when the other players are walking off or when the kicker might have been involved in high intensity exercises. This served to re-focus on the task of kicking as well as motivating themselves to continue practising as illustrated in the following quoted by player 2:

“It slows you down and gets you into the mindset for kicking which is very important.”

As a result of their mental routines at training, the players also described feeling an increase in pressure when they are practising their goal kicks. As previously mentioned this effect of pressure is created through imagery or using competitive games. This increase in pressure is described by player 3 in the following quote:

“And when I go through the scenarios that just heaps more pressure on me.”
Players also commented how they draw confidence from the mental preparation carried out in the week prior to competition. This feeling is confirmed by player 5 who comments how much confidence he takes from the fact he’s been diligent through the week in terms of his mental preparation at training:

“…if you’ve done that mental preparation then you take the fact that you’ve banked it away.”

5th Theme – Perceived importance of mental rehearsal

Some of the players acknowledged that it is difficult to replicate game pressures but their use of mental rehearsal was seen as a vital tool for preparing, to some extent, for the pressures of competition. The fifth theme to emerge therefore related to the player’s perception on how important their mental rehearsal at training is. All ten players describe the crucial part mental rehearsal plays when they are training. The following quote from player 8 highlights this point:

“I know if I’ve been lax at training in terms of my mental preparation then that will carry into the game. It’s massive really.”

6th Theme – Must feel comfortable

The players described the importance of how the kick ‘feels’ as well as how vital some players felt it was to feel comfortable about their training and finish their session with successful kicks, illustrated in the following quote by player 4:

“I’ve kicked six kicks and I’m happy. I’d rather go away knowing I’ve kicked six from six.”

7th Theme – Varying levels of external monitoring

In most cases it emerged that no external monitoring occurred of the players’ goal kicking occurred. Furthermore the majority of players were happy with that arrangement. Common feelings on this matter included the fact that they self-coach and so do not need someone watching over them. Some simply did not like being monitored in a ‘school teacher’ manner while others simply felt they were alone when it comes to kicking in a
game, so why have someone with you at training? This particular view is expressed in
the following quote by player 9:

“No one’s out there in a game holding your hand so why have it in training?”

Player 7 also described how he received no external monitoring. He did however
recognise the obvious importance of goal kicking and thought perhaps more monitoring
of the goal kicker should occur:

“I think perhaps that it could be monitored more. It’s a big part of the game.”

In the following section the players’ use of mental rehearsal when they are away from
their playing and training environment (work environment) will be summarised.
Specifically the players described their use of mental rehearsal at home, in preparation for
a competitive game.

Mental Rehearsal Away from the Working Environment

1st Theme – No use of mental rehearsal
All players had previously commented on the importance of mental rehearsal in games
and at training but this feeling was not shared by four players who felt there was a need to
“switch off” from rugby to give themselves a mental break and chose therefore not to use
mental rehearsal. Player 7 also described how thinking about his goal kicking too much
puts himself under unnecessary pressure as he explains in the following quote:

“I think there’s enough pressure that comes with it so if I get too worked up
before a game it tends to have a negative effect…I think it adds more pressure.”

2nd Theme – Type of mental rehearsal used
The majority of players use mental rehearsal when they are away from their working
environment and the type of mental rehearsal that is used varies. Some reported on using
external imagery, while others used internal imagery and there were some examples of
players using both as illustrated in the following quote by player 5. Those players engaged in mental rehearsal, particularly imagery, also described how their images were vivid and were created with ease.

“I’ll visualise myself taking two or three kicks. Obviously when you visualise you’re visualising yourself from your own eyes and from a person standing by.”

3rd Theme – Content of their mental rehearsal
Some players imagined previous successful kicks, and one player enhanced these images by watching himself on video. Some of the kickers imagine the entire process of kicking a goal with the successful outcome. Other players commented on imagining how the kick feels as it leaves the boot where as some would imagine the playing environment they will be kicking in as illustrated in the following quote by player 8:

“I’ll also visualise the particular ground I’ll kick in, the surface. I’ll picture kicking well in that environment.”

4th Theme – Effects of mental rehearsal
Effects included a feeling that after the kick had been mentally rehearsed, all preparation was complete. Player 1 uses the phrase, “Leaving no stone unturned.” Indeed that is a feeling reciprocated by player 10 who feels that he has, “Done some of the work” once he has mentally rehearsed and this stops him getting tense. Other effects included concentration levels being raised as well as helping some of the players to relax. Such was the vivid nature of Player 1’s imagery that he described certain physiological effects:

“If I get really deep into it then yeah, my heart rate will go faster.”

5th Theme – A consistent time when players use mental rehearsal
Commonly the players described using mental rehearsal near the day of competition or actually on the game day itself as player 1 testifies:

“I will use imagery on the Friday or Saturday of the game.”
Players went on to describe the duration for which they mentally rehearse. What became evident was a general preference to keep their sessions short and sharp although one player described how he would mentally rehearse for anything up to half an hour.

6th Theme – Use of a sports psychologist
The majority of players claim to have never used a sport psychologist and others go on to say that they see no need. Others, however, recognised the possible benefits of psychological support with regard to their goal kicking and would in the future perhaps seek advice on the subject, illustrated in the following quote by Player 6:

“I would probably give it a go but only with goal kicking.”

On completion of the interview the players were invited to consider and describe any other consideration regarding the mental side of their goal kicking that may have been missed in the interview guide. A separate section subsequently emerged from their responses.

Firstly some of the players felt that the result of the kick is sometimes taken out of their control, that perhaps a sense of fate is involved. One player talked of the kick being at the mercy of God whilst player 6 described how there was sometimes no way of knowing where the kick was going to go, illustrated explicitly in the following quote:

“Sometimes everything is good and sometimes I just cant fucking work this out…that’s the beauty of sport really isn’t it? There’s no magic formula, just some days you kick them better than others.”

A second theme that had not been explored was the effect that different balls can have on the kick. Specifically players talked of the different brand of balls and the age of balls that react differently off the boot. One player compared kicking a new ball to ‘kicking a brick!’ Crucially however it was generally agreed that whatever type or age of ball that the players placed on the kicking tee, their PKR was not effected.
Discussion

The purpose of this study was to assess the use of mental rehearsal by a group of ten elite male Rugby Union goal kickers through the use of a semi-structured interview. It also aimed to develop the existing research in this area, most notably focusing on the content of the players’ mental rehearsal and the associated effects. It focused on the use of performance routines (pre and post) as part of the kickers’ mental rehearsal and attempted to broaden the understanding of routine consistency.

In line with the previous research in this area several expectations were identified. They were critically examined, as well as the emerging themes from the semi-structured interview, to highlight key topics that can be explored further. The objective being to facilitate the understanding of the use of mental rehearsal among elite rugby union goal kickers; an important process in terms of applying the information derived from this research. The more detailed the understanding of the uses and processes of mental routines, the more accurate direction a coach can offer. Finally further research recommendations emerging from this study will also be identified throughout along with a concluding section dedicated to the applied implications.

The first expectation concerned the development of the players’ pre kick routine (PKR). It emerged that contrary to Cohn’s (1990) expectation that a PKR should be taught, our kickers described receiving no external help. Their PKR’s were personalised, however, and they indicated taking varying levels of time before implementing them into a competition setting, as recommended by Bull et al (1996). The content of each PKR differed slightly according to the individual but all used similar psychological skills to obtain positive effects, for example the use of self-talk for building self-confidence or deep breathing for relaxation. These skills and effects were similar to those described in other studies in this area, particularly the research into Neil Jenkins (Jackson and Baker, 2001). The players’ routines were consistent reflecting Singer’s (2000) recommendations that routine consistency was key to gain optimal states for performance. Some players, however, demonstrated the use of two routines depending on kick difficulty. Orlick’s
(2000) suggestions of the use of post kick routines were also met with the participants describing the use of structured routines after both successful and un-successful kicks. In reporting on their routines away from competition, the players indicated that their mental rehearsal at training was structured and used regularly, similar to athletes in Janelle and Hillman’s (2003) study. However contrary to expectations a number of goal kickers in this study indicated that they did not formally engage in mental rehearsal when they were away from their working environment.

The discussion of the expectations and key topics will be split into two main subject areas: the athlete’s pre-kick routine (PKR) and the use of routines when they are away from competition.

The Pre Kick Routine

Developing PKR

In describing the development of a PKR, a number of lower order themes arose that are pertinent to discuss. These focus around the lack of external help received when creating their PKR; the idea of a ‘natural’ kicker; evolution of the PKR’s; and finally the possible development of more than one PKR.

As described in the results section, the majority of players commented on receiving no external help in creating and developing their PKR. According to Boutcher (1990) the possibility arises that such players have subsequently failed to benefit from fundamental psychological skills that should be taught by coaches during the development of an athlete. It is these skills that form the foundations of pre performance routines (PPR) (Boutcher, 1990). During the development of an athlete it is the role of a coach, who is hugely influential, to provide the optimal learning conditions including the introduction of appropriate psychological skills (Salmela and Moraes, 2003). In the case of our elite goal kickers, however, even without the support of a coach and therefore the foundation of psychological skills, the players still report having a robust routine that they trust, and have been successful with. It may be argued therefore that more attention during the development stage is placed on mastering the technique and, as in this case, allow the
player to create their own PKR through experiences and trial and error. By allowing the
performer to personalise their PKR they feel they ‘own’ it, which increases their
adherence and are less likely to view it as a ‘text book’ routine (Marlow et al, 1998).
Further research in this instance may be directed to qualitatively assess the circumstances
with which developing athletes adhere to their structured routines.

Players frequently described themselves as ‘natural’ kickers and attribute their elite status
to their natural ability. However, whilst the players may view themselves as a natural, in
fact their elite status may be, in part, due to a process of deliberate practice. According to
deliberate practice theory it is practice and experience rather than any innate talent that
determines expert performance (Ericsson et al, 1993). Nine of the players talk of kicking
from an early age supporting the deliberate practice theory that suggests elite players
must invest ten years or ten thousand hours of practice to reach the elite standard
(Salmela and Moraes, 2003). Experts do not become experts without a huge investment
in practice, however, as an increasing amount of evidence is indicating (Skinner, 2001), a
player’s natural talent and genetics could play a critical role in performance levels. For
example Player 5 described how he had started playing rugby in his late teens after being
approached by his rugby coach in college. His elite status cannot therefore be attributed
to deliberate practice so in this instance perhaps he relied completely on natural talent.
He also commented, however, in playing a number of different sports whilst growing up,
experience of other sports during an early age can have a powerful effect on the
development of specialist activities. The greater the range of sporting experience the less
amount of deliberate practice required (Abernethy et al, 2003). With this example the
crossover of both physiological and psychological skills from basketball, volleyball and
soccer to rugby is plausible. Technically he might have gained experience in correctly
striking a ball when playing soccer. He might also have developed routine behaviours
from basketball free throwing or volleyball serving. There are other examples of players
describing their broad sporting experience where technical and psychological skills may
have been transferred to rugby union goal kicking. It is perhaps a combination of factors,
therefore, such as the deliberate practice theory, a players’ natural ability and their
experience of different sports that have played an important role in their development into an elite kicker.

In developing their PKR’s many of the players described how their routine changed and evolved overtime. This is consistent with Boutcher and Rotella’s (1987) study into the development of PPR’s in golfers. In our current study the detail with which the player’s described how their routines evolved was limited, as many could not remember. This is consistent with learning theorists such as Fitts and Posner (1967) who suggested that when skills become automated, performers find it hard to articulate them. Also the evidence suggests that in general, their previously acquired mental skills were learned through trial and error as opposed to being taught from an external source as player 5 indicated when he described, “working it out” for himself. Perhaps the ‘tweaks’ the players describe in the development of their PKR’s were similar to those refinements and grouping of mental skills described in Boutcher and Rotella’s (1987) work.

It was evident from the players’ description of their routines that some individuals chose to develop more than one routine. They use a PKR for a kick they considered easy and one for a kick of greater difficulty. There are similar findings in the study of the goal kicking routines of Neil Jenkins where he showed evidence of the use of more than one routine (Jackson and Baker, 2001). He demonstrated significantly longer preparation times for kicks of greater distance, greater preparation times for kicks of an acute angle and also described how he would only use thought stopping strategies when he felt disrupted or if he was experiencing a poor run of form (Jackson and Baker, 2001).

Evidence in this study, given by a sample of players, also indicated when they would use a partial routine and ‘scoop’ the ball over without much thought, or no routine at all. This is consistent with the findings of Jackson and Baker (2001) where their elite kicker describes not using a PKR for easier kicks. Wulf et al (2007) supports the use of more than one routine. Contradicting some of the research into PPR’s that suggest they should remain consistent, Wulf et al (2007) argue that in some instances a ‘full’ routine may only be required if the participant views the skill as challenging (Wulf et al, 2007). Wulf et al (2007) suggest that a PPR should act as a stimulus for the athlete to not focus on the
actions of a skill (internal focus) but rather leave the actions to unconscious control and focus on the movement effect (external focus). With elite performers, the greater the conscious control the increased likelihood of compromised performance (Singer, 2000) therefore external focus is encouraged to allow movements of a skill to occur automatically (Wulf et al, 2007). Regarding task difficulty, however, Wulf et al (2007) argue that external focus would only be beneficial if the task is deemed difficult enough. This theory is based on the constrained action hypothesis that suggests external focus is used to facilitate automatic functioning (Wulf et al 2001). However if the task is easy, for example a kick in front of the posts, the skill affords automatic processing without attentional focus. Wulf et al (2007) argue that when the task is easy and already occurs automatically no additional benefits of external attention are reported. This might help to explain why some players in the current study alter their routine for easier kicks.

Components of the Pre Kick Routine
The critical topics identified from the components of the players’ PKR were their direction of focus, which indicated the use of process goals, and the consistency of their routine. In a general sense the players described how they shifted their focus from the target, to the rhythm with which they approach and strike the ball and finally to the critical aspects of their technique such as their follow through and it is these foci that can be regarded as process goals.

Process goals are difficult to define but usually concern the behaviours required for successful performance (Filby et al, 1999). An example of player 2’s process goals concerns the importance of the contact he makes with the ball. He says to himself, “Smooth strike, smooth strike.” Player 2, similar to the other kickers, demonstrated the use of process goals during the execution of his goal kick as recommended by Hardy et al (1996). They argue that for an elite athlete to focus on a single process goal, for example the angle of their ‘plant’ foot, during the execution of a skill may lead to conscious control processing resulting in the subsequent compromising of performance (Singer, 2002). Therefore, as the players in this study show, single process goals should be ‘chunked’ and automated in order to focus more holistically on the execution of the skill.
(Kingston and Hardy, 2001). For example Zimmerman and Kitsantas (1996) encouraged the chunking of process goals in the learning of dart throwing. The participants were encouraged to focus on the final three steps of each throw, ‘sighting,’ ‘throwing,’ and ‘follow through,’ and in using such holistic cues skill acquisition improved. Similarly in this study evidence of Kingston and Hardy’s (2001) ‘holistic process goals’ are apparent. When kickers focus on the tempo of the kick for example this may represent the temporal patterning of the kick and follow through. Indeed a holistic process goal could be any thought or word that, to the performer, represents a feeling or thought associated with the desired movement (Kingston and Hardy, 2001). For example player 9 describes how he tells himself to, “Go through the gate.” This simple cue may serve to chunk the tempo, the strike, follow through and finish position allowing those individual aspects to occur automatically without having to think of every separate movement.

Part of the players’ PKR was also their focus on the target. For example player seven described how he visualises the ball travelling straight through the posts and player ten talks of picturing the line the ball will take to the centre of the target. Jackson and Baker’s (2001) goal kicker described how he too focuses on the target, as does Jonny Wilkinson who concentrates on a point directly behind the centre of the posts (Williams, 2003). According to Kingston and Wilson (2009) these are examples of ‘effect goals,’ defined as consequences of movements rather than an integral part of the skill and are therefore distinct from process goals. Effect goals, similar to process goals, play an important part in a players’ PKR. They too do not encourage conscious control, allowing the execution of the skill to occur automatically (Kingston and Wilson, 2009).

In the development of their PKR’s a number of kickers described how they developed more than one routine depending on the difficulty of the kick. All ten players describe how, whatever version of the routine they use, it remains consistent, un-effected by external circumstances. This notion of a consistent routine finds support within the some of the literature. In particular Crews and Boutcher (1996) described the importance of the stability and consistency of a PPR in affecting positive performance. Singer (2000) also described consistency as a key component in an ‘ideal’ pre performance routine. It
should be acknowledged however that the link between routine consistency and positive performance is not robust (Jackson, 2001). Whilst better performers display consistent routines it is not possible to say that this \textit{causes} the superior performance (Jackson, 2001). It may be the case that once a performer has success using a particular routine, they are more likely, as players identify in this study, to stick with it (Jackson, 2001).

\textbf{Effect of routines in and out of competition}

In terms of the effects of their routines in and out of competition the critical sub themes were firstly associated with self-confidence, trust of their PKR and wanting to feel comfortable. Furthermore the relaxing effect the PKR has on the kickers will be highlighted with particular reference made to their deep breathing.

With regards to self-confidence it is widely accepted that it is the most critical psychological characteristic influencing sports performance (Vealey et al, 1998) and separates successful athletes from the unsuccessful (Moritz et al, 1996). A strategy such as PKR can help boost the self-confidence of an athlete (Moritz et al, 1996) and within the players’ routines in this study are a number examples of the \textit{sources} of self confidence. Bandura (1977) identified four sources of confidence; performance accomplishments, vicarious experiences, verbal persuasion and physiological states. With our goal kickers those who engage in mental rehearsal in preparation for a game, describe how they think about previously successful kicks (performance accomplishments) which they report gives them confidence. A number of kickers also describe the use of verbal persuasion through the use of positive self-talk. Positive self-talk is highly influential in staying positive and building self-confidence (Bunker et al, 1993). Players also indicated that their self-talk focuses their attention to an optimal level for the execution of their skill. The mental preparation the players engage in during their routine can also be a source of self-confidence as highlighted by Wilson et al (2004) and Vealey et al (1998) who identified mental preparation as the most significant source of self-confidence. Our kickers in this study describe how mentally preparing for a game gives them a ‘ticked box’ feeling, leading to self-confidence. Another source of confidence according to Vealey’s (1998) study is environmental comfort. This is a
feeling of comfort in a competitive environment. Several of the players in this study talk of feeling comfortable or the need to feel comfortable before their kick. During a match some players imagine themselves kicking at their training pitch, a feeling that facilitates their self-confidence (Wilson et al, 2004). Some players will also picture the ground they are due to kick in which may again enhance their environmental comfort and thus their self-confidence.

Linked with the player’s self-confidence is trust. Many of the players in this study refer to, “Trusting their technique,” or, “Trusting their strike.” According to Moore and Stevenson (1994) trust is an important effect of their PKR as it frees the kicker from sources of cognitive interference that prevents the automatic execution of a skill. Many of the kickers comment how their kicks sometimes occur naturally or without any thought and this is an indication of trust (Moore and Stevenson, 1994). According to Moore and Stevenson (1994) trust can be acquired through coaches or personal experience. With no external support in developing their PKR it would be appropriate to assume that the kickers in this study acquired their trust through long-term experience as a competitor. This method of acquiring trust, however, may be considered somewhat fragile as it lacks the foundations, taught by a coach, that allow for changes under different conditions and not all players have the ability to learn from their experience (Moore and Stevenson, 1994). It is recommended therefore that a coach helps the athlete to understand the uses of trust to encourage the release of conscious control in their performance (Moore and Stevenson, 1994). Pertinent to goal kicking are two means by which trust may break down. Firstly if there is an over-concern with the target and therefore accuracy, this increases the likelihood of conscious control and the breakdown of trust (Moore and Stevenson, 1994). Secondly if there is a perceived need to generate more effort (a long range kick) or to increase the importance of a task (kick to win the game) then this too will compromise the ability for the athlete to trust (Moore and Stevenson, 1994).

Another important consequence of the routine is its function of relaxing the players. According to Harris and Williams (1993) learning to relax is essential to regulate the fear
of not performing and to subsequently avoid any detrimental effects on performance (Harris and Williams, 1993). As Vealey (2008) recognises successful athletes get nervous and still experience fear of failure, but it is the ability to deal with these anxieties, through relaxation, that distinguishes them from less successful athletes (Vealey, 2008). The kickers in this study describe a number of relaxation techniques helping them cope with the anxiety experienced in elite goal kicking. In the results some of the players talk of taking deep breaths before they kick which helps them to relax. This is a recognised ‘muscle to mind’ relaxation strategy (Harris and Williams, 1993). This deep breathing is termed ‘complete’ breathing and is known to trigger a relaxation response (Harris and Williams, 1993). Complete breathing was also used by Neil Jenkins who reported how he used deep breaths to, “relax a bit” (Jackson and Baker, 2001, p64). Such a strategy can be used to relieve excessive muscular tension that can be triggered by worry. This tension leads to the ‘bracing’ or ‘double pull’ where opposite muscles both shorten (Harris and Williams, 1993). In the context of goal kicking this might lead a player to snatch at the kick because the nerve pathways to the muscles are overcharged, due to the muscular tension (Harris and Williams, 1993).

Players also imply the use of ‘mind to muscle’ relaxation strategies (Harris and Williams, 1993). Player 7 for example described focussing on a point beyond the posts to aim at. Jonny Wilkinson uses a similar technique by trying to land the ball on ‘Doris’ an imaginary spectator sitting behind the posts (Williams, 2003). Our kickers also describe how they focus on the ball, the tee and the posts with everything else being a blur. These are all examples of ‘mind to muscle’ and specifically they describe the use of fixed gazing (Harris and Williams, 1993). According to Harris and Williams (1993) fixed gazing at an object can shift attention from logical thought to a non-arousing focus, such as ‘Doris’ in the stand for example.

**Post Kick Routine**

In describing the use of a post kick routine three critical themes arose and will be discussed, notably the use of reflective practice, the use of an emotional release and finally the use of self-talk.
In this current study there are several examples of players reflecting on the kick as part of their post kick routine. Specifically they describe using self-reflection, which is a conscious active process that is different from day dreaming and general thinking (Gelter, 2003). It is a form of analysis, a process of evaluation and a tool to improve change in practice (Knowles et al, 2006). Our kickers ask immediate questions on why the ball went in a particular direction or why the strike was good, which are examples of reflections in-action (characterised by decisions made during the game) (Knowles et al, 2006). This is distinct from reflection on-action, which allows the performer to make decisions after the game (Knowles et al, 2006). This type of reflection would not be appropriate in a post kick routine, as the players require answers to their reflections immediately.

As some of the participants have shown, part of their post kick routine may involve affective catharsis whereby the kicker immediately releases his emotion following a kick (Boutcher, 1990). Others chose not to show any release, preferring to control their emotions. This is particularly true when a kick is missed and in those examples the players show ability to self-coach their emotions. All players acknowledged how they have the capability to coach themselves technically but as important is the ability for them to manage their emotions (Moore and Stevenson, 1994). Being a good emotional self-coach enables the performer to manage negative energy following a miss and to control the positive energy following a success thus staying competitive (Moore and Stevenson, 1994).

Self-talk is one way of controlling emotions and plays a huge part in a players post kick routine, particularly following a miss (Moore and Stevenson, 1994). The use of self-talk enables the kicker to ‘park’ the missed attempt and stay in the present (Bunker et al, 1993). This is obviously extremely important for goal kickers who have a multiple role to play within their team. According to Orlick (2000) if a performer berates and condemns oneself following an error then focus can be drawn away from the tasks ahead. There are a number of examples of where players in this study use the phrase, “Next job” to re-
focus and this is an example of them staying in the present and using effective cues that can impact significantly on performance (Bunker et al, 1993). There is an important link to be made with confidence here too. Using positive self-talk following an unsuccessful kick helps ‘park’ the error but also as previously reported, is highly influential in building confidence (Bunker et al, 1993). When advising on the use of post kick/performance routines it may be pertinent to reinforce to the athlete that the future cannot be controlled and the past cannot be erased or changed so it is essential to remain in the present (Bunker et al, 1993).

**Routines Away From Competition**

**Routines at training**
In terms of the players’ routines at training the critical sub theme is associated with session content. As the players commented, the use of mental routines at training was the same as in a competitive match with the players describing similar effects. This is important to insure their practise gets full attention and complete concentration necessary for the performer to derive the benefits from their practise (Ericsson, 2003). For that reason mental routines at training will not be analysed in this section as their use and effects have been described previously. Any additional content, however, not present in the players’ PKR will be discussed.

All of the kickers described the various points on the pitch where they practice their goal kicking, replicating where they predominantly kick in competition. This is also true of other expert performers in different sports. Elite figure skaters for example practice elements in their training that are required in competition but also report to staying within their ability (Deakin and Cobley, 2003). This is similar to our goal kickers where only a small number of players test themselves with difficult kicks and perhaps this is to ensure success at training leading to greater levels of self-confidence. A number of players make explicit comments, however, of attempting to increase the difficulty of kicks through applying game-like pressures to their training session. As player 6 described
they may have a competition with another kicker within the team or, as a number of other players describe, they may imagine pressure scenarios such as a kick to win the game. This is a recognised technique in elite sport whereby the performer exposes themselves to stressful competitive simulation to develop greater tolerance to game-like pressures and thus improving their level of skill execution (Tenenbaum, 2003).

All of the kickers described how their kicking sessions were generally ‘ad-ons,’ sessions that were not part of the prescribed daily schedule. It is advised, however, that sessions should still be specifically designed to improve performance (Abernethy et al, 2003). This would appear to be the case with the kickers in this current study as many have a set kicking session that replicates the types of kicks and pressures found within a competitive match. All kickers also report how their kicking sessions are not monitored by coaches and despite a large number of the players being happy with that arrangement it is in contrast to the advice in some of the literature. According to Salmela and Moraes (2003) a knowledgeable coach should introduce appropriate training procedures, technical and psychological, and be present during sessions. The coach’s leadership is also a source of confidence for the performer derived from the player’s belief in the coaches’ skills and knowledge (Wilson et al, 2004). Some of our kickers in this study had access to kicking coaches but only during small phases of the season, when they were involved in International duty.

Routines Away From the Working Environment
In describing the use of mental routines away from the working environment two topics arose that are pertinent to discuss, namely the time when players chose to mentally rehearse and the ease with which they do so.

Commonly those players that engage in mental rehearsal describe doing so in close proximity to the game, the night before or the morning of for example. The time spent mentally rehearsing ranged from ‘short and sharp’ moments to sessions of half an hour. There are few experimental studies suggesting the optimal level of mental rehearsal that bring about the desired effects on performance (Murphy et al, 2008). A study by Etnier
and Landers (1996), however, found shorter bouts of mental rehearsal more beneficial for performance where as further applied studies indicate longer mental rehearsal interventions are more beneficial (Murphy et al, 2008). This is a feeling shared by Hall (2001) who suggests that more mental rehearsal is advised. With undefined guidelines for the amount of mental rehearsal that an athlete should engage in perhaps it is more vital to stress the meaning of the players’ images and ensuring the images are personnel to them (White and Hardy, 1998). An interesting research direction here could be a longitudinal study of young athletes to effectively identify the optimal amount of mental rehearsal required and its integration within their physical practice.

The ease with which the kickers can mentally rehearse and create vivid images is also a critical to performance (Grove et al, 2001). Of those that use mental rehearsal in this study, all describe the ease to which they are able to mentally rehearse and the vividness of their images. What is also important however is the control of these images (Hardy, Jones and Gould, 1996). A goal kicker for example may be able to create an image of himself kicking a goal but may not be able to control it and see success. Orlick and Partington (1988) identify that athletes must learn to develop this control through experience or preferably through trained psychologist (Murphy et al, 2008). Many of the players in this study, however, have either never used a sport psychologist or used one for any length of time. This would indicate that the players may have learned to control their images’ as they grew more experienced and may also account for four of the players not engaging in mental rehearsal. Studies have shown that performers are more likely to engage in mental rehearsal knowing the possible benefits to their performance (Murphy et al, 2008). Perhaps in this case, due to the lack of sport psychologist contact, the players were unaware of these benefits and subsequently chose not to engage. Another factor could be due to the lack of encouragement from their coaches. Studies by White and Hardy (1998) for example into gymnasts and canoe slalomists showed that performers were more likely to use mental rehearsal when they were away from their working environment if they were encouraged by their coach. All ten kickers in this study described how their kicking was rarely monitored, that kicking practice occurred on their own and out of the scheduled timetable. It could be argued that the players may
not have been encouraged to use mental rehearsal by their coach and subsequently chose not to engage.

**Applied Implications**
From critically analysing the results several recommendations can be made regarding applying the information gathered from this research.

The first recommendation refers to athletes in the early stages of their development. It is here that coaches should encourage their younger athletes to engage in a variety of sports. This may be seen as a challenge for coaches who perhaps don’t want to ‘lose’ their athlete to other sports, as well as time constraints for the participant. However the benefits of skill transfer to specific skill execution is clear. It is recommended that routines are taught (Cohn, 1990) and considerations for teaching a routine, such as a PKR, should take into account the skill level of the individual. According to Cohn (1990) in the early stages of development the performer should focus on one or two aspects of their technique. The coach needs to recognise, as the athlete develops, when to shift the focus to allow the athlete to execute the skill automatically. Perhaps during this change the coach can also introduce the use of process and holistic goal setting as part of their routine. Furthermore the different learning styles of the athletes must be considered (Cohn, 1990). The coach needs to recognise the athlete may require a routine to feel the movement (kinaesthetically orientated) or perhaps the use of verbal cues or images are required (Cohn, 1990). It is also recommended that coaches stress the importance of a consistent routine, once the athlete has established one that they are comfortable with through regular practice.

Further recommendations concerning the development of routines indicate the importance placed on the presence of a coach. It is clear from our kickers that their routines were created rather ad hoc without external help. The literature, however, places huge importance in the presence of a coach during this time. They should be responsible for, not only introducing technical, but also psychological skills that are fundamental to expert performance. After the athlete has developed a solid foundation of mental skills
perhaps then they are more equipped to construct their personnel coherent routine. With respect to the content of an athlete’s routine it has been acknowledged that it should be personnel to them. However the coach may be advised to direct the athlete into thinking about specifics that may help build self-confidence, such as previous success for example. Also specific relaxation strategies could be recommended depending on the anxiety experienced by the athlete. According to Davidson and Schwartz’s (1976) Matching Hypothesis certain relaxation strategies prove more effective with certain types of anxiety. For example nervousness and body tension (somatic anxiety), it is suggested should be treated with muscle to mind relaxation strategies. When an athlete, however, has negative expectations of themselves (Cognitive anxiety) this should be treated with mind to muscle techniques (Hardy, Jones and Gould, 1996).

As our kickers describe the monitoring of their kicking practice is minimal, limited to blocks of the season when certain players are on international duty. This is contrary to recommendations in the literature that highlights the importance of the presence of a coach at training. However, the players in this study comment how they would rather practice on their own, replicating their isolation in the competitive game. It is advised, therefore, that perhaps a balance is required with regard coach presence at training sessions. Coaches should spend enough time that they can appropriately advise technically and psychologically without ‘crowding’ the performer. It is important to note that the coach requires sufficient knowledge for the participant to trust and have confidence in their advice.

Fundamental to the majority of suggestions in applying this research is based on the knowledge of the coach. Therefore future research recommendations into this specific topic should be targeted at coach education. If coaches are to be present during the development of routines and through an athlete’s elite career, as advised by the literature, then they need to acquire the appropriate knowledge base to advise their athletes. This knowledge is primarily centred on the use of psychological skills and how they can be grouped to form performance routines. Alternatively the coaches should at least be informed of the benefits of psychological skills and encourage their athletes accordingly
to trained experts. Furthermore there is arguably a lack of specific goal kicking coaches that have the *technical* knowledge to advise the athlete. American Football has ‘Special Teams’ coaches, such as kicking coaches, so perhaps this is the direction in which elite rugby union should take. For rugby union however, currently lacking the financial foundation of sports such as American Football, perhaps there may be a greater need for sports coaches to fulfil a dual role. In this case a goal kicking coach would ideally also have expertise in sport psychology.
In conclusion the present study yielded a number of pertinent findings most notably the importance of the use of mental rehearsal in and out of competition for elite Rugby Union goal kickers. Performance routines were also revealed as crucial part of a kickers mental strategy and proved fundamental in coping with the pressures of elite goal kicking. The importance placed on the presence of a coach during the development of routines and throughout the player’s career was also noted. Few of the kickers in this current study reported to receiving external help from trained experts so it is vital therefore to increase the awareness of players and further the understanding of coaches to the benefits of mental rehearsal.
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