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# Performing under pressure: Exploring the psychological state underlying clutch performance in sport

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# Performing under pressure: Exploring the psychological state underlying clutch performance in sport

## **Abstract**

Clutch performance is improved performance under pressure. However little research has examined the psychological state experienced by athletes in these situations. Therefore, this study qualitatively examined the subjective experience underlying clutch performance across a range of sports (e.g., team, individual) and standards (Olympic to recreational athletes). Sixteen athletes (Mage = 27.08 years; SD = 6.48) took part in in-depth, semi-structured interviews primarily after an exceptional performance (M = 4.38 days later; SD = 3.14). Data were analysed inductively and thematically. Clutch states involved 12 characteristics, including heightened and deliberate concentration, intense effort, and heightened awareness, which distinguished the experience of clutch from other optimal psychological states such as flow. Other characteristics, such as perceptions of control, were also reported and supported previous experimental research on clutch. These findings present in-depth qualitative insights into the psychological state underlying clutch performance, and are discussed in relation to existing literature on optimal psychological states in sport.

## **Keywords**

under, performing, sport, clutch, performance, underlying, state, psychological, exploring, pressure:

## **Disciplines**

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## **Authors**

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1 Running head: PSYCHOLOGICAL STATE UNDERLYING CLUTCH PERFORMANCE

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4 Performing Under Pressure: Exploring the Psychological State Underlying Clutch

5 Performance in Sport

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24 \*\*Author Note: Christian Swann was at University of Lincoln during data collection for this  
25 study, and then at University of Wollongong during data analysis and write-up.

1 **Abstract**

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3 examined the psychological state experienced by athletes in these situations. Therefore, this  
4 study qualitatively examined the subjective experience underlying clutch performance across  
5 a range of sports (e.g., team, individual) and standards (Olympic to recreational athletes).  
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14 existing literature on optimal psychological states in sport.

15

16 **Keywords:** choking; conscious control; expertise; optimal experience; peak performance.

## **Performing Under Pressure: Exploring the Psychological State Underlying Clutch Performance in Sport**

The field of positive psychology (Seligman & Csikszentmihalyi, 2000) emphasizes understanding of optimal human functioning through themes such as optimal subjective experiences and performance excellence. The competitive environment of sport is an ideal context to investigate optimal functioning as athletes of all standards of competition strive to achieve peak performances and new levels of achievement (Jackson & Kimiecik, 2008). Indeed, a key objective among coaches and sport practitioners is to help athletes achieve exceptional performances and new levels of achievement more consistently (Harmison, 2011). Researching the subjective experience of excellent sport performances will build understanding of the processes underlying these outcomes, and the various strategies that help induce or prolong them (for example, through targeted psychological skills training). This study aimed to qualitatively explore the important, but relatively under-studied, subjective experience underlying clutch performance in sport.

### **Psychological States Underlying Excellent Performance**

Professional golfers (Swann, Keegan, Crust & Piggott, 2016) reported experiencing two distinct subjective states during excellent performances (e.g., winning a tournament), described as: (1) "*letting it happen*" which corresponded to flow; and (2) a more purposeful, effortful and intense state described as "*making it happen*". While there were a number of similarities in how each state was experienced (e.g., confidence, absorption, enjoyment), making it happen was described as heightened and effortful concentration, intensity of effort, and heightened awareness of the situation – which do not correspond with previous conceptualisations of flow (e.g., Jackson & Csikzentmihalyi, 1999) or peak performance (e.g., Krane & Williams, 2006). Moreover, each state occurred through a separate process: flow occurred through a relatively gradual build-up of confidence; whereas "*making it happen*"

1 was a more sudden appraisal of situational demands and ‘stepping up’ of effort and  
2 concentration. Therefore, “making it happen” emerged as a psychological state underlying  
3 excellent performance which had not yet been conceptualised qualitatively. Indeed, Swann et  
4 al. (2016) noted that “making it happen” occurred in circumstances similar to those required  
5 for clutch performance (Hibbs, 2010, see below).

6 Subsequently, Swann et al. (under review) examined the psychological states  
7 underlying excellent performance across a range of sports (team, net/wall, sprint, endurance,  
8 and outdoor/adventure activities) and standards (Olympians to recreational athletes). In event-  
9 focused interviews, those athletes reported similar findings to professional golfers (Swann et  
10 al., 2016) in terms of the states experienced and processes through which they occurred. In  
11 turn, those findings provided support for the existence and relevance of this clutch state to  
12 excellent performance in sport. This means that, to date, two studies (Swann et al., 2016;  
13 under review) have qualitatively suggested the existence and importance of the psychological  
14 state of clutch (“making it happen”) in excellent performance. However, both previous studies  
15 adopted a broad focus on both flow *and* clutch states. For example, those studies described the  
16 processes through which each occurred, with relatively little emphasis on how each state was  
17 experienced by athletes. Therefore, an in-depth qualitative exploration of the psychological  
18 state underlying clutch performance in sport has not yet been conducted – thus representing  
19 the primary aim of this study.

## 20 **Clutch Performance**

21 The term “clutch” performance appears to have originated in America, primarily  
22 through statistical analysis of baseball hitting (e.g., Cramer, 1977). A clutch response has  
23 been defined as “any performance *increment* or *superior* performance that occurs under  
24 pressure circumstances” (Otten, 2009, p. 584). Moreover, a clutch performance occurs when  
25 an athlete succeeds during a pressure situation, is aware that the performance occurs during a

1 pressure situation, has the capacity to experience stress, perceives the outcome of the  
2 competition as important, and succeeds largely through effort (Hibbs, 2010). Therefore, clutch  
3 performance is about above-average performance in a competitive pressure situation, during  
4 which the athlete is aware of the pressure – as in professional golfers’ descriptions of  
5 “making it happen.”

6 To date, the study of clutch performance has primarily focused on objective  
7 performance scores. For example, an archival study of major league baseball (Otten &  
8 Barrett, 2013) found that pitching statistics were significantly correlated from regular season  
9 (where there is less pressure) to post-season (where there is more pressure). In another  
10 archival study of professional basketball games, eight basketball experts ranked players  
11 according to their perceived reputation of being clutch shooters (Solomonov, Avugos, & Bar-  
12 Eli, 2015). Players with a reputation of clutch performances had better statistics in the most  
13 decisive phases of the game and appeared to be less affected by environmental conditions  
14 during pressure conditions. Researchers have also used experimental methods to examine  
15 clutch performance. In a study of basketball shooting, participants were asked to perform two  
16 sets of 15 basketball free throws and (in the experimental condition) were informed that their  
17 performance would be videotaped to induce performance pressure (Otten, 2009). Individuals  
18 who reported feelings of “perceived control” performed better in the pressure condition,  
19 suggesting that this construct is important for clutch performances to occur.

20 Two studies have also used qualitative methods to explore clutch performances. Hill,  
21 Hanton, Matthews and Fleming (2010) interviewed six elite golfers who reported choking  
22 frequently under pressure, and five elite golfers who reported excelling frequently under  
23 pressure. Those who excelled under pressure reported a lowering of expectations, a greater  
24 external focus on task-related cues, a greater focus on performance improvement in  
25 preference to winning, a perception that anxiety was helpful to their performance, and greater

1 perceived control over their performance. In another study of elite golfers, interviews were  
2 conducted with six golfers who had experience of both choking and clutch performances  
3 under pressure (Hill & Hemmings, 2015). The golfers reflected on the coping strategies they  
4 had adopted when they had choked and when they had a clutch performance. More approach-  
5 based coping strategies (i.e., those in which the athlete actively addresses, removes, or  
6 changes the stressor; Hill & Hemmings, 2015) were reported during a clutch performance,  
7 including adoption of a pre and post-shot routines, reappraising threatening stressors, and  
8 placing oneself under pressure during practice to rehearse coping strategies. One study used a  
9 mixed-method approach to sample choking-resistant and choking-susceptible athletes  
10 (Mesagno & Marchant, 2013). The athletes completed 180 netball shots under conditions of  
11 low and high pressure, and were interviewed afterwards. Under pressure, the choking-  
12 resistant participants used coping strategies that directly tackled the stressor, whereas  
13 choking-susceptible athletes used coping strategies that involved ventilating, managing, or  
14 palliating emotions.

15       Taken together, these findings provide evidence for the existence of clutch  
16 performance and offer insight into how athletes manage pressure during critical conditions.  
17 However, less is known about the subjective state experienced by athletes while excelling  
18 under pressure. Therefore this study aimed to build on the preliminary findings of Swann et  
19 al. (2016; under review) by qualitatively exploring, in-depth, the subjective experience  
20 underlying clutch performance in sport. Specifically, we sought to interview athletes as soon  
21 as possible after an excellent performance to maximise detail, accuracy, and chronology of  
22 their accounts of clutch performance (cf. Swann et al., 2016). In turn, we seek to contribute to  
23 calls for a shift in the literature to focus on the study of clutch performance under pressure  
24 (e.g., Otten, 2009).

25

## Method



## 1 **Participants**

2           Sixteen athletes (five women and eleven men) participated in this study. The average  
3 age of participants was 27 years ( $SD = 6.48$ ; range = 20 to 40 years). These athletes were  
4 from England ( $n = 13$ ), Ireland ( $n = 1$ ), Scotland ( $n = 1$ ), and New Zealand ( $n = 1$ ) and were  
5 competing in world class (e.g., Olympians, winner of Rugby Union world cup) to recreational  
6 events (e.g., running marathons). Thirteen athletes (see Table 1) were interviewed after a  
7 specific excellent performance ( $M = 4.38$  days later;  $SD = 3.14$ ; range = next day to 9 days  
8 later). The average duration of these event-focused interviews was 61 minutes ( $SD = 17.51$ ).  
9 Follow-up interviews were conducted with three additional athletes in order to enhance  
10 trustworthiness (see below).

11                               \*\*\*\*Insert Table 1 near here\*\*\*\*

## 12 **Sampling**

13           We purposively sampled participants who had recently achieved an excellent  
14 performance. These individuals were therefore more likely to experience optimal  
15 psychological states and be able to articulate such experiences with detail and clarity.  
16 Furthermore, we sought athletes from a range of sport types and standards where the  
17 demands of competition are likely to differ. Specifically, we recruited athletes ranging from  
18 world-class elite to sub-elite/recreational standards (Swann, Moran & Piggott, 2015), and  
19 from activities which included team sports, endurance events, sprint events, net/wall games,  
20 and outdoors/high-risk activities. Excellent performances were considered to include personal  
21 bests, winning tournaments (or placing highly in competitive events), and recognition from  
22 others (e.g., player of the match awards). Importantly, we sought performances (or parts of  
23 the performance) which the athlete considered to be excellent and ascertained this at the start  
24 of the interview. A number of strategies were used to recruit athletes as soon as possible after  
25 such performances. Using personal contacts, athletes were recruited at the beginning of the

1 study and asked to contact the authors in the event of a performance that they considered to  
2 be excellent. Additionally, athletes were contacted by the research team after performances  
3 which appeared to match the criteria above. These performances were primarily identified  
4 through internet-based performance reports, and athletes were contacted directly through  
5 management companies, personal websites, or personal connections of the research team.

## 6 **Procedures**

7 Ethical approval was granted by a university research ethics committee prior to  
8 commencing the study. After making contact, participants were asked if they would be  
9 interested in taking part in an interview about that event. Upon agreeing, the interviews were  
10 arranged to take place as soon as possible. Four interviews were conducted face-to-face, four  
11 were conducted via Skype, and eight were conducted via telephone. A deliberate process was  
12 employed to develop rapport in order to minimize differences in the quality of data obtained  
13 between face-to-face and electronic interviews (DiCicco-Bloom & Crabtree, 2006). All  
14 participants provided informed consent after the researcher had explained the general purpose  
15 of the study. Data were collected until saturation was perceived (i.e., no new themes  
16 emerged; Coté, Samela, Baria, & Russell, 1993). All interviews were recorded and brief  
17 notes were taken during the interviews. The recordings were later transcribed verbatim.

## 18 **Interview Schedule**

19 A semi-structured, open-ended approach was adopted to provide the interviewee  
20 freedom to elaborate and develop areas of perceived importance, while also using specific  
21 probing questions where necessary to gain further insight (Sparkes & Smith, 2014). Similar  
22 to Swann et al. (2016), the event-focused interview guide focused primarily on the participant  
23 recalling in chronological sequence the performance for which they were sampled. When  
24 they described situations matching those of clutch performance (as defined by Otten, 2009  
25 and Hibbs, 2010), the interview focused on their subjective experience of performing in that

1 situation. Therefore, key themes addressed the subjective experience underlying clutch  
2 performance, and questions included: “Can you describe in as much detail as possible what  
3 this experience was like?”; “What were the clearest indicators of being in this state?”; and  
4 “what were you thinking and feeling at the time?” Probing questions were also asked, such  
5 as: “can you elaborate on that?” A conversational and open-ended approach was adopted by  
6 the interviewer (i.e., first author) to develop rapport and allow new themes to emerge (Potter  
7 & Hepburn, 2005).

## 8 **Data Analysis**

9 A team approach was used to guide data analysis. The first author collected the data  
10 and became familiar with the transcripts through a process of *in-dwelling* – reading and re-  
11 reading the transcripts (Maykut & Morehouse, 1994). A detailed transcript was produced for  
12 each participant and was used to select relevant quotations and generate initial codes (Braun  
13 & Clarke, 2006). Once the data for all participants had been collated an emergent cross-case  
14 analysis was conducted (Stake, 2006). This process involved the research team searching for  
15 parallels between participant experiences in order to identify patterns and consistent themes  
16 in the subjective experience underlying clutch performance. Consistent codes were  
17 categorized and defined as higher-order themes. The themes were reviewed for consistency  
18 and transparency using the trustworthiness processes outlined below (Braun & Clarke, 2006).

## 19 **Trustworthiness**

20 The term *trustworthiness* has been used by qualitative researchers to describe methods  
21 that ensure optimal quality in the work (Sparkes & Smith, 2014). A number of steps were  
22 taken to establish trustworthiness. First, *peer debrief* was conducted between the first author  
23 (lead investigator) and each of the co-authors who provided ongoing guidance, critical  
24 evaluation of the data, and challenged the lead researcher’s assumptions (Creswell & Miller,  
25 2000). This process took place through regular formal discussions, and informal meetings

1 with each team member. For example, several conversations discussed the various  
2 approaches to coding themes and the most suitable labels for those themes.

3         The peer debrief was concerned with the ongoing *process* of data collection and  
4 analysis. In addition, ‘critical friends’ were asked to critique and provide feedback about the  
5 *results* of these processes (Smith & Caddick, 2012). This dialogue centred on the fairness,  
6 appropriateness, and believability of the researchers’ interpretations of the data and analysis  
7 (Smith & Caddick, 2012). This process took the form of follow-up interviews with three  
8 athletes ( $M_{\text{age}} = 34$  years,  $SD = 5.19$ ) who were not involved in the event-focused data  
9 collection (interview length,  $M = 60$  mins;  $SD = 17.03$ ). The purpose was to develop  
10 emergent themes, refine ideas, and assess the adequacy, relevance, and meaningfulness of  
11 themes (Onwuegbuzie & Leech, 2012). These athletes were from England ( $n = 2$ ) and New  
12 Zealand ( $n = 1$ ), and high performance athletes were sought on the assumption that they  
13 would have more experience to draw on (Jackson, 1996). These athletes included a  
14 professional rugby union player with over 100 caps for New Zealand All Blacks who had  
15 won the Rugby World Cup; a professional badminton player who had competed in the  
16 Olympics and medalled in the Commonwealth Games, and a world record holding polar  
17 explorer. These athletes were recruited via snowball sampling and personal contacts. The  
18 participants were provided an overview of the study findings and asked whether the findings  
19 corresponded with their own experiences. For both the follow-up interviews and additional  
20 participants, strong agreement was expressed with the findings (i.e., the findings  
21 corresponded with their experiences and no changes were suggested). To obtain further data,  
22 these athletes were asked to provide examples from their own experience to illustrate how the  
23 presented findings related to their performance. These data were analysed using the same  
24 processes described above, and were incorporated in the final analysis where the  
25 corresponding athletes are identified by “2” to indicate the second phase of interviews.

## 1 **Results and Discussion**

2 The analyses revealed 12 characteristics which made up the subjective experience  
3 underlying clutch performance (see Table 2). Similar to previous studies (Swann et al., 2016,  
4 under review), some characteristics overlapped with flow states, while others distinguished  
5 this experience. The following sections present the 12 emerging characteristics of clutch  
6 states in order of those which distinguish this state, and then those that overlap with flow.  
7 Each is discussed in relation to existing literature, before a General Discussion reflects on the  
8 implications of these findings.

9 \*\*\*\*Insert Table 2 near here\*\*\*\*

### 10 **Defining Characteristics of Clutch States**

11 Six characteristics of clutch states appeared to be distinct from existing research on  
12 optimal psychological states in sport, such as flow (Csikszentmihalyi, 2002; for a review see  
13 Swann, Keegan, Piggott & Crust, 2012) and peak performance (e.g., Anderson et al., 2014;  
14 Krane & Williams, 2006). As such, these appeared to be defining characteristics of clutch  
15 states.

16 **Complete and deliberate focus.** Clutch was described as a state of *complete*  
17 *concentration* and *increased focus* on the task: “just focussed on hitting that ball where I  
18 wanted to hit it that I wasn’t really concentrating on anything else...I’ve never focussed like  
19 that before” (Wheelchair tennis player). This concentration was sustained throughout the  
20 clutch state, represented by the theme *staying focused*. Importantly, this concentration was  
21 effortful and deliberate: “It’s very much a conscious effort to really focus...a conscious effort  
22 really to make myself play better...it was very much that “I’ve got to play better now”  
23 (Badminton player B: 2). This theme is different to the effortless attention reported during  
24 optimal performance states previously (e.g., Bruya, 2010), and suggests that conscious  
25 control of performance can be important under pressure (i.e., during clutch states).

1           **Intense effort.** The athletes described performing with maximum effort during clutch  
2 states. Some described *giving everything*: “I was digging as deep as I could” (Triathlete A).  
3 Others reported *working/trying harder* in clutch: “It didn’t just feel like everything kind of  
4 came together and happened easily...I had to fight really hard in the match. I basically won, I  
5 feel like, because I tried harder than her, I put in that extra effort” (Squash player), and “I had  
6 to really work for it and push...I basically forced the energy to come out of me” (200m  
7 sprinter). These efforts were described as *consciously demanding*: “I think it’s more  
8 conscious effort than unconscious natural effort...Definitely more conscious” (Climber B).  
9 This characteristic was reported in relation to clutch often occurring at the end of  
10 performances: “you’re putting as much effort in because you know that, after that, there’s  
11 nothing to save your energy for. So you can kind of put it all out on the line...you feel like  
12 you’re trying more” (Badminton player B: 2). This theme differs to the perceptions of  
13 effortless performance reported in other optimal psychological states such as flow (e.g.,  
14 Jackson, 1996) and peak performance (Krane & Williams, 2006).

15           **Heightened awareness.** The athletes described a *heightened awareness of self* during  
16 these states: “reflecting on this tournament...I can tell you what I was thinking at what point  
17 because I was very aware of myself and my thoughts” (Wheelchair tennis). Athletes reported  
18 thinking about the performance and *self-monitoring* during clutch states:

19           I was very much consciously thinking in that game. I was thinking about what I was  
20           doing...I was telling myself what I needed to do, where I needed to go...I think that  
21           telling myself [to do it]...just meant I did it rather than it just happening (Netballer).

22           The athletes were aware of the *importance of the situation* during clutch states, which led to  
23 perceptions of stress and pressure. A polar explorer (2) described how “there was a raised  
24 awareness of...the potential risk and the seriousness of what we were doing.” Badminton  
25 player A also described:

1 I really felt at that point the pressure was quite high. Yeah, I just didn't want to lose  
2 it...that was probably the most pressure we'd had on us throughout the tournament  
3 really...there was a lot of pressure obviously put on ourselves to beat them, but also,  
4 the national coaches and all the other players were expecting us to win.

5 This theme was about *importance* rather than specific *demands* of the situation and was  
6 reported during the clutch state (i.e., separate to an initiating appraisal).

7 **Heightened arousal.** The athletes described the clutch state to be a *tense* experience.

8 For example, a netballer described how, during clutch moments: "you're always feeling  
9 anxious, like, "shit, what if something happens and we don't actually win?"" Others  
10 described being *pumped up* and having *energy*. For example, "You do have more  
11 energy...There's an energy you get from being so focused" (Rugby union player: 2). A  
12 squash player explained combined feelings of nervousness and excitement:

13 I was very nervous, so I kind of didn't tire mentally, which helped me stay focused...I  
14 guess near the end of the game I get...a mix of nerves and excitement...Nervous  
15 that...you're not going to close it out, and excited that you've almost won the game.

16 This quotation suggests that the heightened arousal state (anxiety and excitement) is  
17 considered facilitative (helpful) to performance, which is consistent with existing literature  
18 (e.g, Hanton, Neil & Marchant, 2008). Similarly, choking-resistant athletes in Mesagno and  
19 Marchant (2013) described nerves and butterflies when performing under pressure, and  
20 golfers who excelled under pressure were able to control their anxiety symptoms and  
21 interpret them positively (Hill & Hemmings, 2015).

22 **Absence of negative thoughts.** Despite being aware of the importance of the  
23 situation, these athletes described an absence of negative or self-critical thoughts during  
24 clutch states, even in moments of highest pressure as an All Black rugby player (2) reported:

1 [In] the World Cup Final...with one minute to go, and everything riding on it...24  
2 years of history...There's a fair bit of pressure on this, you know what I mean?...I  
3 wasn't thinking about that. I knew the job I had to do; I wasn't thinking about 24  
4 years or what the crowd thought, or whatever – I was in a zone. I was getting the job  
5 done that I've always done and it didn't matter that it was the World Cup final.

6 Absence of negative thoughts, and loss of self-consciousness, have been reported previously  
7 as part of flow and peak performance states (Jackson & Csikszentmihalyi, 1999; Krane &  
8 Williams, 2006). Similarly, choking-resistant athletes have described staying positive and  
9 optimistic under pressure (Mesagno & Marchant, 2013), and golfers reported increased goal  
10 expectancy during clutch performance (Hill & Hemmings, 2015). That is, despite awareness  
11 of pressure and importance, the athletes remained positive and optimistic during clutch.

12 **Automaticity of skills.** Even though athletes reported conscious awareness and  
13 deliberate thought processes, they also reported automatic execution of skills during clutch  
14 states. For example, a marathon runner described how the process of running became  
15 automatic in the finishing stages; and a rugby player reported not thinking about execution of  
16 specific skills such as passing the ball. The present data suggests that *both* automatic and  
17 controlled processes may be involved during clutch states. That is, conscious effort is  
18 invested into management of the performance, while execution of the specific skills remains  
19 automatic. This finding is in contrast with conceptualisations of optimal states such as flow  
20 (Csikszentmihalyi, 2002) and peak performance (e.g., Krane & Williams, 2006) which are  
21 characterised as automatic, effortless experiences. Instead, these data are in line with more  
22 recent and complex perspectives which emphasise the role of conscious processing in expert  
23 performance (e.g., Toner & Moran, 2014). For example, it has been suggested that  
24 competitive performance regularly presents situations in which conscious and critical



1 deliberation is essential to maintain performance proficiency and negotiate task demands  
2 (Toner, Montero & Moran, 2014) – as appears to be the case in clutch states.

### 3 **Overlapping Characteristics**

4 The remaining six characteristics appeared to be consistent with those reported during  
5 optimal psychological states previously. That is, these characteristics overlapped with aspects  
6 of the experience of these other states.

7 **Absorption.** The athletes described being totally absorbed in what they were doing.

8 Long distance runner A reported that: “I didn’t even hear my friends shouting and screaming  
9 at me...I couldn’t even tell you how many people were even on the finish stretch with me.”

10 Others explained how they were only aware of relevant factors during clutch states:

11 You’re focussed and you’re right in the moment...there are 82,000 people there; [but]

12 I wouldn’t even know they were there. That’s how switched-on you are...It’s there at  
13 that very moment. You are there, you are aware of everything, you are completely  
14 committed to whatever presents in front of you (Rugby union player: 2).

15 Similar to other states such as flow, choking-resistant athletes in Mesagno and Marchant  
16 (2013) described absorption in the performance (e.g., to the point of not noticing the  
17 audience).

18 **Confidence.** The athletes described having confidence during clutch states. This  
19 confidence appeared to be robust and pre-existing for some athletes who ‘backed  
20 themselves’: “If the pressure’s on and it’s a crunch play, I back myself” (Rugby union player:  
21 2). Others described how “you give yourself a forced confidence level” (200m sprinter), for  
22 example, through skills such as self-talk as Climber A reported:

23 If I know that I’ve got a hard pitch and I know I’m going to try as hard as I can...then  
24 I, sort of, build up to that and talk myself into being able to execute those moves and

1           try as hard as I can...I can say I almost force myself into a...forced...state, forced  
2           situation...[where] I can kind of shut out everything else and execute those moves.  
3   Others had *confidence in meeting demands* that were more specific to the performance: “I  
4   just felt really confident...going into that last game I was like “this is my serve, I’m not going  
5   to miss”...so I’m really confident” (Wheelchair tennis player). Confidence relates to  
6   perceptions of control (Otten, 2009, see below) reported as necessary for clutch performance.  
7   Similarly, McKay, Lewthwaite and Wulf (2012) reported that enhanced expectancy improved  
8   performance in challenging situations. In turn, this theme suggests that clutch performance  
9   occurs in situations perceived as a challenge rather than threatening or harmful (e.g., Jones,  
10   Meijen, McCarthy & Sheffield, 2009).

11           **Perceived control.** Similarly, athletes described perceptions of control over their  
12   performance and the situation during clutch states. This perception seemed to be a by-product  
13   of making progress and being purposeful. For example, a 200 m sprinter reported: “I think  
14   [I’m] more in control...because...you can actually feel like you’re physically forcing  
15   everything to move forward.” This theme supports Otten’s (2009) experimental findings that  
16   perceived control distinguished between those who performed better under pressure, and  
17   those whose performance deteriorated under pressure. Perceived control is suggested to lead  
18   to facilitative rather than debilitating anxiety (Hanton, Neil & Mellalieu, 2008), and challenge  
19   rather than threat states (Jones, Meijen, McCarthy & Sheffield, 2009), which may explain its  
20   importance for clutch performance.

21           **Enhanced motivation.** Athletes also reported feeling more motivated during their  
22   clutch state. This sense related to feedback obtained during the performance/state and  
23   increased confidence described above. For example, a tennis player reported how this  
24   motivation related to the performance context: “I believed I could win. It was just whether I  
25   could get over the finish line...I guess that's kind of more motivation. I enjoy it when it gets

1 to that stage and every point is quite a big point.” This finding does not appear to relate to the  
2 *type* of motivation experienced – which could be either intrinsic (to survive) or extrinsic (to  
3 win a trophy and prize money) – but rather the *intensity* of motivation (e.g., Brehm & Self,  
4 1989).

5 **Enjoyment paradox.** The athletes often reported gaining enjoyment from the clutch  
6 state after the event (see below) and some described enjoyment during the event. For  
7 example, a rugby union player (2) described *enjoying the situation*: “For me, that’s when I  
8 feel in my element and that’s the part that I enjoy.” However, given the effort and high  
9 arousal associated with this state (described above), it is perhaps unsurprising that others  
10 described it as “definitely not as enjoyable as other parts of the race” (Long-distance runner  
11 A). One example was this summary:

12 It’s funny because you do enjoy it and you don’t enjoy it. Obviously you want to win,  
13 so with the fact you might lose, you’re not enjoying it in that sense. But you’re  
14 enjoying the fact that it’s becoming close and, if you end up winning the set, then the  
15 emotion that you’ll feel will be awesome (tennis player).

16 Enjoyment is also reported in states of peak performance and flow, suggesting that the clutch  
17 state is a similarly optimal experience, that is, a positive state of consciousness that provides  
18 strong positive feelings associated with happiness and a self-fulfilling experience that results  
19 from exerting effort (Jackson & Wrigley, 2004).

20 **Altered perceptions.** The athletes reported feeling *alertness* during clutch states: “we  
21 definitely had to be more alert...the focus was much more on being alert and paying more  
22 attention to the conditions and to our safety” (Polar explorer: 2). Some described a sense of  
23 *time slowing down*, while athletes also reported a *loss of memory*: “In the semi-final I don’t  
24 actually remember the last game...I really just don’t remember the last point or the last game  
25 at all” (Wheelchair tennis player). Others reported *heightened senses*:



1           Furthermore, some of these descriptions correspond with previous findings about  
2 performing under pressure. The experience of greater self-reported effort (Cooke, Kavussanu,  
3 McIntyre, & Ring, 2010), heightened excitement and arousal that relate to better  
4 concentration (Allen, Jones, McCarthy, Sheehan-Mansfield, & Sheffield, 2013), anxiety that  
5 is associated with enhanced effort (Eysenck, Derakshan, Santos & Calvo, 2007), and  
6 facilitative interpretations of anxiety symptoms (Hanton et al., 2008) that coincide with  
7 perceptions of control (Jones, 1995), have all been reported in the literature and were  
8 consistent with the concept of clutch performance detailed by athletes here. Further, expert  
9 athletes are often found to revert to positive monitoring in an attempt to maintain excellent  
10 performance (Oudejans, Kuijpers, Kooijman, & Bakker, 2011). This research is consistent  
11 with the present findings, where athletes focused on self-monitoring and conscious  
12 processing, but did not focus on execution of skills or movements that were instead described  
13 as automatic.

14           Indeed, one important finding was that the clutch state was described as a conscious  
15 process, and the athletes reported self-monitoring during their performance. Similarly, they  
16 described heightened awareness of themselves and the situation, as well as consciously  
17 investing intense effort. This finding has implications for the broader literature on expertise  
18 and skilled performance. For example, traditional and contemporary theories of motor skill-  
19 learning (e.g., Fitts & Posner, 1967; Shiffrin & Schneider, 1977) propose that expert  
20 performance is largely automatic in nature, emphasizing the “spontaneous” nature of skilled  
21 performance (Toner & Moran, 2014). A postulate of these accounts of expertise is that  
22 performance deteriorates when a performer attempts to exert conscious control during skill  
23 execution (Beilock et al., 2002; Masters & Maxwell, 2008). Toner and Moran (2014),  
24 however, discussed how this postulate has been challenged by empirical evidence (e.g.,  
25 Geeves et al., 2014) which suggests that expert performers can strategically deploy conscious

1 attention during performance. The present findings suggest that during clutch performance,  
2 athletes across a range of standards can perform in a consciously-controlled manner where  
3 specific *skills* are executed automatically, but that their psychological state more generally is  
4 consciously regulated (e.g., by increasing effort and concentration). In turn, it is arguably  
5 important to avoid a ‘one size fits all’ approach to expert performance, but rather to  
6 understand the specific states in which experts perform (e.g., flow and clutch), and the  
7 different processing and self-regulation strategies which are relevant in those contexts.

8         Standard definitions of clutch performance (Hibbs, 2010; Otten, 2009) may require  
9 refinement in light of the findings presented here. Specifically, the present study indicates  
10 that a clutch performance can be experienced in situations beyond competition such as in  
11 dangerous situations (polar expeditions) and in training. The descriptions of clutch states may  
12 also capture the subjective experience of the “end-spurt” (Lima-Silva et al., 2013; Swann et  
13 al., under review). That is, in events which require pacing (e.g., marathons), athletes realize  
14 that they can significantly increase their speed without reaching exhaustion before the  
15 finishing line, and make a conscious decision to go for an end spurt (Marcora, 2008).  
16 Therefore, the experience of an end spurt in pacing contexts may be one instance of more  
17 widely-experienced clutch states.

18         Indeed, *optimal experience* is defined as comprising multidimensional aspects of  
19 positive experiences in sport associated with happiness and self-fulfilling experiences that  
20 result from exerting effort (Jackson & Wrigley, 2004). Most research has focused on flow,  
21 peak experience, and peak performance as core concepts under this umbrella term (Jackson &  
22 Kimiecik, 2008). The present findings suggest that clutch states provide analogous positive  
23 feelings (intrinsic rewards) and self-fulfilling experiences (achievement of goals), and might  
24 be included in the *optimal experience* concept.

1           Finally, there appears to be overlaps between these athletes' descriptions of clutch and  
2 the "Type 2" performance state in the recently proposed Multi-Action Plan model (Bortoli et  
3 al., 2012). Type 2 is considered to be optimal yet consciously-controlled state involving  
4 nervousness, task relevant focus, and fatigue – as is reported in clutch. However, there are  
5 also differences in that Type 2 occurs in a threat state whereas these athletes reported that  
6 clutch occurred in a state of challenge which corresponds with the perception of control (e.g.,  
7 Otten, 2009). Indeed, to be considered optimal (as defined above), it is arguably necessary  
8 that the state is experienced as challenge rather than threat – the athlete is challenged to  
9 perform under pressure; and threat appraisals are, by definition, negative. Hence, the present  
10 findings demonstrate similarities with Type 2 performance, but that athletes qualitatively  
11 report important differences which warrant further investigation.

## 12 **Limitations and Future Directions**

13           Strengths of this study include the athletic levels represented in the sample and the  
14 steps taken to ensure trustworthiness. However, there are a number of potential shortcomings  
15 that readers must consider in their interpretation of study findings. First, even though follow-  
16 up interviews were conducted with three athletes to ensure an accurate representation of the  
17 athletic experience, the use of two time-points for all athletes might have offered valuable  
18 insight into how clutch states relate to more standard (or choking) pressure responses.  
19 Second, we were unable to explore all potentially important information related to clutch  
20 states, and other important themes might include their inhibition, and possible restoration.  
21 Third, we are unable to generalise our findings beyond the current population of athletes.  
22 Whether clutch states are experienced the same way in other performance contexts (e.g.,  
23 academia, the military, dance, or work) remains unknown. Last, we have presented our  
24 collective interpretation of the data, and it remains unknown whether other researchers might  
25 have coded responses differently or formed alternative conclusions.

1           Should these findings be verified independently, they could have implications for  
2 athletes, coaches, and sport practitioners. For instance, it may be useful for athletes to  
3 understand the processes underlying clutch states as this might enable them to induce or  
4 prolong the experience when necessary during performance. In particular, it may be  
5 important for practitioners to discuss occasions when conscious control can be *useful* during  
6 performance – moving beyond previous suggestions that optimal performance is automatic.  
7 Future qualitative research should strive to minimise the delay between event and interview  
8 even further (e.g., by conducting interviews within 24 hours of events). We recommend  
9 future research begin to develop measures for clutch performance in order to examine these  
10 states using quantitative analyses. We also recommend experimental work that seeks to  
11 explore practical techniques that might help to induce, and maintain/prolong clutch states  
12 (e.g., through self-regulation strategies).

13



## References

- 1  
2 Allen, M. S., Jones, M., McCarthy, P. J., Sheehan-Mansfield, S., & Sheffield, D. (2013).  
3 Emotions correlate with perceived mental effort and concentration disruption in adult  
4 sport performers. *European Journal of Sport Science*, *13*, 697-706. doi:  
5 10.1080/17461391.2013.771381
- 6 Anderson, R., Hanrahan, S., & Mallett, C. (2014). Investigating the optimal psychological  
7 state for peak performance in Australian elite athletes. *Journal of Applied Sport*  
8 *Psychology*, *26*, 318-333. doi: 10.1080/10413200.2014.885915
- 9 Beilock, S. L., Carr, T. H., MacMahon, C., & Starkes, J. L. (2002). When paying attention  
10 becomes counterproductive: impact of divided versus skill-focused attention on  
11 novice and experienced performance of sensorimotor skills. *Journal of Experimental*  
12 *Psychology: Applied*, *8*(1), 6. doi: 10.1037/1076-898X.8.1.6
- 13 Bortoli, L., Bertollo, M., Hanin, Y., & Robazza, C. (2012). Striving for excellence: A multi-  
14 action plan intervention model for shooters. *Psychology of Sport and Exercise*, *13*(5),  
15 693-701.
- 16 Braun, V. & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research*  
17 *in Psychology*, *3*, 77-101.
- 18 Bruya, B. (2010). Effortless attention: A new perspective in the cognitive science of attention  
19 and action. London: MIT Press.
- 20 Cooke, A., Kavussanu, M., McIntyre, D., & Ring, C. (2010). Psychological, muscular and  
21 kinematic factors mediate performance under pressure. *Psychophysiology*, *47*, 1109-  
22 1118. doi: 10.1111/j.1469-8986.2010.01021.x
- 23 Coté, J., Samela, J. H., Baria, A., & Russell, S. J. (1993). Organizing and interpreting  
24 unstructured qualitative data. *The Sports Psychologist*, *7*, 127-137.
- 25 Cramer, R. D. (1977). Do clutch hitters exist?. *Baseball Research Journal*, *6*, 74-79.

- 1 Creswell, J. & Miller, D. (2000). Determining validity in qualitative inquiry. *Theory into*  
2 *Practice, 39*, 124-130. doi: 10.1207/s15430421tip3903\_2
- 3 DiCicco-Bloom, B. & Crabtree, B. (2006). The qualitative research interview. *Medical*  
4 *Education, 40*, 314-321. doi:10.1111/j.1365-2929.2006.02418.x
- 5 Eysenck, M. W., Derakshan, N., Santos, R., & Calvo, M. G. (2007). Anxiety and cognitive  
6 performance: attentional control theory. *Emotion, 7*, 336-353. doi:10.1037/1528-  
7 3542.7.2.336
- 8 Geeves, A., McIlwain, D. J., Sutton, J., & Christensen, W. (2014). To think or not to think:  
9 the apparent paradox of expert skill in music performance. *Educational Philosophy*  
10 *and Theory, 46*(6), 674-691.
- 11 Hanton, S., Neil, R., & Mellalieu, S. D. (2008). Recent developments in competitive anxiety  
12 direction and competition stress research. *International Review of Sport and Exercise*  
13 *Psychology, 1*, 45-57. doi: 10.1080/17509840701827445
- 14 Harmison, R. (2011). Peak performance in sport: Identifying ideal performance states and  
15 developing athletes' psychological skills. *Sport, Exercise and Performance Psychology,*  
16 *1*, 3-18. doi: 10.1037/2157-3905.1.S.3
- 17 Hibbs, D. (2010). A conceptual analysis of clutch performances in competitive sports.  
18 *Journal of the Philosophy of Sport, 37*, 47-59. doi: 10.1080/00948705.2010.9714765
- 19 Hill, D., Hanton, S., Matthews, N., & Fleming, S. (2010). A qualitative exploration of  
20 choking in elite golf. *Journal of Clinical Sport Psychology, 4*, 221-240.
- 21 Hill, D., & Hemmings, B. (2015). A phenomenological exploration of coping responses  
22 associated with choking in sport. *Qualitative Research in Sport, Exercise and Health,*  
23 *7*, 521-538. doi: 10.1080/2159676X.2014.981573

- 1 Jackson, S. (1996). Toward a conceptual understanding of the flow experience in elite athletes.  
2 *Research Quarterly for Exercise & Sport*, 67, 76-90. doi:  
3 10.1080/02701367.1996.10607928
- 4 Jackson, S., & Csikszentmihalyi, M. (1999). *Flow in sports: The keys to optimal experiences and*  
5 *performances*. Champaign, IL: Human Kinetics.
- 6 Jackson, S., & Kimiecik, J. (2008). Optimal experience in sport and exercise. In T. Horn (Ed.),  
7 *Advances in sport psychology* (3<sup>rd</sup> ed., pp. 377-399). Champaign, IL: Human Kinetics.
- 8 Jackson, S., & Wrigley, W. (2004). Optimal experience in sport: Current issues and future  
9 directions. In T. Morris & J. Summers (Eds.). *Sport psychology: theories, applications,*  
10 *and issues* (2<sup>nd</sup> ed., pp. 423-451). Milton, QLD: Jacaranda.
- 11 Jones, G. (1995). More than just a game: Research developments and issues in competitive  
12 anxiety in sport. *British Journal of Psychology*, 86, 449-478. doi:10.1111/j.2044-  
13 8295.1995.tb02565.x
- 14 Jones, M., Meijen, C., McCarthy, P. J., & Sheffield, D. (2009). A theory of challenge and  
15 threat states in athletes. *International Review of Sport and Exercise Psychology*, 2(2),  
16 161-180.
- 17 Krane, V., & Williams, J.M. (2006). Psychological characteristics of peak performance. In J.  
18 M. Williams (Ed.), *Applied sport psychology: Personal growth to peak performance*  
19 (5<sup>th</sup> ed., pp.207-227). New York, NY: McGraw-Hill.
- 20 Lima-Silva, A., Correia-Oliveria, C., Tenorio, L., Melo, A., Bertuzzi, R. & Bishop, D. (2013).  
21 Prior exercise reduces fast-start duration and end-spurt magnitude during cycling time  
22 trial. *International Journal of Sports Medicine*, 34, 736-741. doi: 10.1055/s-0032-  
23 1331258
- 24 Marcora, S. (2008). Do we really need a central governor to explain brain regulation of  
25 exercise performance? *European Journal of Applied Physiology*, 104, 929-931.

- 1 Masters, R., & Maxwell, J. (2008). The theory of reinvestment. *International Review of Sport*  
2 *and Exercise Psychology*, 1(2), 160-183. doi: 10.1080/17509840802287218
- 3 Maykut, P. & Morehouse, R. (1994). *Beginning qualitative research: A philosophic and*  
4 *practical guide*. London: Falmer Press.
- 5 Mesagno, C., & Marchant, D. (2013). Characteristics of polar opposites: An exploratory  
6 investigation of choking-resistant and choking-susceptible athletes. *Journal of*  
7 *Applied Sport Psychology*, 25, 72-91. doi: 10.1080/10413200.2012.664605
- 8 Otten, M. (2009). Choking vs. clutch performance: a study of sport performance under  
9 pressure. *Journal of Sport & Exercise Psychology*, 31, 583-601.
- 10 Otten, M., & Barrett, M. (2013). Pitching and clutch hitting in Major League Baseball: What  
11 109 years of statistics reveal. *Psychology of Sport and Exercise*, 14, 531-537. doi:  
12 10.1016/j.psychsport.2013.03.003
- 13 Oudejans, R., Kuijpers, W., Kooijman, C., & Bakker, F. (2011). Thoughts and attention of  
14 athletes under pressure: skill-focus or performance worries? *Anxiety, Stress, &*  
15 *Coping*, 24, 59-73. doi: 10.1080/10615806.2010.481331
- 16 Potter, J., & Hepburn, A. (2005). Qualitative interviews in psychology: problems and  
17 possibilities. *Qualitative Research in Psychology*, 2, 281-307. doi:  
18 10.1191/1478088705qp045oa
- 19 Seligman, M., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American*  
20 *Psychologist*, 55, 5-14.
- 21 Smith, B. & Caddick, N. (2012). Qualitative methods in sport: A concise overview for guiding  
22 social scientific research. *Asia Pacific Journal of Sport and Social Science*, 1, 60-73.  
23 doi: 10.1080/21640599.2012.701373

- 1 Solomonov, Y., Avugos, S., & Bar-Eli, M. (2015). Do clutch players win the game? Testing  
2 the validity of the clutch player's reputation in basketball. *Psychology of Sport and*  
3 *Exercise, 16*, 130-138. doi: 10.1016/j.psychsport.2014.10.004
- 4 Sparkes, A. C., & Smith, B. (2014). *Qualitative research methods in sport, exercise and*  
5 *health*. Oxon, UK: Routledge.
- 6 Stake, R. E. (2006). *Multiple case study analysis*. New York, NY: Guilford.
- 7 Swann, C., Crust, L., Keegan, R., Piggott, D., & Hemmings, B. (2015). An inductive  
8 exploration into the flow experiences of European Tour golfers. *Qualitative Research*  
9 *in Sport, Exercise, and Health, 7*(2), 210-234. doi: 10.1080/2159676X.2014.926969
- 10 Swann, C., Crust, L., Jackman, P., Vella, S., Allen, M., & Keegan, R. *Psychological States*  
11 *Underlying Excellent Performance in Sport: Towards an Integrated Model of Flow*  
12 *and Clutch States*. Manuscript submitted for publication.
- 13 Swann, C., Keegan, R., Crust, L., & Piggott, D. (2016). Psychological states underlying  
14 excellent performance in professional golfers: "Letting it happen" vs. "making it  
15 happen". *Psychology of Sport and Exercise, 23*, 101-113. doi:  
16 10.1016/j.psychsport.2015.10.008
- 17 Swann, C., Keegan, R., Piggott, D., & Crust, L. (2012). A systematic review of the  
18 experience, occurrence, and controllability of flow states in elite sport. *Psychology of*  
19 *Sport and Exercise, 13*, 807-819.
- 20 Swann, C., Moran, A., & Piggott, D. (2015). Defining elite athletes: Issues in the study of  
21 expert performance in sport psychology. *Psychology of Sport and Exercise, 16*, 3-14.  
22 doi: 10.1016/j.psychsport.2014.07.004
- 23 Toner, J., Montero, B. G., & Moran, A. (2015). Considering the role of cognitive control in  
24 expert performance. *Phenomenology and the Cognitive Sciences, 14*(4), 1127-1144.

- 1 Toner, J., & Moran, A. (2014). In praise of conscious awareness: a new framework for the
- 2 investigation of “continuous improvement” in expert athletes. *Frontiers in*
- 3 *Psychology*, 5:769. doi: 10.3389/fpsyg.2014.00769

4

1

**Tables**2 Table 1: *Participant demographics*

	<b>Activity</b>	<b>Standard</b>	<b>Sampling Rationale</b>
Event-focused	Basketball	International	Self-reported clutch performance in recent match
	Badminton A	Professional	Reached final of national championship
	200m sprinter	International	Won national university championships
	Long distance runner A	Recreational	Personal best in marathon
	Long distance runner B	Regional	Personal best in marathon
	Wheelchair tennis	Professional	Won major championship
	Climbing A	Sponsored	Self-reported clutch performance in recent climb
	Climbing B	Experienced amateur	Completed climb of new difficulty
	Netball	Regional	Player of the match in important club game
	Tennis	Professional	Qualified for Wimbledon Championships
	110m hurdles	International	Won national university championships
	Triathlete	Semi-professional	Won national half-ironman event
	Hockey	Club	Awarded player of the match after important match
Follow-up	Rugby Union	Professional	New Zealand All Black and World Cup winner
	Badminton B	Professional	Olympic athlete and Commonwealth Games medallist
	Polar explorer	Sponsored	World record holder for polar expeditions

3

1 Table 2: *The subjective experience underlying clutch performance*

	Categories	Higher-Order Themes	Example Codes
Defining Characteristics of Clutch States	Complete and deliberate focus	Complete focus	Concentrating fully; couldn't have concentrated more; completely committed to what is in front of you
		Staying focused	Kept my focus throughout
		Increased focus	It's a conscious effort to really focus on the performance
	Intense effort	Giving everything	I was pushing to my limit - digging as deep as I could
		Trying harder	You're trying as hard as you can
		Conscious effort	It's like a conscious effort to make myself play better;
	Heightened awareness	Awareness of self	I was very aware of myself and my thoughts
		Self-monitoring	Consciously thinking about what I was doing and what I needed to do
		Aware of importance	It was a stressful situation; knew how important it was
	Heightened arousal	Awareness of surroundings	I was definitely more aware of what's going on around me
		Anxious/tense	You get more nervous; Everything was tense
		Pumped up	You start getting pumped up; you've got more energy
Absence of negative thoughts	Nervous energy	There's a mix of nerves and excitement	
	Not worried about anything	There's no worrying about anything else, you're just focussed on the next move	
Automaticity of skills	Automaticity of skills	I wasn't thinking about it any more – it had become automatic	
Characteristics Overlapping with Flow	Absorption	Absorbed in performance	I didn't even know how many people were around me
	Confidence	Forced confidence	I back myself when the pressure's on; it's like a forced confidence
		Confident in meeting task demands	I knew I could do it; knew I could win; knew I had the ability
	Perceived control	Sense of control	It's about making sure you're in control
	Enhanced motivation	Enhanced motivation	There's more motivation; I was more motivated
	Enjoyment paradox	Enjoying the situation	Really enjoying the game; enjoying being pumped up
		Enjoyment paradox	Enjoying close contest but not enjoying the fact you might lose
		Less enjoyment	Definitely not as enjoyable as other parts of the race
	Altered perceptions	Alertness	We needed to be more switched on – more alert
		Time transformation	It feels like it takes longer; performance slows down
Heightened senses		Had a heightened sense of smell for the weather (in the mountains)	
	Loss of memory	I don't actually remember the last game – I don't actually know what happened	

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4