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## **Psychological States Underlying Excellent Performance in Sport: Toward an Integrated Model of Flow and Clutch States**

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This study investigated the psychological states underlying excellent performance in 26 athletes ( $M_{\text{age}} = 29$  years,  $SD = 7.7$ ) across a range of sports (team, net/wall, sprint, endurance, adventure) and standards (world class to recreational). Participants were primarily interviewed on average 4 days after excellent performances. The data were analyzed thematically. Distinct states of flow and clutch were reported, each of which occurred through separate contexts and processes, while athletes also transitioned between states during performance. These findings extend current knowledge of the psychology of excellent performance and are discussed in terms of implications for future research and applied practice.

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## INTRODUCTION

Positive psychology emphasizes the need to understand optimal human functioning by researching themes such as excellence in performance and positive subjective experiences (Seligman & Csikszentmihalyi, 2000). These themes are particularly relevant in sport where athletes often attribute outstanding performances and achievements to psychological states such as “being in the zone” (Kennedy, Miele, & Metcalfe, 2014). Athletes at all standards of competition strive to reach new levels of achievement, making sport an ideal context to investigate optimal human functioning (Jackson & Kimiecik, 2008) as sport performers at all standards of competition strive to reach new levels of achievement. By understanding the psychological states underlying excellent performance in sport, we are able to provide recommendations and interventions that help athletes induce or prolong them (e.g., through targeted psychological skills training). The aim of this study was to capture recent, detailed insights into the psychological states experienced by athletes during excellent performance, in terms of how such states are experienced, how they occur, and which skills are used to manage or prolong them. We build on recent work with professional golfers (Swann, Keegan, Crust, & Piggott, 2016) by examining the experience of excellent performance across a range of sports and standards.

### Optimal Psychological States in Sport

Researchers have studied optimal psychological states in sport since the 1970s (e.g., Ravizza, 1977). Such states are encompassed by the term *optimal experience*, which is often used to describe positive states of consciousness that provide strong positive feelings associated with happiness and self-fulfilling experiences that result from exerting effort (Jackson & Wrigley, 2004). The most studied optimal experience in sport is *flow*—a harmonious and intrinsically rewarding state characterized by intense focus and absorption in a specific activity, to the exclusion of irrelevant thoughts and emotions, and a sense of everything coming together or clicking into place, even in challenging situations (Csikszentmihalyi, 2002). Flow is generally conceptualized as nine<sup>1</sup> dimensions (e.g., Csikszentmihalyi, 2002; Jackson & Csikszentmihalyi, 1999), and researchers have attempted to develop a sport-specific understanding of the flow experience using inductive analyses (e.g., Chavez, 2008),

Much qualitative research has described the subjective experience of *flow* among athletes (e.g., Jackson, 1996; Swann, Crust, Keegan, Piggott, & Hemmings, 2015) and the factors facilitating or inhibiting its occurrence. In a systematic review, Swann, Keegan, Piggott, and Crust (2012) summarized 10 factors (e.g., preparation, environmental and situational conditions) which in their positive or optimal form facilitated flow, and in their negative or nonoptimal form inhibited flow. In addition, the Flow State Scale–2 and Dispositional Flow Scale–2 have been developed to measure the intensity and frequency of flow states (respectively; Jackson & Eklund, 2004). Such quantitative work has explored the correlates of this state (e.g., mental toughness: Crust & Swann, 2013; athlete engagement: Hodge, Lonsdale, & Jackson, 2009) and the efficacy of interventions seeking to enhance its occurrence (e.g., imagery: Koehn & Diaz-Ocejo, 2016; mindfulness: Kaufman, Glass, & Arnkoff, 2009). However, most

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<sup>1</sup>These dimensions are (1) challenge-skills balance, (2) clear goals, (3) unambiguous feedback, (4) action-awareness merging, (5) concentration on the task at hand, (6) sense of control, (7) loss of self-consciousness, (8) time transformation, and (9) autotelic experience (see Swann, Piggott, Crust, Keegan, & Hemmings, 2015 for a review and discussion).

understanding of how flow occurs in sport is based on associations rather than explanation (Swann, Piggott, Crust, Keegan, & Hemmings, 2015), and consequently flow is generally regarded as being rare and elusive in sport (e.g., Aherne, Moran, & Lonsdale, 2011).

Beyond flow, another common approach to studying psychological states underlying excellent performance has been to explore the concept of *peak performance* (Anderson, Hanrahan, & Mallett, 2014; Harmison, 2011). Peak performance is defined as a state of accomplishment that comes as a consequence of sustained effort and concentration (Jackson & Wrigley, 2004), where athletes are able to perform at their optimum level and produce outstanding performance outcomes (Harmison, 2011). Research into this state has been largely qualitative and targeted toward understanding the psychological characteristics associated with the subjective experience of this state (Abuhamdeh, Csikszentmihalyi, & Jalal, 2014). A review of literature concluded that peak performance was associated with a particular psychological profile characterized by having feelings of self-confidence and expectations of success, being energized but relaxed, feeling in control, having high concentration, having a strong focus on the task, having positive attitudes and thoughts about performance, and being determined and committed (Krane & Williams, 2006). More recent research has also reported feelings of effortlessness and automaticity, with little or no conscious thought present during the execution of performance (Anderson et al., 2014).

However, a number of critical issues remain ambiguous in the current understanding of this concept. First, the peak performance literature has been criticized for not having a strong theoretical grounding, or a validated measure, and therefore might be limited in its usefulness for understanding and predicting athletic experience (Jackson & Kimiecik, 2008). Second, there are conceptual issues and a number of unclear overlaps between peak performance and other concepts including flow. For example, confidence, sense of control, concentration, automaticity, and enjoyment of the experience have been reported for both peak performance and flow (Krane & Williams, 2006; Swann et al., 2012). Third, there are definitional issues, in that peak performance is considered a state of *accomplishment* and describes performance *outcomes*. Yet athletes could perform at their peak for parts—but not all—of an event. In such cases, they may *perceive* an excellent performance for most of the event but fail to achieve peak objective *outcomes* such as winning. Hence it is questionable as to whether the definition of peak performance refers solely to objective outcomes or includes subjective experience.

Importantly, researchers in this area have typically studied athletes' experience of one optimal psychological state during excellent performance (i.e., flow *or* peak performance) and have referred to "an ideal mind/body state for performance" (Harmison, 2011, p. 6), "the optimal psychological state for peak performance" (Anderson et al., 2014, p. 318), and "the state of optimal functioning" (Kawabata & Mallett, 2016, p. 369). This "one or the other" approach inherently assumes that *one* psychological state underlies excellent performance in sport, and (as just discussed) there are problematic overlaps in the literature as a result.

### **"Letting It Happen" versus "Making It Happen"**

In interviews conducted soon after a specific, recent tournament (Swann et al., 2016), professional golfers reported experiencing *two* psychological states during excellent performance. These states were described as "letting it happen" (corresponding with the definition and description of flow) and "making it happen," which did not correspond with flow or peak performance. Although both states shared a number of characteristics (e.g., sense of control, absorption, confidence), "making it happen" was described as a more intense and effortful state of heightened concentration and awareness. Furthermore, flow occurred at any stage of the performance and involved a gradual buildup of confidence, whereas "making it hap-

pen” occurred with a much more sudden appraisal of situational demands at important stages toward the end of a competition.

The finding of two states proposes a more complex/refined perspective on the psychological states underlying excellent performance. Importantly, this suggests that flow does not fully account for optimal subjective experience during performance. Furthermore, “making it happen” appears to underlie excellent performance in certain contexts yet did not correspond with flow or peak performance. For example, the effortful, intense characteristics of “making it happen” contradict feelings of effortless and automaticity, with little or no conscious thought, reported during both flow and peak performance (e.g., Anderson et al., 2014). An explanation for these differences could be in the event-focused approach Swann et al. (2016) used to collect data soon after specific performances (ranging from the same day to 1 week later), which enabled golfers to recall in more detail the chronology of their performances. Conversely, the “career-based” interviews used previously may have been unable to identify such subtle differences. For example, athletes may have “blurred” their recall of these states into description of one flow state, or researchers may have coded the data from both states as one type of experience.

The experience of “making it happen” does not appear to have been examined through qualitative research previously but occurs in situations matching those for clutch performance (Otten, 2009). Clutch performance has been defined as “any performance *increment* or *superior* performance that occurs under pressure circumstances” (Otten, 2009, p. 584). Importantly, Hibbs (2010) proposed that the athlete must be aware of that pressure, have the capacity to experience stress, perceive the outcome of the competition as important, and succeed largely through effort. The identification of clutch performance has focused on objective performance scores, such as archival data in Major League Baseball (Otten & Barrett, 2013) and professional basketball (Solomonov, Avugos, & Bar-Eli, 2015), while Otten (2009) also examined clutch performance experimentally in a study of basketball shooting. Qualitative studies have described *influencing variables* (e.g., perfectionism, mental toughness, self-consciousness) and *strategies used* by elite golfers who choked frequently under pressure compared to those who excelled frequently under pressure (Hill, Hanton, Matthews, & Fleming, 2010) and the *coping responses* of elite golfers who had experienced both choking and clutch performances under pressure (Hill & Hemmings, 2015). Overall, therefore, archival and experimental evidence has been provided for the existence of a clutch state, yet qualitative studies have only examined strategies used by athletes in such situations. Although “making it happen” appears similar to the definition of clutch, little is known about the subjective state experienced by athletes while excelling under pressure.

In this study we aimed to build on the recent work of Swann et al. (2016) by exploring the psychological states underlying excellent performance in athletes from a range of sports (beyond golf) and standards (i.e., elite to recreational). Specifically, by conducting interviews as soon as possible after such performances, we sought to understand which psychological states are experienced and the processes through which they occurred. In turn, we sought to develop a better understanding of the process through which flow occurs in sport, and of clutch performance (“making it happen”) and its relationship to excellent performance in sport. By doing so, we aimed to provide practical guidance for applied practitioners seeking to help athletes experience excellent performance states.

## METHOD

This study was grounded in a critical realist ontological position (Easton, 2010) which emphasizes the seeking of causal explanations and assumes that causal mechanisms,

processes, and contextual influences are involved in particular events and situations (e.g., the occurrence of optimal psychological states; Maxwell, 2004). The explanation of a complex phenomenon lends itself to the in-depth study of a relatively small sample of individuals and to forms of data that retain the chronological and contextual connections between events (Maxwell, 2012). Thus, a qualitative approach is compatible with critical realism (Maxwell, 2004) and has been regarded as the most appropriate methodology for exploratory research on psychological states (e.g., Jackson, 1996). Therefore, our methodology followed the critical realist processes developed by Keegan, Harwood, Spray, and Lavallee (2009) and Swann, Crust, et al. (2015), which challenge the researchers to question any preexisting assumptions and then transparently explain and justify the way their data are constructed/presented (for further critical discussions, see Piggott, 2010; Thomas & James, 2006). We applied the same critical realist principles to our data as to our methodological approach. The analytic steps described in the Data Analysis section were each selected and performed critically and reflexively, with an explicit focus on assisting in the development of a model grounded in the data and experiences of the participants. Any instances of researcher preconceptions or bias were critically challenged through critical reflection, by other researchers (peer debrief), further discussion with participants (as “critical friends”), or the collection of further data from carefully selected sources (i.e., theoretical sampling).

### Sampling and Recruitment

This sample was selected for theoretical reasons (e.g., Coyne, 1997) in that we primarily sought participants who had recently achieved an excellent performance. These individuals were therefore more likely to experience optimal psychological states and be able to articulate such experiences with detail and clarity. Furthermore, we sought athletes from a range of sport types and standards to explore consistencies in the psychological states experienced, and therefore draw upon a maximum variation subgroup sampling design (Onwuegbuzie & Leech, 2007). Specifically, we recruited athletes ranging from world-class elite to subelite/recreational standards (Swann, Moran, & Piggott, 2015) and from activities that can be loosely categorized into team sports, endurance events, sprint events, net/wall games, and outdoors/high-risk activities.

Excellent performances were considered to include personal bests, winning tournaments (or placing highly in competitive events), recognition from others (e.g., player of the match awards), or personal judgments of excellent performance. A number of strategies were used to recruit athletes as soon as possible after such excellent performances. Using personal contacts, athletes were recruited at the beginning of the study and asked to contact the authors in the event of a performance that they considered to be excellent. Athletes were also contacted by the research team after performances that appeared to match the preceding criteria. These performances were primarily identified through Internet-based performance reports, and athletes were contacted directly through management companies, personal websites, or personal connections of the research team.

### Participants

Twenty-six athletes (13 women, 13 men) participated in this study. The average age of these athletes was 29 years (range = 21–48 years,  $SD = 7.7$ ). Participants were from England ( $n = 19$ ), Ireland ( $n = 3$ ), Holland ( $n = 1$ ), Scotland ( $n = 1$ ), New Zealand ( $n = 1$ ), and Germany ( $n = 1$ ), and were competing in world-class elite (e.g., Olympians; Commonwealth Games and Diamond League athletes; Swann, Moran & Piggott, 2015) to recreational events (e.g., running marathons). Table 1 presents participant demographics. Twenty-one

**Table 1**  
**Participant Demographics**

Type of sport	Specific sport	Age	Sex	Standard	Days later	Sampling rationale
Team	Basketball <sup>a</sup>	32	F	International amateur	6	Self-reported excellent performance
	Netball 1	20	F	University	2	Self-reported excellent performance
	Netball 2	25	F	Regional	2	Awarded player of the match
	Rugby Union 1	26	M	Club	5	Awarded player of the match
Net/Wall	Badminton 1 <sup>a</sup>	22	M	Professional	1	Reached final of national championships
	Squash	23	F	Professional	7	Won international tournament
	Tennis	20	F	Professional	9	Qualified for Wimbledon championships
	Wheelchair Tennis	23	F	Professional	3	Won major international tournament
Endurance	Marathon 1	23	F	Recreational	1	Ran personal best in marathon
	Marathon 2	41	F	Recreational	3	Ran personal best in marathon
	Middle-Distance	26	F	Recreational	0	Ran personal best in 5-km race
	Half-Ironman 1	36	M	Professional	9	Won national half-ironman event
	Half-Ironman 2 <sup>a</sup>	35	M	International amateur	2	Finished fourth in national half-ironman event
	Cycling	29	F	Sponsored	3	Completed 300-km event—personal best for distance cycled
Outdoors /Adventure	Climbing 1	33	M	Professional	4	Self-reported excellent performance
	Climbing 2	40	M	Recreational	5	Self-reported excellent performance
	Mountaineering 2 <sup>a</sup>	24	M	Experienced	6	Self-reported excellent performance while climbing highest peak in UK
Sprinting	200-m Sprinter <sup>a</sup>	22	M	National amateur	1	Won national university championships
	110-m Hurdles	21	M	International amateur	3	Won national university championships
	400-m Hurdles	22	M	International professional	6	Ran national record in Diamond League
	Jockey	32	F	Amateur	6	Finished second in international race

(Continued on next page)

**Table 1**  
(Continued)

Type of sport	Specific sport	Age	Sex	Standard	Days later	Sampling rationale
Additional interviews (various sports)	Rugby Union 2	37	M	Professional		New Zealand All Black with over 100 caps; World Cup winner
	Badminton 2	28	M	Professional		Olympic athlete and Commonwealth Games medalist
	Polar Exploring	37	M	Sponsored		World-record holder for polar expeditions
	110 m Swimmer	21	M	International amateur		Gold medalist at Commonwealth Games
	Mountaineering 1	48	F	Experienced		Climbed five 8,000-m mountains including Everest

<sup>a</sup>Athletes who also participated in follow-up interviews. *Note.* activities (e.g., mountaineering, exploring) are difficult to classify one's standard.

athletes were interviewed as soon as possible after an exceptional performance ( $M = 4.09$  days later,  $SD = 2.60$ ; range = same day to 9 days later). The average duration of these event-focused interviews was 62.3 min ( $SD = 18.31$ ). Five additional athletes were also interviewed as "critical friends" (see Trustworthiness section).

### Procedures

Ethical approval for the study was granted by a university ethics committee prior to commencing the study. Upon recruitment, participants were asked if they would be interested in taking part in an interview about their performance at their earliest convenience. Upon agreeing to participate in the study, interviews were arranged to take place as soon as possible after the exceptional performance. Seven participants were interviewed face-to-face, six were interviewed via Skype, and 13 were conducted via phone. The use of different interview methods reflects the aim to collect as recent data as possible, the preference of the athletes, and the fact that some participants were living or competing overseas. To minimize differences between interview methods, a deliberate process was employed to develop rapport in all cases. This process included an introduction to the project, opportunities to ask any questions, explanation of the researcher's background, and attempts to schedule the interview in a convenient manner (DiCicco-Bloom & Crabtree, 2006). All participants provided informed consent after the researcher had explained the general purpose of the study. Interviews were conducted until data saturation (Coté, Samela, Baria, & Russell, 1993) was considered to have occurred (i.e., no new themes emerged). All interviews were recorded and later transcribed verbatim.

### Interview Schedule

Similar to Swann et al. (2016), the event-focused interview guide placed emphasis on the participant recalling their performance in chronological sequence in order to explore the psychological states experienced. A semistructured, open-ended approach was adopted to provide the interviewee freedom to elaborate and develop areas of perceived importance while

allowing for specific probing questions where necessary to gain further insight (Sparkes & Smith, 2014). When optimal psychological states were reported, participants were asked if they were familiar with terms flow/“letting it happen” and/or clutch/“making it happen” (e.g., Swann, Crust, et al., 2015). If they answered affirmatively, they were asked to describe their understanding of those terms and explain how the identified state corresponded. The interviewer then judged whether they were referring to flow or clutch (as defined by the research team<sup>2</sup>; no other states were reported). Then, important themes included how the state was experienced, when it occurred, and the processes through which it occurred. Probing questions included “Can you describe how you were thinking and feeling at that point?” and “How did your experience at that point compare to earlier/later stages in the event?” Although following a general guide, a conversational and open-ended approach was adopted by the interviewer (first author) to develop rapport and allow new themes to emerge (Potter & Hepburn, 2005).

### Data Analysis

A team approach was used for analysis. The first author collected the data and became familiar with the transcripts through a process of reading and rereading (Maykut & Morehouse, 1994). The transcripts were searched for quotes that described the experience of flow or clutch state, and key factors or events during the performance that led to the occurrence of the relevant. A particular focus was on the chronology of events that contributed to the state experienced (Maxwell, 2012). An emergent cross-case analysis was then conducted (Braun & Clarke, 2006; Stake, 2006). This process encouraged the research team to search iteratively for similarities and differences between participants in order to recognize patterns and consistencies in the occurrence and experience of flow. That is, the extent to which the same codes were present and whether they occurred in a similar order. Consistent codes were categorized and defined as higher order themes that represented the athletes’ experiences and the processes through which their flow or clutch states occurred. The themes were reviewed for consistency and transparency using trustworthiness procedures.

### Trustworthiness

The term *trustworthiness* has been used by qualitative researchers to describe methods aiming to ensure quality in their work (e.g., Sparkes & Smith, 2014), and a number of steps were taken to establish trustworthiness in this study. First, *peer debrief* was conducted throughout the study, between the first author and the other authors who provided ongoing guidance, critical evaluation of the data themes, and challenged the researcher’s assumptions (Creswell & Miller, 2000). This process took place through regular formal discussions and informal meetings with each team member. For example, a number of conversations discussed the best way of coding themes, as well as the most suitable labels for those themes.

Although peer debrief was concerned primarily with the ongoing *process* of data collection and analysis, “critical friends” were asked to critique and provide feedback about the *results* of these processes (Smith & Caddick, 2012). Follow-up interviews were conducted with five participants ( $M = 54$  min.; see Table 1) to develop critical dialogue about the results. These participants were sampled theoretically (e.g., participants who described experiences of particular interest or relevance; Charmaz, 1990); the role of these follow-up interviews was to encourage reflection upon, and exploration of, alternative explanations and interpretations

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<sup>2</sup>These definitions were based on awareness of those used by researchers previously (e.g., Jackson, 1996; Hibbs, 2010; Otten, 2009), and athletes’ descriptions of these states (e.g., Swann et al., 2016).

as they emerged in relation to the data (e.g., Sparkes & Smith, 2014). Similar to Swann et al. (2016), this process took place by reflecting on key aspects of the participant's initial interview and asking for feedback about preliminary analysis.

Interviews were also conducted with five additional participants ( $M_{\text{duration}} = 59$  min,  $SD = 12.8$ ). These athletes were not involved in the event-focused data collection (i.e., were interviewed about their experiences more generally rather than about a specific, recent performance). The purpose of these interviews was to collect new data to develop emergent themes; refine ideas; and assess the adequacy, relevance, and meaningfulness of the themes (Onwuegbuzie & Leech, 2007). High-performance athletes were sampled theoretically (Charmaz, 1990) on the assumption that they would have more experiences to draw on from their own careers (Jackson, 1996) but were not as accessible for event-focused interviews soon after specific, excellent performances. These athletes were: an international swimmer who had medaled in the Commonwealth Games; a high-altitude mountaineer who had climbed five 8,000-m mountains including Everest; a world-record-holding polar explorer; an Olympic athlete and Commonwealth Games badminton medalist; and a professional New Zealand rugby union player who had won the World Cup and earned more than 100 caps for the All Blacks (see Table 1). Participants were provided with an overview of the results and asked whether the findings corresponded with their own experiences. For both the follow-up interviews and additional participants, strong agreement was expressed with the findings (i.e., the findings corresponded with their experiences) and no changes were suggested. These data were analyzed using the same procedures just described and incorporated in the Results section.

## RESULTS

This study aimed to explore the psychological states underlying the excellent performances of athletes across a range of sports and standards. Two states were experienced by these athletes during the recent performances for which they were sampled. The first state was referred to as “when you’re flowing” and being “on autopilot,” therefore matching descriptions of flow. Flow states were reported in excellent performances such as personal bests: “Exceptionally. That’s how I would describe it in a word. [I’m] overwhelmed at the success that I had [and] everything just went amazingly ... yeah, it couldn’t have gone any better” (Triathlete 1). In these states, athletes were able to achieve something new and exceeded their own expectations about what was possible during the performance:

Back then on Everest ... I probably didn’t start the summit bid thinking that I could make it. I was surprised ... I just didn’t think I could make it because it’s the highest climb in the world ... Even getting to Camp 4 ... I never thought I’d get there ... [So] you get there and you think, “Oh okay, so I’ll go further.” (Mountaineer 1)

The second state was described as “grinding” and “gritty: “[It] didn’t feel as easy or comfortable [as flow]” (Tennis Player). Therefore this state matched descriptions of “making it happen” and definitions of clutch performance. The level of performance achieved during clutch states was relative to the demands of the situation, as a basketball player described:

I’m probably performing at the peak on the day, but not the peak of my ability ... Definitely the best that I *needed* to play ... Crunch situations sometimes are the simplest of actions. So it might not necessarily mean that I need to be at my best; I just need to ... execute something that maybe I’ve done a lot before. So, take my player one-on-one in the last five seconds and score ... I have to take it and make it.

Athletes were able to reflect on and distinguish between the states of flow and clutch: “They’re definitely two different states” (Polar Explorer); “It was like two different races” (Marathon Runner 1). No differences were apparent in how each of these states were experienced or occurred across standards of participation (e.g., world-class vs. recreational athletes) or across the types of sport sampled. The following sections outline each state in terms of (a) performance contexts, (b) process of occurrence, (c) subjective experience, (d) outcomes, and (e) psychological skills used.

## **Flow**

Flow states were reported to occur in specific contexts within excellent performances, and through a consistent process, as described next and outlined in [Table 2](#).

### ***Performance Contexts***

Three themes described the specific situations in which flow was experienced by these athletes. Flow occurred in situations of *uncertainty*, regarding either their progress or the outcome of the event. For example, Climber 1 described how the “flow state occurs when you don’t know what’s coming up and you don’t know what’s going to happen ... physically not knowing what’s coming next on the climb and psychologically not knowing whether or not you can do it.” Other athletes experienced flow in situations of *novelty*, such as playing with a new team for the first time, or endurance athletes who were completing distances that they had never achieved before (e.g., the end of marathons). Athletes described experiencing flow while *experimenting* and trying out different things during the performance. For example, Badminton Player 1 recalled:

Because we had a good lead at the start we could sort of experiment a bit in the first set ... sort of see what works and what doesn’t ... I was confident I was playing well. I just felt very comfortable on court and it was quite easy to build up to that flow state.

Flow could occur in the early, middle, or late stages of the performance (see the Positive Event section), but all athletes reported flow during exploratory contexts involving novelty, uncertainty, or experimentation.

### ***Process of Occurrence***

Five stages were involved in flow occurrence for these athletes: (a) initial positive event, (b) positive feedback, (c) increasing confidence, (d) challenge appraisal, and (e) open goals. A middle-distance runner described the buildup of flow during a personal best:

Everyone set off really fast, so I felt really like dragged through it ... so it got me started on quite a fast pace and obviously before you know it, you’re halfway through the first lap ... Then in the first sort of half kilometre I realized that I felt good ... so then I just went with it without thinking ... I felt like I was running fast and nothing was immediately hurting or aching ... Then it was kind of a thought that “oh, there’s not actually that far to go, I might as well keep trying to go fast” [and] after the first half kilometre probably, I don’t really remember much more of what I was thinking.

### ***Initial Positive Event***

The process of flow occurrence was initiated with a *positive event* in the performance. For example, athletes described starting well, including Rugby Union Player 1:

**Table 2**  
**The Context and Process of Flow Occurrence**

Example raw data codes	Themes	Categories	
You don't know what's coming up; don't know what's going to happen; not knowing whether you can do it	Uncertainty	Performance contexts	
You have a lot more space to explore different things	Exploring		
You try new things; the start is experimental—seeing what works	Experimenting		
Never done a half ironman before; never ran beyond 34 km before so after that was unknown; playing with a new team; activity is new to me	Novelty		
Everyone else set off fast; two or three things went great—I started well; the first hour went perfectly	Started well	Positive event	Process of occurrence
I saw my family; saw my first set of supporters	Saw supporters		
Felt looser and quicker than normal during the warm up; feeling good, and strong, and quicker than normal	Felt looser and quicker	Positive feedback	
Realized I felt good—felt like I was running fast and it wasn't hurting; I was feeling great; it felt easy and natural and nice and comfortable	Felt good		
When I realized I had a good start I was like “deadly!”; felt like I was swimming well—stroke felt good	Realized it was going well		
At the halfway point I was like “I've done everything right so far” so it was like another confidence boost; that gave me lots of confidence	Confidence boosts	Increasing confidence	
Suddenly you feel like this is going my way—you feel on top, your whole game is coming together	Feel whole game comes together		
I started to close that gap, and then I was like “I'm leading this event” ... that fills you with adrenaline, confidence, and motivation	Further boosts of confidence		
That was a really good stretch, I had lots of good boosts in that time	Lots of boosts		
Thought there's not that far to go—I may as well keep trying to go fast; I tried to do things that were a bit trickier and push it up a level	Challenged self	Challenge appraisal	
I thought “There's only two laps to go, I can do this”; when I came up to the halfway point I was like “Oh I can be competitive in this”	Confidence in outcome		
Stay at this pace and keep with the woman in front; if I continually moved one foot in front of the other I'd be able to get to the top	Process goals	Setting open goals	
See if I can pull off a trickier move; see if I can move the ball quicker; see what I could do	Open-process goals		
See how it goes; I'll see how it goes and take it as it comes	Open-outcome goals		
Didn't have a planned goal; set myself the goal when I started running—it was spur of the moment, not planned; hadn't planned it before the race	Spontaneous goal-setting		

If you get the hands on ball early or you make a big tackle ... early in a game it really gets you into it and I had two or three of those things come quite early in the game ... That's where it builds from and that gives you a bit more confidence.

Flow could also be initiated later in the performance, as Marathon Runner 1 described: “I knew that I'd have supporters [so] I was trying to focus on finding them ... Having those three friends halfway ... that gave me real injection.”

### ***Positive Feedback***

Positive events (just discussed) provided the athletes with *positive feedback* about the physical and mental states that they were in at that time, which continued the buildup of flow. Triathlete 1 described different sources of such feedback during flow in the swim leg of a race:

I had a backwards glance and I couldn't see anyone [behind me, and] ... I'd already had sensations that I was swimming well ... Just how I felt, how was I swimming ... The wetsuit felt great. It felt like my stroke was turning over really quickly ... The first hour or so, it all felt comfortable, controlled, effortless, but I was cracking on really well ... I pretty much pitched it about as perfectly as I could.

This feedback enhanced the process of flow occurrence by leading to greater confidence.

### ***Increasing Confidence***

The athletes reported increasing confidence in the performance due to the positive events and resulting feedback. Badminton Player 1 commented, "You gradually get more and more confident that what you're doing is working well. It gives you a lot more confidence going into the next points as well ... and it was quite easy to build up to that flow state." Indeed, athletes reported that their buildup in confidence continued until they were *totally confident* in their skills, including Rugby Union Player 1, who described his whole game coming together—a common phrase reported during flow:

Your attacking is starting to go well and then your defence is going well now as well so you're starting to get that whole [feeling of your] game coming together ... Then the tackle happens and ... that's the next part of the game that's going well ... There's nothing that [the opponent has] got that can beat you and so your confidence builds.

### ***Challenge Appraisal***

Increasing confidence led to appraisal of the situation, and the perception/setting of new challenges which continued the process of flow occurrence. For example, a basketball player described how the challenge was to try different things:

Two or three things had went great and I was feeling great and I had this surge of energy, a boost of confidence, that I then ... tried to do things that were a little bit trickier and push it up a level ... You have a lot more space to explore different things. You want to try new things with different players on the team.

Another example was provided by a middle-distance runner who described appraisal during a race and confidence in their ability to meet the challenge: "Close to halfway through the first lap ... I thought 'Oh, well, there's only two more laps after this' so it was kind of like 'I can do this ... This feels good, I'm going to go for it.'" Therefore, the *type* of challenge was important for these athletes' flow states.

### ***Open Goals***

Following appraisal of the situation, the athletes reported setting goals that were avoidant of specific/objective outcomes. The athletes described pursuing *open process goals*: "Try and see if I can slide that pass through quicker or ... do something that may be trickier ... I'm feeling more confident ... I want to push my boundaries to see if I can get that pass off quicker"

(Basketball Player). Mountaineer 2 described total focus on the process, which helped him get absorbed in the activity and experience flow:

On Everest ... there was one stretch in particular ... it was dark so there's no general perception of space in terms of where you are ... When it's dark, there's literally nothing and because you don't have a time element, you just literally can't measure goals ... I guess the only thing you can actually set as a goal is the number of steps ... It was like climbing a long ladder ... just that repetitive movement ... that's something that really kind of allows you just to get into that autopilot zone.

Others pursued *open outcome goals* and deliberately avoided setting goals for the end of the performance, including Climber 1:

I was just thinking, "Oh I'll just see how it goes and take it as it comes." I climbed higher and higher and the climb had got more and more engrossing and difficult and all-encompassing really ... until I discovered that I'd climbed like 40 metres without consciously knowing what I was doing.

These goals appeared to be set spontaneously and in response to the performance context, as a middle-distance runner explained:

Normally I have a much stricter goal ... But I went without one really ... [Usually] it's been very time-focused goals. Today wasn't, so I think maybe without that time-focused goal my mind went somewhere else almost ... It was kind of spur of the moment, not planned ... just go and do it and not bother about beating a time.

### ***Subjective Experience of Flow***

The flow experience was categorized by 10 themes that matched those reported previously (see Table 3). A 400-m hurdler described this state:

I'm just completely flowing ... I'm not even thinking about the race, I'm not thinking about how tired I am ... I'm just running ... Everything is just ... on autopilot because I just get into my rhythm ... I just don't need to think about it. [Even though] I'm on the world stage ... I often feel less tired and it'll feel like I didn't exert any energy. It just feels natural. It feels really good. But yet I've run the best time.

### ***Outcomes of Flow***

Participants reported *intrinsic rewards* such as enjoyment after the performance, as well as pride, and satisfaction: "It's the best experience you can get ... an overwhelming feeling of satisfaction" (Mountaineer 2). *Intrinsic motivation* was also reported after experiencing flow: "I feel like I want every run to go like that ... It makes you want more of it ... It's making me excited for the [upcoming] 10k, which is my ultimate goal" (Middle-Distance Runner). Similarly, athletes described positive perceptions as a result of the performance (i.e., not just the experience of flow), including *a sense of achievement* and *confidence* about future performances. A middle-distance runner described:

I feel like I've achieved something. I feel really like I've achieved something good today ... It's making me think I can do a good time at the 10k ... It's kind of making me realize and confident to admit that I'm probably going to do quite well.

**Table 3**  
**The Experience of Flow**

<b>Illustrative quote</b>	<b>Characteristic</b>
I was ... automatically finding the easiest sequences ... without, sort of, conscious pre-planned thoughts ... You just go into autopilot. Because you know what to do without having to think about it properly. There is no thought of "Well, what do I do here?" It was just like I knew exactly what to do straightaway and I just did it straight away. (400-m Hurdler)	Automatic/ effortless experience
It was like that internal dialogue was just switched off. It was like my mind was relatively silent, but happy ... I didn't have to think about anything. (Jockey)	Absence of critical thoughts
It was just controlled all the way through ... There was so much control there and I've never experienced that before ... Everything was really controlled. And people said that even on the run course I looked quite in control. (Triathlete)	Perceptions of control
I was unbelievably calm ... I kind of had a blissful feeling and I had a calm, but exhilarating feeling. (Jockey)	Optimal arousal
Just really focused without being focused ... You're tuned in without having to focus, without having to tell yourself to focus. (Basketball Player)	Effortless attention
[Positive feedback] motivated me because I thought "Oh, I've got potential to do a really good time here," not just a good one. (Middle-Distance Runner)	Motivation
I don't know if I'd have thought at the time "Oh this is really fun." I was just thinking "This is good." But that's an enjoyable experience knowing that you're doing well and thinking that this is going well, so yes, it was definitely an enjoyable experience. (Middle-Distance Runner)	Enjoyment
[On] Everest, for example ... I was just plodding in a trance and ... all of a sudden, you reach the summit and you just think "My god, how did I get there?" I think I had completely zoned out ... Apparently I walked past a dead body. I didn't see it. A lot of people did. So I'm one of these people who gets very oblivious to things around me when I concentrate on my physical achievement. (Mountaineer 2)	Absorption
It was just an awareness that it was going well but not thinking about the fact it was going well. (Middle-Distance Runner)	Positive feedback about progress
Everything was incredibly silent, which was totally weird ... It was like someone just turned down the volume ... It was just like everything flowed. It was remarkable. I saw everything ... I knew where all the other jockeys were. (Jockey)	Altered perceptions

These athletes also reported that flow had an *energizing effect* (e.g., they did not feel tired after the performance). A 400m-hurdler explained:

I love it because I come off the track and I'm like "What the hell happened?" and I don't feel tired and I don't feel like it was laboured and I feel like I could go out again the next day. I look forward to going out ... and running again when it feels like that ... I really enjoy it when I get to that point when everything is coming naturally.

A jockey also described feeling like she was energized: "People were like, 'Oh, were you exhausted when you finished?' I said, 'No. I could have gone and done it again.'"

### ***Psychological Skills Used During Flow***

Finally, the athletes described using specific psychological skills to manage and maintain their flow states. *Positive distractions* focused the athlete's attention *away* from the task at

**Table 4**  
**Context and Process of Clutch Occurrence**

Example codes	Higher order themes	Categories	
The last push; one minute to go; last 50 m	End of the event	Pressure contexts	Performance contexts
When the heat is on; history is riding on it; tight situations—win or lose; when it really matters	Big moments		
When you're in with a chance; in the lead	In contention		
I realized "Okay, this is the final stretch"; I realized I had to step up; realized the situation I was in	Point of realization	Challenge appraisal	Process of occurrence
Knew I had to take the opportunity; knew I had to win that set; it was very close to life and death	Awareness of importance		
"If you're going to win this, now is the time to go"; it's now or never; I know I need to go for it	Now is the time		
Just finish; get to the top; get home alive	Completing the task	Fixed goals	
Getting to the finish line before anyone else; determined I was going to finish first; win this set	Winning		
Turning it on at the right moment; like a switch	Turning on a switch	Decision to increase effort and intensity	
It was 100% a conscious thought; conscious decision to try as hard as you can for that time	Conscious decision		
You up yourself and your game; sense of switching gears; raised my level	Stepping it up		

hand, enabling them to "switch off." These distractions could be internal, as illustrated by Marathon Runner 1: "You almost switch off from the actual running because you're just sort of thinking about stuff ... And then you sort of forget you are actually running ... like distraction." Mountaineer 2 explained how distractions could also be from external factors:

It was horrific weather and that is a good distraction ... I would say it is very easy to get into a flow when you have distractions other than the main stress of climbing which is the fear of falling ... when you have other distractions outside of the main task at hand.

Such distractions appeared to help athletes avoid the analytical, critical thoughts, which are suggested to inhibit flow states.

### Clutch States

Clutch states were reported as being experientially distinct from flow and occurred in different contexts within excellent performance. Athletes reported clutch to be about achieving an outcome regardless of the subjective experience: "It's very much just getting to the top and worrying about the experience when you're up there" (Climber 1). Others described the importance of discipline, being regimented, and "doing what needs to be done" (Netball Player) in clutch situations. This state was very much about performing under pressure: "I don't know where it comes from, that ability to not go to pieces when you're under that much pressure and hopefully string together the right actions, the right decisions" (Polar Explorer). The occurrence and contexts for these states are described next and presented in Table 4.

### Performance Contexts

Clutch states were reported to occur in *important* stages of a performance when an outcome was imminent. These important moments involved being *in contention* to win, to qualify, to

achieve personal bests, or to achieve goals (e.g., summiting a mountain). As such, the clutch performance often occurred at the *end* of the performance: “It’s usually at the end. Because that’s ... the business side of things, isn’t it, when it gets to the important part” (Tennis Player). However, important phases of performance could also occur at any stage (e.g., going behind in a match).

### ***Process of Occurrence***

The athletes described three stages in the process of occurrence for clutch performance: *challenge appraisals*, *fixed goals*, and *a decision to increase effort and intensity*: “It’s kind of like a switch for when it gets close towards the end of a match” (Badminton Player 2). Climber 1 described:

It’s almost like a conscious decision to settle into that arena and try as hard as you can for that set amount of time ... And you kind of build into that like, right okay well on this route between bolt three and bolt five, I’m going to climb as fast and as hard as I possibly can with no fear of falling, with no fear of making a mistake or anything like that. And you do that and then you get to that resting hold that you’re aiming for and then you’re not in that [clutch] state anymore. You’ve purposely chosen to do that

### ***Challenge Appraisal***

Clutch performance began with a *realization* and *assessment* of the situation that the athlete was in, as a polar explorer described:

The realization of the situation we were in ... There was a very quick assessment: “Right, ultimately what’s the goal here?” ... There was an assessment of where we were, what was going on and what needed to happen. And then a feeling of having to take action ... I almost switched into survival mode ... There’s this sudden sense of urgency ... My number one responsibility, number one goal, is getting us both home alive ... We were in a far more serious situation than I ever expected to be, far more challenged than I had ever expected to be ... [yet] I seemed to come alive ... At the one point in the journey that was the most taxing and I should have felt the most out of it ... I actually felt the reverse, I felt the most alert ... There was definitely an ability to find more energy mentally from somewhere when it really mattered.

Coinciding with this realization was an *awareness of situational demands* (e.g., what, specifically, was required in that situation) and its importance to the outcome of the event (e.g., winning/losing) and a sense that “now is the time.”

### ***Fixed Goals***

In response to this challenge, the athletes set and pursued specific goals relative to the situational demands. These goals were “fixed” in that they were objective, measurable, and often outcome focused, such as *winning*: “To be honest, I just wanted to win the match. I didn’t care how; I just wanted to win” (Tennis Player). Other goals were about completing the event: “I’ve just got to get to the top without falling off ... You’re focused more on completing the whole route, that’s the objective” (Climber 2). Indeed, athletes reported a combination of both: “In my mind, that finish line was the goal ... Get there before anyone else ... Just finish” (Triathlete 2). As evident in other themes, process and performance goals were also relevant (e.g., “Now is the time—just go for it”) for the athletes’ pursuit of these fixed, outcome-focused goals.

### ***Decision to Increase Effort and Intensity***

The athletes then reported a conscious decision to step up their efforts and enter the clutch state: “There was a definite feeling of a switching of gears, and ‘Right, okay, things are quite serious here.’ ... A feeling of having to take action” (Polar Explorer). This effort was directed at meeting the demands of the situation and employing the psychological skills used during clutch (see next). The athletes insisted that this was a *conscious decision* that they were aware of making at the time, as illustrated by Triathlete 2:

You kind of up yourself and up your game a bit ... That point ... was where I said ‘Right, if you’re going to win this ... now’s the time to go ... It’s either now or never.’ ... It was a conscious decision. It wasn’t subconscious. It was a reaction to the situation of where I was at ... It is an absolutely 100% conscious decision to do that.

### ***Subjective Experience of Clutch Performance***

This state was described as 12 themes (see Table 5), encapsulated in the following example:

I probably feel [it] the most in the last 10–20 minutes when the heat’s really on ... I played in the Heineken Cup semi-final ... and it was real tough, the last 10 minutes. It was just a war and everyone was just giving their guts and I made the last tackle of the game ... It was a big moment and I did what I had to do to stop him ... People at the top of their game make plays in the big moments. They may not make that play 10 out of 10 times, but at that moment they’ll do what needs to be done ... Lots of athletes ... do something special at crunch time. (Rugby Union Player 2)

Key differences compared to flow were that clutch was a state of *complete and deliberate focus, intense effort, and heightened awareness*, in which execution of specific skills (e.g., running) were described as *automatic* rather than the whole state (as in flow). Heightened awareness of the task demands also meant that clutch involved absence of *negative thoughts* (e.g., about failure) rather than absence of *critical thoughts* more generally. Similarities to flow included an *absence of negative thoughts, heightened arousal, absorption, confidence, perceived control, motivation, an enjoyment paradox, and altered perceptions* (see Table 5).

### ***Outcomes of Clutch***

A number of outcomes of clutch states were reported. The athletes were clear that even though the experience may not have been enjoyable at the time, it was rewarding on reflection. For example,

It can be bloody miserable ... Freezing cold, the wind’s howling, it’s snowing, horizontal snow in your face and you’re hungry, scared ... [But] you’re sitting in the pub after and you think, “That was great, I must go and do that again.” (Climber 2)

More specifically, they described a *sense of achievement, pride, and satisfaction*: “[It’s] rewarding because as it’s harder ... You just feel kind of proud of yourself that you didn’t give in to any negativity or ... didn’t give up” (Marathon Runner 2). Also,

Knowing you’ve done something, or you worked hard—I think it’s almost a reward in itself ... The finish line, that tape above your head and your name gets shouted out and the crowd claps and all the pain is gone, then comes the pleasure. (Triathlete 2)

**Table 5**  
**The Subjective Experience of Clutch Performance**

Illustrative quotes	Characteristics
You're very focused on finding gear and conditions ... You're completely focused and that's all that's in your head, you're focused on the moves, focused on placing gear ... Just that real focus. (Climber 2)	Complete and deliberate focus
It felt really hard—I was pushing to my absolute limit ... You're in that position, you know that you can win or you feel that you can win or you're in with a chance, you kind of owe it to yourself to give everything and just unload and unleash. (Triathlete 2)	Intense effort
There was a raised awareness of ... the potential risk and the seriousness of what we were doing. And I guess for both of us, a realization that we had one shot at this really. It was our opportunity for all of the training and experience, the skills that we had, to come together and be put to the test. (Polar Explorer)	Heightened awareness
There's no worrying about anything else (Climber 2); I wasn't thinking about the pressure. (Rugby Union 2)	Absence of negative thoughts
You start getting pumped up and you're just giving that extra bit of effort emotionally and physically. (Tennis Player)	Heightened arousal
I was so absorbed in myself and focusing on hitting the ball that I wasn't concentrating on anything else. (Wheelchair Tennis Player)	Absorption
The actual process of running, by then, had almost become automatic ... It wasn't like I was telling my legs to keep going. I think that had almost become ... an automatic process, that it was almost like I was just supposed to run. (Long-Distance Runner)	Automaticity of skills
I was confident because I knew what I needed to do—I knew I could do it without doubting myself. (Netball Player)	Confidence
You're spending more time keeping controlled ... There's still that last 50 [m of] crunch ... [that] moment when it's all or nothing but more of it is controlled hard. (Swimmer)	Perceived control
It was motivating to know that I was being effective. (Netball Player)	Motivation
I was probably quite enjoying being pumped up. (Tennis Player)	Enjoyment paradox
It feels like it's over in a split second. It also feels like you're going for ages ... At that moments where I'm kind of thinking, it does feel like time really slows down whereby, like that, I can describe exactly what I saw when I took a glance outside me. It feels as if, for that split second, time nearly stops. (400-m Hurdler)	Altered perceptions

Athletes also described feeling *exhausted* as a result of these clutch performances, which was not apparent during flow. This outcome appeared to reflect the themes of “giving everything” and “maximal effort” (see Table 4) as the athletes described how they *use up all their energy*. For example, “It's like ... they've already flicked the switch so that fuel's used up” (Climber 1). A 200-m sprinter described the final stages of a clutch performance: “By the time I got to the finish line I was out of breath and ready to drop ... You cross the line ... like you've just exploded, because you've used everything you had.” Rugby Union Player 2 also described these moments:

It was a big, physical game and after I made that [last] tackle, I turned around and knew that we'd won the game and ... we all roared, “Ohhh, yesss!” and then after that I was exhausted; I could hardly stand up. I bent over on my knees ... shook hands and we walked up to the sheds [changing rooms] ... and lay on my back. I was exhausted ... So you're going from doing big acts and being full-on to absolutely exhausted.

### ***Psychological Skills Used During Clutch States***

The athletes described using specific psychological skills to manage and maintain their state of clutch performance. These included *maintaining perspective*, rationalizing, and in turn setting *short-term goals*:

Four miles is like 20 minutes of pain and suffering, just go for it ... You compartmentalize and understand that pain is only going to be a fleeting thing in the grand scheme of things ... [So] I'm focused on the next person in front of me—that was the target ... It's about breaking it down into manageable little goals ... counting down the little achievements. (Triathlete 2)

Others prolonged the clutch state by avoiding complacency: "I always maintained the kind of nervousness because I kept warning myself that you haven't won this yet ... I stop myself from getting too confident so I can store up nervous energy which gives you more of an edge" (Squash Player). Finally, athletes reported *self-monitoring* ("Being disciplined, making sure I was ... controlled and doing it correctly, ... ensure I was being really regimented"; Netball Player 2) and using *positive self-talk* to maintain confidence during clutch:

Thinking positively and thinking, "Yeah, I can do this" ... but I wasn't so much thinking and telling my legs to do it—I was just telling my head I can do it. I was thinking more "No, I can keep this pace," like confident, positive thoughts. (Marathon Runner 1)

### **Transition Between States**

Finally, athletes reported transitioning between states during the same performance. For example, a jockey described moving from a flow state into clutch:

Everything was going so perfectly. There was almost a sort of disbelief ... It was just unbelievable ... It just happened ... It wasn't until I came into the home straight where I was aware that I had to really, really battle ... I knew that at that point that I was in contention ... I got into competitive mode, so when I came down the hill I was like, "You actually have a chance of winning this," and it was just completely focused ... I was definitely conscious; that was conscious thought.

Other transitions were also possible. Although clutch was typically experienced at the end of events, it may be experienced earlier (e.g., at the end of the first half of a close game), and athletes finished performances in flow too (e.g., running a personal best without realizing until afterward). Athletes described processes of appraisal (e.g., becoming aware that they could win) and resetting of goals (e.g., "See how well I can do" to "I want to win") as important in making these transitions.

## **DISCUSSION**

This study aimed to explore the psychological states underlying excellent performance in athletes across a range of sports and standards. By conducting interviews as soon as possible after these performances, we sought to understand how the psychological states are experienced and the processes through which they occurred. Similar to Swann et al. (2016), these athletes reported experiencing two states of clutch and flow. Each state occurred in specific contexts and through separate processes. Specifically, flow occurred as a buildup of confidence, whereas clutch was a relatively sudden process of "switching on" in response to appraisal of demands. The athletes also reported using different psychological skills to

maintain each state. These findings (illustrated in [Figure 1](#)) were consistent throughout the sample in that no differences were apparent across sports and standards. The following section compares both states in terms of subjective experience, performance contexts, processes of occurrence, outcomes, and psychological skills used.

### **Subjective Experience of Flow and Clutch States**

In this study, descriptions of flow were consistent with those identified in previous research on this state in sport (see [Table 3](#); Jackson & Csikszentmihalyi, 1999; Swann et al., 2012). The subjective experience of clutch comprised 12 characteristics. Several of these were experienced in both states (i.e., flow and clutch), including confidence, absorption, perceptions of control, enhanced motivation, enjoyment, and altered sensory perceptions. It would appear that these characteristics are “core” to both experiences. However, important differences emerged that distinguish this state from flow. Clutch states involved increased/maximal effort rather than feeling effortless; absence of *negative* thoughts (e.g., worry) rather than absence of *critical* thoughts more generally; conscious processing rather than being fully automatic; intensity, excitement, and anxiety; effortful concentration; and heightened awareness (e.g., of the event’s importance). These themes do not correspond with previous conceptualizations of flow (Jackson, 1996; Swann, Crust, et al., 2015) or peak performance (Anderson et al., 2014; Krane & Williams, 2006), suggesting that clutch is a distinct state underlying excellent performance in sport. Therefore, this study extends previous work on professional golfers’ descriptions of “making it happen” (Swann et al., 2016) and indicates that this subjective experience is relevant to performance in other sports and standards.

### **Performance Contexts**

An important contribution of this study is insight into the *performance contexts* where flow and clutch states occur. Clutch states occurred in when important outcomes were achievable and imminent—typically in “big moments” when the athlete was in contention to win or achieve a goal. These clutch contexts differed to those for flow, which have not been well understood in research thus far. To date, studies examining contexts for flow in sport have referred to differences between types of sport (e.g., Jackson, Thomas, Marsh, & Smethurst, 2001) or between training and competition (Koehn & Morris, 2014). Recent research has also found that flow tends to occur during the early or middle stages of performance for professional golfers (Swann et al., 2016) and, for example, in the first hour of a 6-hr run for ultramarathon runners (Wollseiffen et al., 2016). Our findings indicate that flow can occur at any time during a performance provided the context is uncertain, is novel, or requires experimentation and the athlete experiences a buildup in confidence. This supports Csikszentmihalyi’s (1975) suggestion that autotelic activities (i.e., those particularly suited to flow) “all give participants a sense of discovery, exploration, problem solution—in other words, a feeling of novelty and challenge” (p. 30). Although uncertainty has been associated with high levels of anxiety and choking (e.g., Wilson, 2012), this study suggests that uncertainty in times of confidence and perceived control can lead to positive experiences (i.e., flow) rather than negative. More recently, Abuhamdeh et al. (2014) noted that outcome uncertainty may contribute to enjoyment but is not currently addressed in flow theory. They discussed that incorporating this concept would help account for processes that underlie the enjoyment of optimal challenges and would increase the explanatory scope of the flow framework.

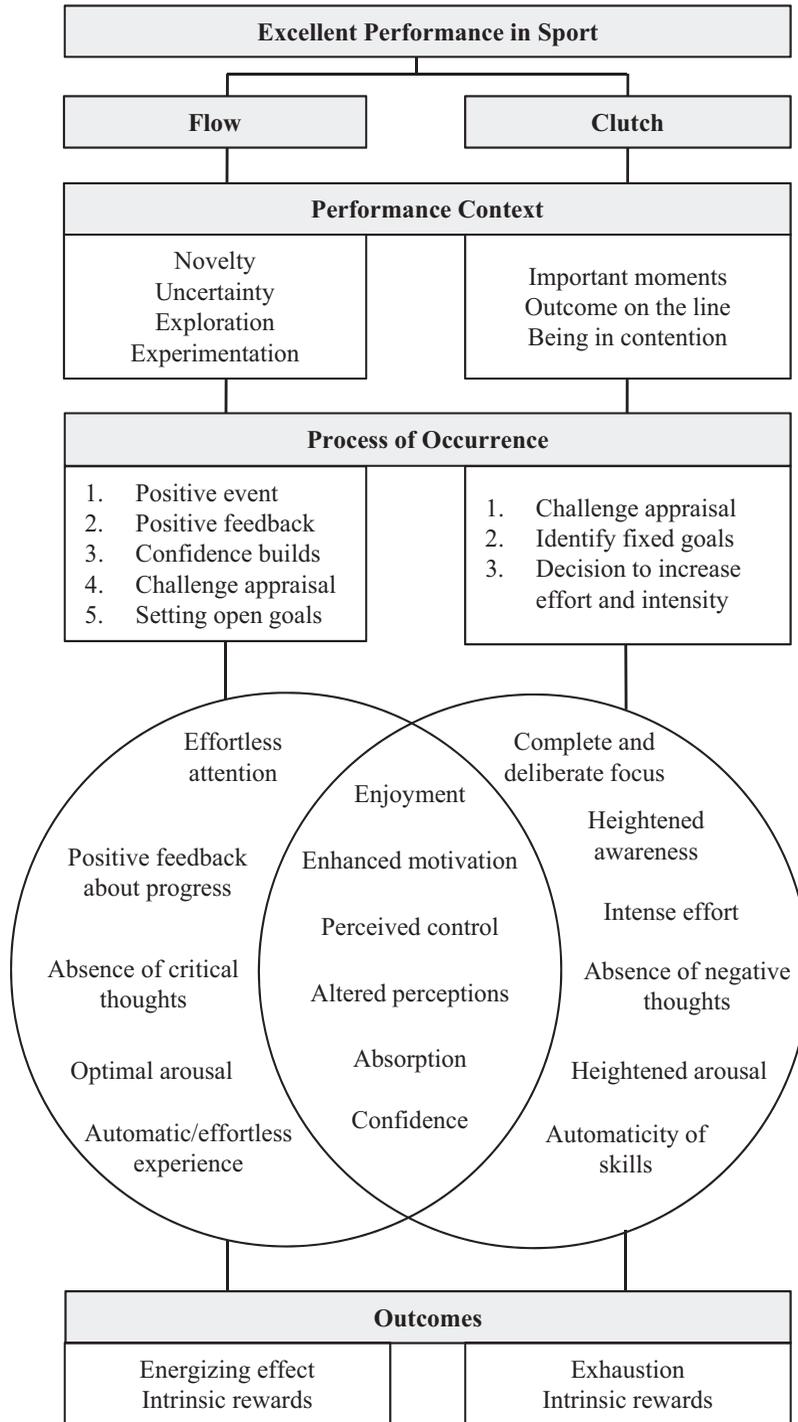


Figure 1. Integrated model of flow and clutch states in sport.

## Processes of Occurrence

The present findings also provide further insight into the processes through which flow and clutch states occurred in sport. Understanding flow occurrence has been a key aim for researchers in this area (e.g., Jackson, 1995), and these findings support the process reported by professional golfers (Swann et al., 2016). In exploratory contexts, flow occurred relatively gradually after a positive event in the performance, through which the athlete received positive feedback, and led to a buildup of confidence, appraisal of the situation as a challenge, and the setting of open-ended goals. This cycle appears consistent with theoretical models that describe how self-confidence can lead to challenge appraisals that, in turn, can lead to more approach-based goals (Jones, Meijen, McCarthy, & Sheffield, 2009). Conversely, clutch states occurred relatively suddenly through an initial challenge appraisal whereby athletes realized the performance context, became aware of its importance, and reported a sense that “now is the time.” Athletes then set “fixed” goals in relation to task demands (e.g., finish first; get to the top) and made a conscious decision to increase effort and intensity, through which they entered a clutch state. Important to note, these findings move beyond the identification of factors *associated with* flow and clutch states toward an understanding of the *processes* through which they occur. This represents an important step towards a deeper understanding—and explanation—of these desirable psychological states.

Furthermore, the goals that athletes pursued appeared to be an important factor in the occurrence of each state. “Open” goals were reported during flow, whereas “fixed” goals were reported during clutch states. Open goals seemed to avoid specific or fixed objectives, and were exploratory yet still challenging (e.g., “*See how well I can do*”). That athletes pursued open-goals during flow is consistent with findings from professional golfers (Swann et al., 2016) and original descriptions of flow: “The kind of interaction that produces autotelic experience is open-ended ... The outcome of an autotelic activity is uncertain” (Csikszentmihalyi, 1975, pp. 32–33). As previously noted, discovery and exploration are important for the contexts in which flow occurs. “Clear goals” are considered as one of the nine proposed flow dimensions (e.g., Csikszentmihalyi, 2002; Jackson & Csikszentmihalyi, 1999); however, the present findings indicate that flow requires open goals specifically. Indeed, open goals are not consistent with commonly accepted goal-setting principles in sport, which typically emphasize specific, measurable objectives as best practice (e.g., “specific, challenging goals”: Locke & Latham, 2013; the SMART acronym: Doran, 1981). Instead, such “fixed” goals were important for experiencing clutch performance. That is, these goals were relevant in contexts requiring performance under pressure through increased effort, intensity, and concentration. Taken together, these findings suggest that a new or refined approach to goal setting, which considers both open and fixed goals, is needed to achieve excellent performance through flow and clutch states.

## Outcomes of Flow and Clutch States

Both states were described as intrinsically rewarding, with athletes reporting a sense of achievement and satisfaction afterward. However, a key difference between both states was that athletes reported feeling energized after experiencing flow (and could do the activity again), whereas clutch states were associated with feelings of exhaustion. This outcome relates to the conscious effort required during clutch performances. In addition, some athletes participated in activities that require pacing (e.g., triathlon, marathon). Therefore, the descriptions of clutch performance at the end of events might also capture the subjective experience of the “end-spurt” as described in the pacing literature (Lima-Silva et al., 2013). This phenomenon occurs when, near the end of a race, athletes realize that they can significantly increase running

speed without reaching exhaustion before the finishing line and make a conscious decision to go for an end spurt (Marcora, 2008). We are unaware of any qualitative research that has explored the subjective experience of the end spurt as yet. These findings also suggest that the subjective experience underlying the end spurt may not be specific to pacing, as athletes from other types of sport (e.g., team sports) perceived similar states in their performances.

### **Psychological Skills Used During Each State**

Furthermore, these athletes reported maintaining their flow states through positive distractions, which could be internal (e.g., getting lost in thought) or external factors (e.g., the weather). Similarly, elite golfers reported focusing their concentration *away* from the task at hand during flow states, for example, by talking to their caddie in between shots (Swann, Piggott, et al., 2015). Positive distractions were used to prevent the analytical thoughts that disrupt flow, such as winning or outcomes of the event (e.g., Jackson, 1995). Conversely, athletes in clutch reported more *associative* strategies, such as setting microgoals and using positive, motivating self-talk. These strategies appeared to help by mobilizing effort, focusing attention, and maintaining confidence. Therefore, it may be the case that flow and clutch states require different styles of self-regulation (see Brick, MacIntyre, & Campbell, 2014) and that certain psychological skills are important for managing each state.

### **Summary**

In summary, this study presents evidence that *two* psychological states underlie excellent performance in sport, each of which occurred through distinct processes and contexts. These findings extend those of Swann et al. (2016) with professional golfers and moves beyond previous work that has typically assumed *one* ideal or optimal performance state (i.e., flow or peak performance; Anderson et al., 2014; Harmison, 2011; Jackson & Csikszentmihalyi, 1999; Kawabata & Mallett, 2016). Moving forward, these findings suggest that it is important for researchers interested in the psychology of excellent or optimal performances in sport to consider both flow and clutch, and the potential interaction between each (e.g., transitioning from one state to the other during performance). This perspective presents a more dynamic account of the psychology of excellent performance in sport than existing optimal experience literature (e.g., Jackson & Csikszentmihalyi, 1999). Instead, these findings are more in line with multistate frameworks such as the “multi-action plan model” (e.g., Bertollo et al., 2016) and reversal theory (e.g., Hudson, Males, & Kerr, 2016). Our findings suggest that optimal performance can involve dynamic interplay between subjective states and present data on how such underlying processes appear to occur.

### **Strengths, Limitations, and Future Directions**

Strengths of this study include the variety of sports and athletic levels represented in the sample, the event-focused data collection, and methods employed to enhance trustworthiness. However, there are also a number of limitations. First, we did not explore how the athletes' experience varies across different situations. Thus we are unable to compare the athletes' experience of excellent performance to their regular or poor performances. Second, the study was targeted toward understanding the initiation of psychological states underlying excellent performance and did not include questions targeted toward inhibition (e.g., Jackson, 1995) or restoration (e.g., Chavez, 2008) of these states. Third, the findings of this study cannot be generalized beyond the current population of athletes. In addition, we have presented our interpretation of the data, but it is important to note that others could have coded them differently and may have arrived at alternative conclusions.

The perspective emerging from this study is at an early stage of development. Therefore, to progress this field further, it is imperative that these exploratory findings are critically tested in order to move toward stronger theoretical understanding of both flow and clutch states, the links between them, and their relationships with performance. Specifically, further research is required to establish whether these findings can be replicated in performance domains such as the workplace, business, and the military. Future studies should aim to develop questionnaires that separate flow from clutch states to measure and analyze excellent performances quantitatively. Studies should test the sequence of occurrence reported for each state. We also recommend experimental work that seeks to explore practical techniques that might help to induce these states of excellent performance, including manipulation of open versus fixed goals (e.g., whether open goals set in advance of an activity can induce flow).

### Applied Recommendations

From an applied perspective, these findings suggest the importance of raising athletes' awareness of both distinct states rather than preparing for *one* ideal/optimal performance state. Indeed, understanding the subjective states of excellent performance could enable practitioners to develop better (e.g., state-specific) mental preparation strategies for athletes entering important competitions. It is important for athletes to understand the psychological skills that are relevant for managing/maintaining each state and to prepare those skills for use in each context, rather than generically across performance situations.

Specifically, to facilitate the occurrence of flow, athletes and coaches should focus on confidence-enhancing strategies in exploratory contexts and should set open goals. They should also use "positive distractions" and *dissociative* strategies to help maintain flow and "stay out of their own way" (i.e., avoid the critical thoughts that can disrupt flow states). For clutch states to occur, athletes and coaches should focus on strategies for enhancing perceived control in contexts involving importance and should set "fixed" goals. Associative strategies (e.g., breaking down task demands to be more manageable) should also be used to maintain these states. Athletes and coaches need to recognize the varying performance contexts and understand which types of goals are most appropriate to maximize psychological states to facilitate optimal performance. For example, it is important for athletes and coaches to reconsider "fixed" (specific, measurable, objective) or SMART goals as the *only* means for striving for optimal performance. In some contexts at least, open-ended goals appear to enable flow states and excellent performance.

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