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A Review of Psychological Momentum in Sports: Why qualitative research is needed.

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ABSTRACT

Despite considerable research into psychological momentum in sports, researchers and theorists still appear to be divided on whether the concept is real or illusionary (Burke, Edwards, Weigard & Weinberg, 1997). This seems to be based on inconsistent evidence regarding the relationship between perceived momentum and actual performance. Researchers have predominantly employed quantitative approaches, which, it is argued, has limited the development of knowledge. Through a review of previous literature, this paper proposes that qualitative investigations are needed in order for a more comprehensive understanding of the concept to be achieved. Future researchers are encouraged to focus on athletes' experiences and employ qualitative methods to i) develop a clearer conceptualization of psychological momentum, ii) examine athletes perceived experiences of psychological momentum - including momentum starters, iii) explore specific cognitive, affective and behavioral changes associated with experiencing psychological momentum, and iv) use evidence from both qualitative and quantitative studies to critically evaluate the three current conceptual models of psychological momentum.

Introduction

The concept of momentum in sport contests is commonly referred to by athletes, coaches, and commentators alike, and as such, has provided an appealing area of study for sport psychologists. The potential links to enhanced psychological functioning and performance underpin the importance of achieving a clearer understanding of the phenomena. However, psychological momentum appears to be an elusive and challenging concept which is still poorly understood.

Early work by Vallerand et al.Vallerand, Colavecchio, and Pelletier (1988) (1988) suggested psychological momentum involved enhanced psychological power that could influence performance and was bi-directional. Whereas positive psychological momentum would appear to reflect psychological empowerment and concomitant shifts in cognition, affect, physiological parameters, and as a consequence influences performance; experiencing negative psychological momentum would be expected to result in the reverse effects (Burke, Aoyagi, Joyner, & Burke, 2003; Kerick, Iso-Ahola & Hatfield, 2000; Perreault, Vallerand, Montgomergy, & Provencher, 1998). For example, a rowing crew who reduced a five second deficit to just one second over the middle portion of a 2000m race would be considered to be gaining momentum (positive momentum), while the leading crew - although still ahead - would be losing momentum (negative momentum).

Conceptual Models

Three conceptual models have been proposed to explain how psychological momentum influences performance; the first being the Antecedents-Consequences Model of Psychological Momentum (Vallerand et al., 1988). These researchers conceptualized psychological momentum as a perception of 'moving towards a goal', which yielded changes in motivation, perceptions of control, optimism, energy and synchronization. Vallerand et al. also acknowledged that psychological momentum could be perceived by both participants and spectators. Their model recognized the failure of earlier studies to distinguish between psychological momentum as a cause or effect of performance changes. As such, a clear distinction was made between situational antecedents (momentum starters or catalysts, such as a 3-point score in basketball), that are likely to facilitate perceptions of psychological momentum, and the consequences of such events and altered perceptions which can lead to changes in performance. Vallerand et al. suggested that the influence of psychological momentum on performance would be further affected by both personal (i.e., skill level, motivation, anxiety levels, etc.) and situational variables (i.e., crowd behavior, task difficulty, etc.). Also, on the basis of work by Oxendine (1970) on emotional arousal and sport performance, Vallerand et al. reasoned that the nature of the task was also an important consideration. Specifically, psychological momentum was likely to result in athletes experiencing high levels of arousal, which might facilitate performance in tasks that necessitate high levels of arousal, while interfering with other more fine motor tasks. Despite this, researchers such as Adams (1995) have since found evidence of psychological momentum in fine motor tasks such as billiards, implicating cognitive, rather than physiological mechanisms.

The second theoretical explanation of psychological momentum was the Multidimensional Model of Momentum (Taylor & and Demick, 1994). This model proposed a 'momentum chain' which begins with a precipitating event or series of events that leads to the athlete comparing his or her own performance to his or her own subjective norms. Precipitating events are proposed to trigger altered cognitions, affect and physiological changes, which in turn influence the athlete's behavior, his or her performance and ultimately the event outcome. Interestingly, the authors also imply the importance of attentional processes, suggesting that attention might be positively or

negatively influenced by precipitating events. Taylor and Demick used questionnaires to identify spectators' perceptions of precipitating events in professional tennis. An average of over 30 such events were identified per match with the most common including dramatic shots, unforced errors, breaking serve and missing break point opportunities. However, the relationship between spectators' observational interpretation and the participating athletes' perceptions was not tested. What spectators and participants identify as precipitating events or momentum starters may differ considerably.

Researchers such as Kerick et al. (2000) consider that the major advantage of the multidimensional model is that the 'momentum chain' lends itself to empirical testing. Mack and Stephens (2000) have provided some limited support for Taylor and Demick's Model using a basketball shooting task. It was found that changes in momentum led to corresponding changes in cognitions but not in persistence. One important development was the recognition of 'opponent factors', as Taylor and Demick (1994) postulated that in head-to-head contests such as tennis, the event outcome is not just determined by a player experiencing positive psychological momentum, it is also dependent on his or her opponent experiencing negative psychological momentum.

In contrast, the Projected Performance Model (Cornelius, Silva, Conroy, & Petersen, 1997) suggests that positive and negative momentum is likely to be the result, rather than the cause of performance changes. Psychological momentum is considered a mere performance label. Cornelius et al. also draw upon previous work by Silva, Hardy and Crace (1988) who proposed two further constructs which are likely to add to the complexity of entangling the influence of psychological momentum. First, *positive inhibition* reflects situations where athletes may have caught up with opponents, but this momentum actually leads to negative changes in subsequent performances due to 'coasting'. Additionally, *negative facilitation* occurs when an athlete falls behind and this poor performance acts to motivate an increased effort. Thus, psychological momentum is clearly a difficult concept to quantify and evaluate.

Perceptions of Psychological Momentum

Despite the existence of these three competing models of psychological momentum and substantial research (Adams, 1995; Eisler & Spink, 1998; Iso-Ahola & Blanchard, 1986; Kerick et al., 2000; Shaw, Dzewaltowski, & McElroy, 1992; Silva, Cornelius, & Finch, 1992; Perreault et al., 1998), there is still debate over whether the concept is a real or illusionary one (Burke et al., 2003; Cornelius et al., 1997; Gilovich, Vallone, & Tversky, 1985; Kerick et al., 2000; Vergin, 2000). Research evidence clearly suggests that perceptions of psychological momentum do exist and shift in response to gaining or losing ground in competition (Eisler & Spink, 1998; Perreault et al., 1998; Shaw et al., 1992; Silva et al., 1992). Furthermore, theorists suggest changes in perceptions of psychological momentum are likely to mediate performance via cognitive and affective processes (i.e., optimism, sense of control, motivation, self efficacy, concentration, energy and synchronization) as-well-as physiological factors such as physiological arousal (Taylor & Demick, 1994; Vallerand et al., 1988). However, many of the proposed mediators have not been empirically tested, but are still speculatively used as

explanations of psychological momentum. For example, Adams (1995) proposed a cognitive explanation of observed psychological momentum in pocket billiards players without examining cognitive mediators. Adams main data involved pool tournament statistics but the author details employing a semi-structured interview of ten players that proved "difficult to follow" due to individualistic perspectives (p.583).

Perceptions of psychological momentum have typically been measured via questionnaires, which have used hypothetical scenarios and scales (see Perreault et al., 1998; Shaw et al., 1992; Vallerand et al., 1988). For example, Vallerand et al. used a written scoring configuration that represented the hypothetical pattern of games won in a set of tennis (i.e. Robert was depicted as taking a five games to one lead before Luc won four consecutive games to level the match at five games all). Experienced and inexperienced tennis players were then asked to answer questions such as 'who has the momentum?' and 'who seems to be the most motivated?', based upon the pattern of games won without ever seeing a ball being hit. Since these participants were basing their perceptions on scoring patterns, the reported data reflected predictions of momentum and not actual experiences, although participants may have been able to draw on their own past familiarity in predicting experiences of momentum. However, this laboratory-based approach is essentially detached from real experiences. If psychological momentum is considered as a subjective experience then clearly some of the questions that were asked could only be reliably answered by participants in real situations which convey an holistic appreciation of the intricacies of a tennis match as experiences of momentum may not necessarily be connected to the actual score (i.e. a player may have lost two or three games in a row but her / his play may be improving and she /he might still remain motivated and confident in their ability to comeback). Also, while scale questionnaires allow a quantitative analysis of those variables proposed to be important via theoretical work, they are narrow in scope (reductionistic) and limit the responses available to participants - thus negating a comprehensive understanding of participant experiences. This problem may be further confounded because the conceptualization of psychological momentum (used in such questionnaires) has not been developed systematically, and has not been grounded in comprehensive analysis of the experiences of athletes and coaches. Some researchers have at least attempted to include athletes and coaches in the development of such questionnaires (i.e., Burke & Houseworth, 1995).

Psychological Momentum and Performance

In testing the relationship between psychological momentum and performance, two main approaches have been prevalent; firstly examination of archival or observational data which has included the closely related 'hot hand' phenomena (usually considered in terms of basketball shooting) and has tested the concept of temporary performance increases following a string of successes or 'hot streaks'. This has been achieved by statistical examination of shooting records or evaluation of individual performance trials (Koehler & Conley, 2003; Vergin, 2000). Typically, the results of such analyses suggest the patterns of shooting success are no different to those expected by chance (Gilovich et al., 1985; Koehler & Conley, 2003). Although data from early studies of racquetball and tennis found some evidence of a psychological momentum effect, when matches went to

a final deciding game / set, no evidence of psychological momentum was found (Iso-Ahola & Mobily, 1980; Silva, et al., 1988). For example, the winner of the second game / set would have been expected to win the deciding game / set if a momentum effect was operating. Furthermore, most early studies failed to control for ability, which has since been highlighted as a confounding variable (Silva et al., 1992; Vergin, 2000).

Silva et al. (1988) suggested that a 'micro' (points and rallies) approach rather than the 'macro' (games and sets) approach might be more relevant to the study of psychological momentum. In a more novel approach that provided a 'micro' method of testing the relationship between participant perceptions of psychological momentum and actual performance, Burke and Houseworth (1995) used trained observers to employ 'structural charting', a method which graphically represented the 'flow' of volleyball matches. A significant positive relationship between participants' momentum survey scores and observers 'structural charting' of events provided some support for the existence of psychological momentum. Further research (Burke, Burke, & Joyner, 1999) also showed that during periods of perceived psychological momentum, basketball teams significantly out-scored their opponents. However, all such outcome-based approaches can be criticized since they fail to examine the intricacies of this complex phenomenon.

Secondly, experimental studies testing the relationship between psychological momentum and performance have often used *false feedback* (Kerick et al., 2000; Perreault et al., 1998; Silva et al., 1992), and various *scoring manipulations* (i.e., Shaw et al., 1992) to create situations in which the subjective perceptions of momentum, and the objective performance outcomes can be separated. These studies have resulted in inconsistent findings. Although Silva et al., Shaw et al., and Cornelius et al. (1997) all failed to demonstrate that psychological momentum has a causal effect on performance, Perreault et al. highlighted a number of methodological weaknesses (including the use of fine motor tasks in all three studies) that may have resulted in conditions that were not conducive to evaluating the psychological momentum-performance relationship. However, despite using a cycling task that required high levels of arousal, the results of Perreault et al. provided only partial support for a psychological momentum-performance relationship. A questionnaire was used to measure perceptions of momentum following a bogus cycle race; the results of which were pre-determined and unaffected by the participants' actual performance. A computer generated visual representation of the race was viewed while the participants retrospectively completed a questionnaire on their perceptions of psychological momentum at four different time points. Performance was measured by determining average power output during the four time periods. Both increased and decreased perceptions of momentum were found to lead to increased performances, with the authors explaining the *decreased perceptions-increased performance* relationship via negative facilitation. However, this explanation is speculative and should be viewed with caution given that no in-depth evaluations of participant experiences were conducted. Furthermore, although Perreault et al. suggested that the use of fine motor tasks in previous research may not have been conducive to uncovering the influence of psychological momentum on performance, they failed to report that evidence of psychological momentum had been found in complex skills that require precision such as pocket billiards (Adams, 1995).

More recently, Mack and Stephens (2000) found no differences in persistence between positive, negative and neutral momentum groups using a basketball shooting task. Nevertheless, the authors did acknowledge that their measure of persistence lacked sensitivity. Finally, Kerick et al. (2000) also failed to find a psychological momentum-performance relationship in relation to target shooting. However, the nature of the task and the choice of novice participants may have impacted on the results.

Psychological Momentum andMomentum and Cognition / Affect

Despite proposals that cognitive and affective processes are related to psychological momentum (Talyor & Demick, 1994; Vallerand et al., 1988), few studies have attempted to test such predictions and those that have, have reported inconsistencies. For example, Kerick et al. (2000) tested cortical, cognitive-affective and behavioral responses in novice target shooters and found cognitive changes in perceptions of psychological momentum to be related to manipulated positive and negative feedback. However, affective responses (measured by the Positive and Negative Affective Scale - PANAS; Watson, Clarke, & Tellegen, 1988) and shooting performances were found to remain unaffected. The authors suggest that this implies, "perceptions of PM may evolve in response to precipitating events independently from affective, electrophysiological, and performance effects in novice participants" (p.1).

Similar inconsistencies were highlighted by Shaw et al. (1992) who used a basketball free-throw competition to test the relationship between psychological momentum and self-efficacy. Changes in perceptions of psychological momentum were related to experiences of repeated success and failure. However, significant relationships between psychological momentum and self-efficacy failed to emerge for experiences of success, but were evident for experiences of failure. Finally, Mack and Stephens (2000) found significant differences between positive and negative momentum groups in relation to both self-efficacy and affect. Specifically, the positive momentum group was found to have higher values in both self-efficacy and affect with a neutral momentum group in-between the two.

The Need for a New Approach

Various researchers have focused on the differences, and the potential strengths and limitations of qualitative and quantitative research methods (Patton, 1990; Sparkes, 1998; Thomas & Nelson, 2001). Patton proposed the need for selecting a 'paradigm of choice' – where the research problem should be the major determinant for selecting an appropriate methodology. He contends that researchers should avoid studying problems from a single dimension, since a variety of approaches is liable to provide a more comprehensive understanding of phenomena. This point is particularly salient for psychological momentum when one considers research into other related 'subjective experiences' such as flow. A greater understanding of flow and optimal experiences in sport has been achieved by starting with the athletes themselves. Csikszentmihalyi (1975) used qualitative methods to develop rich accounts of flow that has eventually led to well established dimensions of flow. More recently the work of Jackson (1992; , 1995; , 2000)

has incorporated and encouraged both qualitative and quantitative approaches to further the understanding of flow and develop appropriate measurement instruments.

Valle, King, and Halling et al. (1989) makes the important point that while positivist philosophies deal with behavioural outcomes, they essentially negate the human experience. In contrast, the existential phenomenological approach emphasises the subjective, 'lived experience' in a real (not contrived) context and relies on descriptive techniques (Dale, 1996; Nesti, 2004). While such qualitative approaches have potential limitations such as the use of small samples, interpretive bias and retrospective data collections; they offer a view on the human experience which is essential if a greater understanding of subjective experiences such as flow and psychological momentum is to be achieved.

In order for sport psychology to grow, Sparkes (1998) reiterated the need for more varied approaches for knowledge acquisition, while arguing for greater appreciation and encouragement of non-traditional approaches. Although qualitative research in sport psychology is increasing (Munroe-Chandler, 2005) it is clear that quantitative methods still predominate, especially in the study of psychological momentum.

While the quantitative methods used to study psychological momentum have helped to test the merits of the three conceptual models of psychological momentum, the resultant research has probably led to more confusion than clarity due to the complexity and essence of the phenomena. Indeed, it is usual for conceptual models to be developed following the establishment of clear conceptualizations of the phenomena, which is not the case when one considers psychological momentum. The approach of understanding the phenomena from an athletes' perspective and the collection of thick, descriptive information to accurately define and operationalize constructs (apparent in the development of definitions and measurement instruments in other related constructs such as flow, or mental toughness – see Clough, Earle, & Sewell, 2002; Jones, Hanton, & Connaughton, 2002) has been absent from the psychological momentum literature.

Paradoxically, while many researchers have acknowledged the difficulties surrounding the quantification and indeed the conceptualization of psychological momentum (Burke & Houseworth, 1995; Burke et al., 2003; Cornelius et al., 1997), none (to the knowledge of the author) have employed a systematic qualitative approach to study the phenomena. This is particularly surprising when various researchers have suggested future directions that would seem naturally suited to qualitative methods. For example, both Silva et al. (1992) and Kerick et al. (2000) have indicated the need to more closely examine cognitive and affective processes in order to better understand the mechanisms by which psychological momentum may influence performance. Kerick et al. (2000) go further in proposing the need for collecting experiential data.

One apparent concern from examination of the extant literature is the somewhat superficial conceptualization of psychological momentum. In fact, Silva et al. (1992) identified that the first in-depth work to attempt to conceptualize psychological momentum (Adler, 1981; Adler & Adler, 1978) was derived from the author's "personal

experiences, observations, and verbal and written accounts of professional athletes, sportscasters, and coaches and were not scrutinized or tested through research methodology"(p. 347).

Various other researchers such as Shaw et al. (1992) and Silva et al. (1992) have drawn attention to definitions of psychological momentum that reflect popular terminology such as 'on a roll,' or 'in a groove' to describe performance observations. Unfortunately, while some have acknowledged that athlete's experiences of psychological momentum are likely to be more intense than that of spectators (Burke et al., 2003; Vallerand et al., 1988), few have considered the potential contributions of athletes to developing a more internally valid conceptualization of psychological momentum than currently exists.

Regardless of broadly similar definitions of psychological momentum within the field, Taylor and Demick (1994) acknowledged that researchers are some way short of a full account of the relevant aspects of psychological momentum. A decade on and progress is still slow. As such, there appears to be a need to verify the accuracy of the conceptualization of psychological momentum. Although qualitative research is often considered most useful in the early stages of knowledge acquisition (Thomas & Nelson, 2001), and may not seem the logical way of developing knowledge in an area that already has three competing models, in the case of psychological momentum it would appear that an important step in the development of knowledge has been missed and therefore a return to examine the phenomena with such methods is justified. In fact, the problem is clearly evident when one considers the findings of Burke et al. (2003) and Burke, Edwards, Weigand and Weinberg (1997). In testing the consistency between athletes' and observers' perceptions of psychological momentum, these researchers could only find low to moderate levels of agreement between the two differing perspectives. Therefore, to gain a more precise understanding of psychological momentum, a change of approach to testing the phenomena is required.

Phenomenology was devised by Hussert (1859-1938) in an attempt to provide a completely empirical method. This claim is based upon its focus on what the individual experiences. The phenomenological method rejects the use of theory building and is solely concerned with description of an event or object. Attention is directed exclusively to the question of 'what', rather than as is found with other qualitative and quantitative approaches, where interest is with 'why' or 'how' something happened. Since it appears that researchers have not sufficiently dealt with the 'what' question in regards to psychological momentum, phenomenology would seem to be a most appropriate method in enabling the collection of descriptive information that could lead to a clearer understanding of what psychological momentum is and what it is like to experience psychological momentum.

According to Cooper (2003) the most important part of the phenomenological method involves the use of bracketing. Although never complete, bracketing requires the researcher to "attempt to reduce their biases by a suspension of belief in everything that is not actually experienced" (Nesti, 2004, p. 41-42). The idea behind phenomenology is to

assist researchers to allow the data to emerge spontaneously and to capture rich, detailed descriptions of experience.

Future Directions in Psychological Momentum Research

For a greater understanding of psychological momentum to be achieved, future researchers urgently need to explore the phenomenology of the experience. Without a systematic understanding of the athletes' perspective or 'lived experience' one may question the legitimacy of continued quantitative research that tests the psychological momentum – performance relationship without the establishment of clear conceptualisations.

An existential phenomenological approach that seeks to discover the essence of human experience and behavior seems particularly appropriate for collecting data from the athletes' 'lived world' (Nesti, 2004). The use of case studies, in-depth open-ended interviews, focus groups, and the collection of rich, descriptive data would pave the way for a greater understanding of the lived experience and potentially the cognitive and affective processes involved in experiencing psychological momentum. Inductive content analysis of transcribed interviews is appropriate (see Dale, 1996 for further information on data analysis) and has been popular in sports research (Munroe-Chandler, 2005). Data analysis usually involves the identification of themes and meaning units. The use of various checking procedures to ensure validity and reliability, such as analyst triangulation and member checking is desirable in order to overcome the concerns of quantitative researchers (Creswell, 1994).

Such research would also benefit those who seek to study psychological momentum using quantitative approaches by enabling more accurate development of measurement instruments based upon the language and experiences of athletes. Use of the phenomenological method could be very helpful in identifying how individuals in sport describe psychological momentum in their own terms. The phenomenological interview requires the research participant and the investigator to avoid the use (where possible) of technical and psychological terms. The aim is to use everyday language to offer a personal account of a particular phenomena with which we are familiar. Psychological momentum is much discussed by performers, coaches and the media, clearly suggesting that this phenomenon exists in sport. Phenomenology would allow researchers to deconstruct this term in order to get behind the notion of psychological momentum. This should facilitate a more complete understanding of what psychological momentum actually is, how it is experienced and when it is likely to take place. It could be argued that most of the empirical literature in the area proceeds based on a false assumption that the concept of psychological momentum has been identified and agreed upon after careful scrutiny and in depth analysis.

Researchers might use purposeful sampling of elite athletes from sports that have some evidence of psychological momentum. More field-based research must be encouraged since laboratory investigations and hypothetical questions are somewhat detached from the phenomenology. To avoid problems associated with retrospective

collection of data, enterprising researchers may be able to use methodologies such as thought sampling, that would allow data to be collected while events are taking place or between breaks in play. Such intrusive methods will require careful planning and are not without problems (i.e., possible disruption of focus). Research sampling runners thoughts has shown that runners preferred a think-aloud procedure combined with a video of their own performance when recalling thoughts concerning their run (Blackburn and Hanrahan, 1994). Such methods might be used to enable perceptions of momentum to be evaluated in events other than running.

Future researchers should not ignore the experiences of coaches or spectators as these are important, especially when compared and contrasted with athletes' experiences. Comparative studies that compare the behaviours, cognitions and affective states of elite and non-elite athletes; team and individual athletes; male and female athletes and adolescents as opposed to adults are also desirable and should be approached by employing a variety of research methodologies to gain a broader perspective. The level of competitive focus, degree of interaction between team mates, duration of the event and flow, structure and tempo of the game could all affect psychological momentum.

The relationships between psychological momentum and related concepts such as flow, and mental toughness also need to be established given that terms such as 'in a groove' might equally reflect psychological momentum or a flow state. Effort and persistence are two behavioral variables that have been linked to psychological momentum (Taylor & Demick, 1994) but not adequately assessed in the research (Mack & Stephens, 2000). Future researchers will need to investigate these relationships especially considering that research into mental toughness in sport has found persistence to be associated with higher levels of mental toughness (Crust & Clough, 2005). Could it be that perceptions of psychological momentum are moderated by mental toughness? For example, do individuals with higher levels of mental toughness perceive more examples of positive psychological momentum and less negative momentum than their less tough counterparts?

Furthermore, gaining a clearer understanding of psychological momentum is likely to have important applied applications. Kimiecik and Jackson (2002) contend that if our goal is to understand the athlete in a sports context, understanding the quality of their experience is essential. A greater understanding of perceived momentum starters might allow for creating a feeling of momentum in warm-up periods or carrying this through from previous competitions. Athletes, coaches and sport psychologists might be better able to develop methods of maintaining positive psychological momentum and reversing negative momentum. Issues of self presentation may also become important in this context (appearing to be in control) as momentum appears to involve opponent factors. In relation to this the reporting by the media prior to sport contests may have an impact on psychological momentum. The interpretation by reporters of how they perceive psychological momentum, its causes and fluctuations could also be another important area to study.

Closing Remarks

Although three conceptual models of psychological momentum currently exist, it is clear that the pre-dominant use of quantitative methods in the study of psychological momentum has limited understanding, and perhaps added to the confusion and skepticism surrounding the concept. The use of 'non-traditional' methods of enquiry is long overdue in this area. The advantage of using a qualitative method is that it allows an in-depth understanding of participants' personal constructs and experiences (see Jones et al., 2002), and can go beyond the 'macro' constructs such as motivation and self-efficacy to examine the micro-components of psychological momentum, which have hitherto been largely ignored by researchers. There is an urgent need to re-examine the conceptualization of psychological momentum to incorporate the perspectives of those most likely to experience psychological momentum; namely the athletes.

To enable a more comprehensive understanding of psychological momentum, future researchers should employ qualitative methods such as existential phenomenology to Ai) develop a clearer conceptualization of psychological momentum, Bii) examine athletes' perceived experiences of psychological momentum - including momentum starters, Ciii) explore specific cognitive, affective and behavioural changes associated with experiencing psychological momentum, and Div) use collected evidence to critically evaluate the three current conceptual models of psychological momentum.

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