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Creators	Savage, Jennifer, Collins, Dave and Cruickshank, Andrew

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7   **Perspective, Control, and Confidence: Perceived Outcomes of Using Psycho-Behavioral**

8   **Skills in the Developmental Trauma Experience among High Performance Athletes: A**

9   **Qualitative Study**

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2 **Abstract**

3 While psycho-behavioral skills play a crucial role in negotiating and growing from

4 developmental trauma, the precise outcomes which these skills enable has been

5 underexplored. Accordingly, six senior international performers were interviewed to explore

6 what such skills led to when negotiating and growing from traumatic experiences. It was

7 subsequently found that psycho-behavioral skills supported a sense of perspective, control,

8 and confidence in participants, all of which contributed to a predominantly constructive

9 rather than illusory growth process. These findings add to our understanding of skills-based

10 development by highlighting what psycho-behavioral skills can precisely help to facilitate in

11 young performers, as part of their efforts to cope with and subsequently grow from traumatic

12 experiences. Significantly, and, contrary to other research, the findings of this study also

13 question the length of time which may be needed for constructive growth to be achieved.

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15 Key Words: talent development, challenge, post traumatic growth, constructive growth,

16 psychological outcomes

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1 **Perspective, Control, and Confidence: Perceived Outcomes of Using Psycho-Behavioral**

2 **Skills in the Developmental Trauma Experience**

3   Based on an expanding literature base, researchers seem to have reached consensus on

4 a number of talent development principles. Most fundamentally, the development of talent is

5 considered to be highly individualised, non-linear, and influenced by a host of intrapersonal,

6 interpersonal, and system level factors (Abbott, Button, Pepping, & Collins, 2005;

7 MacNamara, Button & Collins, 2010b; Vaeyens, Lenoir, Williams, & Philippaerts, 2008). In

8 terms of intrapersonal factors, it is further agreed that performers require a breadth of psycho-

9 behavioral skills if they are to reach and then perform consistently at the highest level of their

10 sport (Bull, Shambook, James, & Brooks, 2005; Gould, Diffenbach, & Moffett, 2002;

11 MacNamara et al., 2010b). In a recent complimentary strand, researchers also seem to have

12 agreed that developmental traumas – or memorable challenges – can play a key role in the

13 realisation of young performers' potential (Howells & Fletcher, 2015; Collins, MacNamara,

14 & McCarthy, 2016a&b; Sarkar, Fletcher, & Brown, 2015; Savage, Collins, & Cruickshank,

15 2017). Furthermore, various works have, albeit to different extents, reported that psycho-

16 behavioral skills are central to facilitating growth after such setbacks. However, no work to

17 date has focused primarily on the specific psychological *outcomes* which these skills enable;

18 in short, what exactly do psycho-behavioral skills lead to that helps young performers to cope

19 with and subsequently grow from traumatic experiences? To further our knowledge and the

20 basis for action in practitioners, there is therefore a need for work to target this gap.

21   To contextualise this need, it is of course important to be clear on what "trauma"

22 relates to in a talent development context. To remain consistent with prior research (e.g.,

23 Collins & MacNamara, 2012; Collins et al., 2016b; Sarkar et al., 2015), trauma is defined in

24 this paper as; a memorable challenge which is perceived by a performer to disrupt their

25 development and/or performance in their sport. As such, the presented definition is

1   representative of all references to trauma beyond this point.   Whether a memorable moment

2   is terrific or traumatic is down to personal interpretation, which critically, can change over

3   time. This study focuses on the memorable challenges perceived by performers as traumatic.

4   Beyond this definition, it is also important to contextualise any work on *how* psycho-

5   behavioral skills help young performers against the most salient positions that have been

6   offered on development-related trauma to date. In this respect, and as summarised by

7   Collins, MacNamara, and McCarthy (2016a), these positions have reflected a focus on either

8   *life experience*, *attitudes*, or *skills*. Regarding life experience, some prior work has reported

9   that trauma, often serendipitous and in one's personal life (e.g., death of a family member),

10 can be a catalyst for sport-related growth in performers (Howells & Fletcher, 2015), or even a

11 root cause of their later raison d'être as a senior performer (Sarkar, et al., 2015). In line with

12 this, Sarkar and Fletcher (2017, p.164) have asserted that, "it is the adversity-related

13 experience that is essential in the emergence of new psychosocial characteristics." In

14 summary, the suggestion is that performers develop positive response patterns for the future

15 *because* of the acute traumatic episodes that they have faced in the past; which, according to

16 some, is most evident when early trauma is paired with early sporting success (Rees et al.,

17 2016). Either way, it seems fair to say that much work has, so far, focused more on exploring

18 the nature, process, and outcomes of the traumatic experiences than the nature, process, and

19 outcomes of the mechanisms by which growth may occur.

20   Against this view on the causative role of trauma – and to explore its veracity in light

21 of potentially concerning applied implications – Collins and colleagues (2016b) consequently

22 compared the developmental experiences of 18 "super champions" (senior multi-medallist

23 individual sport or multi-cap team performer), 18 "champions" (senior single medallist or

24 low-cap), and 18 "almosts" (no senior medal or cap although success as a junior). In contrast

25 to the suggestions from work which had used either smaller samples or secondary data (e.g.,

1   autobiographies: Howells & Fletcher, 2015; Sarkar et al., 2015; Rees et al., 2013), the super

2   champions in this study reported: (a) little major trauma (e.g., self-harm, depression); (b) less

3   trauma than almosts; and (c) traumas that were primarily sport-related. Overall, Collins et al.

4   found that the super champions, champions and almosts were not discriminated by the

5   incidence and types of trauma they had experienced. Instead, these authors found that

6   discriminating factors between the super champions, champions, and almosts were related to

7   the level and nature of commitment, reaction to challenge, reflection and reward, and the role

8   of coaches and significant others. In short, this evidence directly contradicted the notion that

9   trauma, including that unrelated to sport, *causes* effective development. Instead, the

10   alternative view presented by Collins et al., was that effective development is often governed

11   by what a performer *brings to* a traumatic experience.

12   In this respect, and as categorized in previous work (e.g., Collins et al., 2016a;

13   MacNamara, Collins, & Cruickshank, 2019), other researchers have focused on the

14   significance of bringing positive *attitudes* to developmental challenges, including a Growth

15   Mindset (Dweck, 2006) and Grit (Duckworth, Perterson, Matthews, & Kelly, 2007). A core

16   message from this research is that those who possess such attitudes will be better prepared to

17   experience and grow from the traumas that they will face. Interestingly, however, Cormier,

18   Dunn, and Dunn (2019) showed that such attitudes can be domain-specific rather than global,

19   and have therefore called for future work to identify and explore their underpinning, domain-

20   specific mechanisms. Indeed, Collins and MacNamara (2017) have also highlighted the lack

21   of clarity around how a growth mindset is developed and deployed in a way which has a

22   positive impact. Furthermore, Credé, Tynan, and Harms, (2017) have suggested a need for

23   greater understanding on the role of grit and depicting how it can influence performance.

24   This gap therefore leaves uncertainty as to how such an attitude can be proactively developed

1   to improve performance. In short, attitudes are clearly important but where do they actually

2   come from, how might they operate and how they can be targeted and developed?

3   As one potential answer, the final strand of recent trauma-related research to date has

4   focused on the *skills* that are brought to developmental traumas; whether explicitly or

5   implicitly taught (cf. Collins et al., 2016a). In short, this work has found that growth after a

6   traumatic episode is often supported by *pre-existing* psycho-behavioral skills that help

7   performers to prepare for, cope with, and learn from the experience (see Collins et al., 2016b;

8   MacNamara, Button, & Collins, 2010a, 2010b; Savage, Collins, & Cruickshank, 2017). For

9   example, Savage et al. (2017), recently found that trauma-related growth in 20 senior

10   international medallists from team and individual sports was facilitated by their use of

11   psychological skills, social support, and learning factors. More specifically, these

12   psychological skills included *motivation*, *self-belief*, *focus*, *protective attributions*, *reflection*

13   *and evaluation*, and *self-awareness*; social support included *identifying and using social*

14   *support* and *management of social support*; and learning factors included *applying learning*

15   *from previous experience* and *applying learning from peer experience*. In this way, the

16   findings in Savage et al., reinforced the suggestion that trauma provides a proving experience

17   for performers, where *current* skills can be deployed and refined, rather than the cause of

18   acquiring *entirely new* skills or perspectives. This is not to say that other researchers have

19   specifically and explicitly stated that trauma causes the generation of entirely new skills or

20   perspectives; however, a number of studies have suggested that trauma causes enhanced

21   development or future success *without* explicit or detailed reference to the skills that might

22   have already been in the individual's possession before the setback (e.g., Sarkar et al., 2015).

23   Despite this lack of explicit treatment in a number of studies, the role and value of

24   pre-existing psycho-behavioral skills does seem to permeate trauma-focused research.

25   Indeed, although chiefly focused on the outcomes of traumatic events, Howells and Fletcher's

1   (2015) research identified growth-related skills used by Olympic champion swimmers (e.g.,

2   the ability to look for meaning from traumatic experiences). Similarly, the role of skills (e.g.,

3   cognitive processing, self-awareness) was also apparent within Howells and Fletcher's (2016)

4   study on outcomes related to illusory growth versus constructive growth. Interestingly, this

5   latter study also reported that certain skills differentiated constructive growth from illusory

6   growth. For example, constructive growth involved a performer acknowledging their distress

7   (versus concealing distress), finding meaning (versus only seeking meaning), and engaging in

8   cognitive processing (versus cognitive manipulation). Overall therefore, albeit to a

9   noticeably different extent, work to date has shown that psycho-behavioral skills play a

10   crucial role in trauma-related development.

11   However, although research has provided evidence on what psycho-behavioral skills

12   help performers to achieve post-traumatic growth in a general sense, a particular shortcoming

13   has been the limited focus on what *specific* psychological outcomes these skills enable .

14   More specifically, if growth after a trauma is based on an individual managing their distress

15   before proactively reconciling their pre-trauma beliefs against information and outcomes

16   related to the trauma (Calhoun, Tedeschi, & Tedeschi, 1999; Joseph, Murphy, & Regel, 2012;

17   Tedeschi & Calhoun, 2004), then it is important to explore the extent to which psycho-

18   behavioral skills enable these outcomes. Put simply, practitioners currently have a breadth of

19   empirical evidence that psycho-behavioral skills can help performers to negotiate trauma in a

20   general sense; however, we don't have sufficient evidence on what precisely they are useful

21   for; which inevitably limits our potential to provide optimal, evidence-based support across

22   contexts. Accordingly, the aim of this study was to explore the outcomes facilitated by

23   psycho-behavioral skills when successful senior performers faced and overcame traumas, or

24   memorable challenges, during their development. It was anticipated that the findings would

25   further our understanding of a skills-based approach to talent development (i.e., the outcomes

1   that these skills might enable) plus inform the continued evolution of talent development

2   programmes.

3   <center>**Methodology**</center>

4   **Research Philosophy and Strategy**

5   Consistent with our aim to generate practically-meaningful knowledge, this work was

6   underpinned by a pragmatic research philosophy (Giacobbi, Poczwardowski, & Hager, 2005).

7   As such, we identified a pertinent applied issue to study, were concerned with how outcomes

8   were enabled by a *process* (i.e., the use of psycho-behavioral skills in the trauma experience)

9   , recognised ourselves as co-constructors of knowledge, and ultimately sought to identify

10   tangible applied artefacts rather than universal generalized truths or purely subjective

11   constructions (Denzin & Lincoln, 2008; Giacobbi et al., 2005). In this way, the study was

12   supported by our ongoing roles in leading, assisting, and performing within elite sport talent

13   pathways.

14   In terms of our specific research strategy, it was decided that a qualitative approach

15   would be appropriate for exploring the outcomes enabled by the use of psycho-behavioral

16   skills during the developmental trauma experience (Denzin & Lincoln, 2008). In line with

17   our pragmatic philosophy, qualitative research was used to develop a useful map of the world

18   rather than a correct one and shed light on particular contexts or events; in our case, the

19   traumatic experiences faced by performers during their development (Denzin & Lincoln,

20   2008; Strean, 1998). In order to gain a rich picture of what outcomes were enabled by the use

21   of psycho-behavioral skills, it was decided that exploring a breadth of challenges would be

22   favourable. As such, a retrospective approach was selected to enable exploration across the

23   performers' pathways. Additionally, exploring 'lived' experiences as opposed to 'live' can

24   elicit perceptions which have been critically evaluated by the performers' over time.

25   **Participants**

1   A convenience sample of six high level athletes (three male and three female) were

2   recruited from a high performance centre in the UK where the first author worked, with the

3   ages in this sample varying between 24 and 28 years old ($M = 25.66$; $SD = 1.63$). The sports

4   represented by this group were different events in athletics (long distance, middle distance,

5   1500m, and high jump) plus equestrian. To be clear, these sports were not intentionally

6   chosen but reflected the sports of the athletes sampled. Also, while the athletes were

7   recruited through the first author's place of work, the majority of recalled events occurred

8   before they were part of the high performance centre and knew the first author (for clarity, all

9   participants had been on their sport's development pathway for between six and 12 years).

10   As such, this increased the likelihood of participants identifying and discussing challenges

11   that were most memorable to them, rather than challenges that could have potentially been

12   prompted (or overly prompted) by the first author.

13   More broadly, all of these athletes were included as they were currently competing at

14   senior international level in their sports, were on a funding programme within their sport's

15   national governing body, had previously achieved a senior international medal in the last two

16   years, and had been on a development pathway for a significant period of time before

17   reaching senior level. As such, it was assumed that this group would have encountered a

18   number of memorable challenges on their way to becoming high-level senior performers (as

19   was subsequently confirmed through the data collection and analysis procedures).

20   Additionally, and in line with principles of idiographic research, the sample size was

21   appropriate in allowing for intensive analysis of each case and a locatable voice within the

22   study's Results section (Robinson, 2014). In further support of our approach, Morse (2020)

23   has suggested that deciding on a sample size should not be dictated by universal criteria.

24   Instead, sample size should be determined by a number of criteria, which differ depending on

25   the project. For example, factors considered for our specific line of enquiry included: the

1 complexity of the phenomenon being studied, the criteria of participants being studied, the

2 variance of participants, and the scope of inquiry. In this respect, the sample reflected our

3 aim to explore and conceptualize specific applied examples of a highly personal experience

4 to inform the highly personal nature of sport psychology practice; rather than generate

5 universally generalizable truths that lack sufficient detail for optimal, individual-level

6 application.

7 **Procedure**

8   To support recall and provide a frame for discussion, each participant was asked to

9 firstly plot their perceived performance timeline on a chart (cf. Drasch & Matthes, 2013).

10 Specifically, participants were asked to plot their perceived level of performance, starting

11 from first involvement in their sport up to the present day, with each individual deciding on

12 their lowest and highest levels of perceived performance (to ensure consistency, these charts

13 were drawn onto gridded paper and made to the same scale). Participants were then

14 prompted to highlight any particularly memorable challenges throughout their development.

15 Once the timeline was completed, participants were encouraged to review the overall picture

16 and make any relevant amendments before further exploration.

17   From this point, discussion then revolved around the reported challenges using a

18 semi-structured interview guide, with prompts and probes used to tease out specific

19 information related to the skills deployed and their perceived outcomes. For clarity, this

20 interview guide was constructed to work around individual timelines with questions used to

21 explore and elicit detailed perceptions of each marked experience (e.g., what occurred here?

22 What happened before this experience?) Subsequently, specific probes and prompts were

23 employed to clarify and expand on relevant points (e.g. why did you react that way? Did

24 anything not help your response? What did X do that was helpful?). Against the study's

25 purpose, our key prompts and probes related to the perceived outcomes from using (or not

using) psycho-behavioral skills (e.g., what did skill X or skill Y lead to? How did you feel

when using skill X or skill Y? What were you thinking or noticing after using skill X or skill

Y?). To confirm, these prompts and probes were employed as each individual skill emerged

from the conversation, as opposed to generalizing or grouping all of the mentioned skills at

the end of the interview. The first author debriefed all participants after their interviews,

checking for, and offering any necessary support and follow up as required (none of which

ended up being beyond the norm for professional practice in this area).

This entire procedure had been developed through a pilot study conducted with two

performers (one hockey and one badminton player) whose background and profile matched

those who participated in the study reported here (M age = 24.5; SD = 0.7). Overall, only

minor adjustments were made to the data collection process as a result of the pilot study. For

example, additional time was built in to reflect over the timeline before beginning the semi-

structured interview (so that participants had sufficient opportunity to check and challenge

their perceptions). Furthermore, all graphs were drawn in pencil with erasers provided to

ensure clarity when making amendments. All interviews with these main participants were

conducted by the first author, lasted between 90 and 120 minutes, and were audio recorded

for transcription and analyses. Ethical approval was obtained from the authors' institutional

ethics committee and informed consent gained from each participant prior to their interview.

Data Analysis

Based on our explorative aims, plus limitations in available knowledge on our area of

interest (i.e., the outcomes enabled by psycho-behavioral skills in the developmental trauma

experience), we decided to undertake an inductive content analysis in line with the procedure

of Côté, Salmela, Baria and Russell (1993). More specifically, all interviews were

transcribed verbatim before being read and re-read to optimize familiarity. From this point,

relevant qualitative analysis software (QSR NVIVO 10) was utilised to support the process of

1 transforming raw data into thematic hierarchies. To achieve this, a line by line analysis was

2 employed to identify raw data units (i.e., direct quotes on the outcomes enabled by psycho-

3 behavioral skills) which were then assigned descriptive tags (e.g., "use of failure to meet

4 performance expectations to confirm long-term purpose", "use of injury to refine training

5 approach in line with goals"). These tags were consequently compared for similarities and

6 differences, with similar tags then grouped together into sub-themes which were then

7 categorized into higher order themes that encapsulated the full data set. For clarity, the full

8 analysis procedure was undertaken on all collected data to develop themes that covered the

9 full developmental trauma experience (i.e., data were not split up according to whether they

10 referred to aspects before the development trauma occurred, as it occurred, or when growing /

11 moving on from it).

12 **Developing Rigor**

13 As well as seeking to establish methodological coherence by using our pragmatic

14 philosophy to inform our study's purposes and methodology (Mayan, 2009), a number of

15 more specific approaches were taken to develop the rigor of the research process. In terms of

16 data collection, Sparkes and Smith (2009) have previously discussed the importance of trust

17 and rapport for developing the rigor of qualitative research. In the case of this study, both

18 were optimized by the first author's (a) role as a sport psychologist where all participants

19 trained, performed, or were supported; (b) use of the same confidentiality principles with

20 which all participants were familiar and comfortable given their experiences with sport

21 psychology support; (c) knowledge of each participant's current circumstances, and (d)

22 understanding of memorable challenges and the post-traumatic growth process as an

23 experienced practitioner in elite sport.

24 Regarding the analysis process, efforts were also made to recognise and manage our

25 assumptions and biases. In particular, conceptual memos were used to log the rationale

1   behind the first author's interpretation and give a stimulus for discussion in the research team

2   (Davis & Meyer, 2009). The first author also kept a reflective journal, paid close attention to

3   how any biases were influencing the analysis (Patton, 2002), and used constant comparison to

4   assess, modify, and reinforce the developing themes (Corbin & Strauss, 2008). Additionally,

5   the second and third author acted as critical friends by reviewing, challenging, and suggesting

6   refinements to the tags and themes developed by the first author (Faulkner & Sparkes, 1999;

7   Smith & McGannon, 2017). The consequent adjustments were primarily related to the

8   labelling rather than the grouping of themes. To check the accuracy, balance, fairness, and

9   respectfulness of quotes presented in this paper (NB. not the developed themes and overall

10   results: Sparkes & Smith, 2009), member reflections were finally conducted with all

11   participants (Smith & McGannon, 2017). Recognising that "member checking cannot deliver

12   objective knowledge" (Smith & McGannon, 2017, p. 4), and in line with our pragmatic

13   philosophy, this process was not undertaken to "ensure" rigor (Smith & McGannon, 2017, p.

14   7) but to ask participants to reflect on whether the quotes captured their own experiences as

15   they had intended during the interview itself. This process informed the interpretation and

16   presentation of our Results section but did not lead to any changes to the quotes included

17   within it.

18   **Results**

19   Against the recent promotion of a skills-based approach to the development of talent

20   in sport, the aim of this study was to explore the outcomes facilitated by psycho-behavioral

21   skills when successful senior performers faced and overcame traumas, or memorable

22   challenges, during their development. Firstly, it is important to note that a range of traumatic

23   events were encountered by our participants along their development pathway, including

24   underperformance, injury, missed selection and coaching challenges (NB. no major life

25   events were self-reported). It is also important to confirm that psycho-behavioral skills were

once again implicated in the process of negotiating and growing from these memorable

challenges. Specifically, participants in this study referred to the use of a number of

previously identified psycho-behavioral skills, including: focus and distraction control,

realistic performance evaluation, planning and organisation, self-awareness, self-regulation,

goal setting and self-reinforcement, and creating and using support networks (MacNamara,

Button, & Collins, 2010a, 2010b; Savage et al., 2017). All of these skills are conveyed

within the quotes presented below.

More significantly, in relation to the focus on perceived outcomes in this study, these

skills were found to have supported *perspective in the response to trauma*, *control of the

response to trauma*, and *belief in the response to trauma*. In other words, these findings

relate to what the use of various psycho-behavioral led to. More specifically, the performers'

psycho-behavioral skills helped them to frame the trauma against the bigger picture, take

responsibility for their response, and have confidence in their ability to recover and grow.

The following sections now describe these higher order themes and their sub-themes (see

table 1) through illustrative quotes.

Supported Perspective in the Response to Trauma

Representing the first developed theme, participants described how psycho-behavioral

skills helped them to gain and then use perspective when reacting to traumatic events. More

specifically, participants reported that their skills had helped them to *clarify and confirm their

purpose*. As an example of this type of outcome, one participant described how their skills in

reflection, using social support, and focus and distraction control helped them to reaffirm

their purpose after missing an Olympic Games due to injury:

At the time, missing out on Beijing was the biggest thing ever, because I was pretty

certain that I was going to go that year. I had no motivation to do anything else, my

[university] course suffered; but by talking to people about what happened I realised I

1   still wanted to be a professional athlete . . . I started to focus on cross-training and

2   rehabbing properly. (middle distance athlete)

3 Similarly, another participant described their response to underperforming at their first major

4 event: in the practice rounds s/he achieved what would have been first place scores; however,

5 s/he then failed to achieve any score in the competition:

6   It was a toys out of the pram situation. It was a big shock; my first big failure. I

7   talked with my competitors and realised they compete regularly against each other of

8   a similar level. I sort of realised I needed to be in these bigger competitions to become

9   professional. I needed to get out of my small club and compete with the big boys… I

10   sat down with my coach and we agreed a plan for the next year, we even discussed I

11   may need to leave join a new group for specialist coaching. (High jump athlete)

12 As illustrated in this quote, self-awareness and planning skills helped this participant to gain

13 clarity and confirm their ultimate purpose during this memorable setback. Similarly, another

14 participant reflected on facing a major setback early in their international career. More

15 specifically, they described how learning from their peers prompted self-reflection, which

16 subsequently helped them to clarify and confirm their purpose:

17   I'd [reached senior] international competition without really having to work very hard

18   for it. But then I didn't manage to do anything internationally that year so I caught a

19   bit of a reality check. I saw my competitors approach things really professionally and

20   started to think if I could do that. I started thinking I'm going to be a successful

21   international athlete. (Long distance athlete)

22   As well as using their psycho-behavioral skills to clarify and confirm their purpose,

23 another outcome reported by participants related to how these skills helped them to *check and*

24 *confirm enjoyment in their sport*. Indeed, all participants reported the significance of

25 maintaining enjoyment in response to traumatic experiences; in effect, working as an

1   emotion-focused coping strategy. For example, one interviewee described how realistic

2   evaluation against their core values, plus some focus and distraction control, helped them to

3   respond to missing selection for a major international competition:

4   The negative emotions of missing such a big selection made me question [myself]: "Is

5   it was worth it? Why do I do this?" It helped me realise I still enjoyed aspects of it

6   even when one part was going wrong. It has always been important for me to enjoy

7   what I do . . . . [In fact] the day to day enjoyment of training was still there, which I

8   think is quite weird . . . [as] my other friends hated going training. My coach was

9   good at supporting this, he knew I preferred to train with people for my session so he

10   always tried to arrange someone to train with me. (Middle distance athlete)

11   Similarly, another participant noted how self-regulation, focus and distraction control, and

12   quality practice helped them to overcome a memorable performance dip after the Olympics;

13   with their performance at these Games hindered by an injury sustained 4 weeks prior:

14   [I was experiencing] a bit of disengagement because 2013 wasn't as exciting as 2012.

15   And [there was] a little bit of self-preservation because I had put absolutely

16   everything into 2012 and had got a bit hurt [i.e., by not performing as well as they

17   would have liked given their injury]. Although, I did always keep enjoying the

18   process of training [during the period of the performance dip] so I focused on that. I

19   kept up my training diary training as I enjoyed filling it out and seeing progress.

20   (Middle distance athlete)

21   As conveyed, the skills used here by the performer appeared to help them compartmentalise

22   their lack of excitement to compete and maintain a positive approach by focusing on where

23   else enjoyment could come from. This outcome was also apparent in others, with a fellow

24   participant recounting their experience of missing selection for the Beijing Olympic Games,

25   after achieving the qualifying time, due to injury:

1   [In spite of my training partners going to the Games], I kept training right through

2   until the end of season break. I still enjoyed training and hitting those targets, I

3   perhaps didn't approach it very professionally but I didn't really know how to because

4   I kind of didn't have to do that [i.e., respond to that type of setback] before. (Middle

5   distance athlete)

6   As well as pointing to the use of focus, self-regulation, and goal setting skills to maintain a

7   positive approach during a period of notable disappointment, it is interesting to note that a

8   gap in this participant's skills apparently limited the scope of their response and therefore the

9   probable return of their investment in this training period (i.e., skills that would have helped

10   to support a more professional approach). In short, the trauma did not seem to *create* any

11   new skills but provided an opportunity to deploy and refine those that were already present.

12   Beyond using psycho-behavioral skills to check and confirm enjoyment, participants

13   also reported that such skills helped to *accept the inevitability of future challenges*. Perhaps

14   unsurprisingly, accounts relating to this outcome typically occurred later in the pathway and

15   after multiple trauma related experiences. Indeed, this theme was generated from data that

16   related to participants' experiences of their third or later memorable challenge. For example,

17   an athlete who had faced several injuries described the outcome of developing an awareness

18   of injury occurrence and how to rehab appropriately: "things will never change, they will

19   always be difficult but I understand more why things happen and how to deal with them and

20   what to do" (Athletics, distance athlete). As implied, the use of realistic evaluation and self-

21   awareness appeared to be important elements of this performer's acceptance of future injury-

22   related setbacks and therefore perspective on their continued development. Following a

23   particularly disappointing performance at a key event, another performer noted how they also

24   used realistic evaluations and self-awareness to hold a more balanced perspective on their

25   performance as well as the unpredictability of sport:

1   I think I just learned more about the sport and getting to see that anything can happen.

2   I think I understood the sport more, started to appreciate [it] and not ignore my good

3   performances; and using the right mental tools to the get most out of it all. (Equestrian

4   athlete)

5   **Supported Control of the Response to Trauma**

6   As well as supporting perspective in their response to traumatic events, participants

7   also reported that psycho-behavioral skills helped them to acquire *control of the response to*

8   *trauma*. Within this outcome, the interviewees described how such skills helped them to *take*

9   *personal responsibility*. Indeed, participants reported how reflection that focused first and

10   foremost on themselves – rather than others or the surrounding circumstances – often helped

11   to maintain control during challenging times (instead of focusing on external factors, whether

12   these factors had actually played a greater role in their traumatic experience or not). In the

13   following case, one performer recounted a memorable underperformance at their first event

14   in a higher level of competition:

15   I was training really hard but my first race at that level didn't go well and that was

16   stressing me out. It was a mixture of over-training, the course, not performing as well

17   as I wanted, but it was probably because I was over-training. So yeah we just

18   changed how I trained, I learnt more about my body, what I can and can't take.

19   (Middle distance athlete)

20   As well as self-focused reflection, taking personal responsibility was also often achieved via

21   skills related to goal setting using coaching support. Indeed, knowing how to manage coach

22   interactions was echoed by many for achieving this outcome. For example, one participant

23   reporting using self-focused reflection (and then planning) to identify behaviors that were

24   hindering an effective coach-athlete relationship and then gain better control over this area:

1 I was just terrible at keeping in touch [when I was training in a different country]. I

2 treated him awful when we were out there, without a word of thank you for what he'd

3 done before for me [i.e., in terms of developing training programmes]. Yeah it was

4 terrible. I realised that when I came back after my injury and changed to having a lot

5 of contact with him. (Long distance athlete)

6 Further conveying the role of psycho-behavioral skills in promoting personal responsibility,

7 participants reported how the use of initial skills then helped with the later deployment of

8 others. For example, one performer described how they now used self-focused reflection to

9 set up appropriate goal setting and focus and distraction control after memorable challenges:

10 When something goes wrong [now], instead of panicking, I'm like ok I am having a

11 problem, why am I having a problem? Are there any factors? Am I tired or anything?

12 And if it's not happening I just go and do something else, instead of worrying myself

13 about it and getting stressed and anxious because then it is just going to get worse.

14 (Equestrian athlete)

15 As well as aiding personal responsibility, another reported outcome of using psycho-

16 behavioral skills was their role in performers *adjusting their macro-level approach*. For

17 clarity, this refers to the performer's overall approach to training and competing and therefore

18 equated to performers making a significant change. Indeed, based on information gained

19 through the trauma, performers revealed how certain skills helped them to consider and adapt

20 the main pillars of their approach and environment so that they remained on track for their

21 long-term goals. For example, after missing selection as part of a team for a World

22 Championship, one performer used realistic evaluations, goal setting, and planning to forge a

23 new route toward their ultimate aspirations:

24 The team didn't get selected [for the World Championship] and I wasn't selected for

25 an individual either. I just thought that if the team comes first and I can't have any

individual training then why should I stay with the team? [Reflecting on the situation]

made me realise the team wasn't good enough and I needed to work as an individual.

That was the only way I was going to get up to the standard because I didn't feel like

my team members were going to push themselves. (Equestrian athlete)

Similarly, after underperforming at major international events, others recounted how they had

identified that their current training environment was not conducive for optimal development.

Again, through reflection, self-awareness, and planning, these performers reported an

outcome related to adaptation and sustained control of their development:

So, it was very much for me [about] . . . the opportunity to train, to train

professionally. So, I went to America on a scholarship. I was going out there to be a

professional athlete for 3 years and see if I could get a contract or funding to make

myself a pro athlete on my return in 3 years' time. (Long distance athlete)

Likewise, another participant described how they had responded to not meeting a qualifying

standard for a major international event; this time noting the use of self-regulation as an

important precursor for the deployment of other skills (e.g., goal setting and planning):

It was like a kick in the stomach not to be selected. I took a few days to let off some

steam as I didn't need to focus on getting qualifying times . . . . It was a bit of a wake-

up call, I want to be professional, so everything has to be more professional. (Middle

distance athlete)

As well as significant changes around the performer's place of training and overall

focus (i.e., their macro-level approach), participants also discussed *adjusting their micro-level*

approach. For clarity, this outcome refers to more specific, smaller scale aspects of the

performer's approach to training and competing and therefore equated to performers making

more subtle changes. More specifically, performers revealed that psycho-behavioral skills

helped them to adjust more specific aspects of their approach and environment. For example,

participants described how such skills helped to adjust their training focus; as in the following

case where realistic evaluation and planning enabled a positive response to a long-term

performance plateau (which was also associated with a macro-level coaching change):

> I kept thinking I'm going to fail; I did last year; I did the year before. I didn't
> recognise it [and] you kind of get into a downward spiral. My coach [subsequently]
> kicking me out of the group made me think I need to decide realistically what I need
> to do. Either quit or make a massive change. So, I ended up getting a new coach; he
> was really positive which was refreshing. I approached training in a different way: I
> focused on other aspects of training rather than just PBs. (High jump athlete)

As a further example of micro-level adaptation, one performer who had underperformed at a

major championship described their reflection and goal setting around preparation for and

execution of races:

> I went to the Europeans and thought 'what if I was first Brit? That would be
> awesome'. And I wasn't [in the end]; I was third Brit. I just thought I'll just have a
> decent performance and that's it. I didn't think about winning. [So, after reflecting] I
> decided I needed to focus on attacking races more and not cap myself. I raced a hell of
> a lot of races. I now think there is no point in being there if you're not going to give
> your best race. (Middle distance athlete)

Further in relation to competition, another performer reported on the use of self-awareness

and planning skills to manage nerves and setbacks between competition rounds; as developed

through performing below expectations in an opening round of a major competition:

> I can just get back on and I can get over this. And even if I can't get over it I have
> tried hard and maybe I take a different route round the problem . . . . There is always a
> different way around the problem. (Equestrian athlete)

1   A similar impact of skills was also recognised in training, with another performer describing

2   how they used reflection, goal setting, self-regulation, and social support networks to adapt

3   after repeated injuries:

4   It was massively frustrating to get injured again; I was pissed off to say the least. But

5   it was the kick I needed to realise I wasn't training smart, I was doing secret training

6   and not being honest with my coach. But [after adapting my approach] I would just

7   say let's go for food and speak for an hour . . . I [also] started cross-training with

8   athletes who had been injured too so I kind of learned how to get over an injury and

9   things. I was a bit more aware of how people trained when injured. (Middle distance

10   athlete)

11 Indeed, a number of other participants described injury experiences, with one describing how

12 skills such as self-regulation and self-awareness helped them to adjust their future training:

13   I definitely reacted differently, because I had been through it before; it wasn't as big a

14   shock, so I wasn't like "this is the worst thing ever". So, I already knew how to cope

15   with it. So yeah, we just changed how I trained, I learnt more about my body, what I

16   can and can't take. (Middle distance athlete)

17 **Supported Belief in the Response to Trauma**

18   As the final higher order theme, participants referred to how psycho-behavioral skills

19 *supported belief in the response to trauma*. Making up part of this outcome, participants

20 described how such skills helped them to *retain belief in achieving their goal*. For example,

21 performers commonly noted how realistic evaluations and self-reinforcement protected their

22 confidence for reaching longer-term objectives; as reported by one participant who

23 underperformed at a major international competition: "I probably wasn't giving the best

24 physical representation of myself and I told myself, you're better than that; you're better than

25 that" (Long distance athlete). Similarly, another performer shared their response to a missed

selection as a result of injury before an Olympic Games: "it wasn't that it was my last chance at an Olympics and that was it. I still had more Games and Worlds within me" (Middle distance runner). The function of realistic evaluation and self-reinforcement was once again evident in another performer's account of the outcomes they achieved, whereby these skills helped them to retain belief in achieving their ultimate goals:

> I just learned more about the sport and that anything can happen. Seeing that you had beat someone one year and [then] watching them go and . . . beat everybody [else] gives you that belief that it can happen. It was suddenly realising that I had beaten any one of them on a different day. (Middle distance athlete)

As a final example, participants also frequently highlighted the use of skills to retain belief in relation to injuries; especially those that prevented participation in major events. Indeed, one performer conveyed the use of focus and self-regulation skills to maintain belief in achieving their goals in such a situation:

> Coming back from an injury in early outdoor season meant I didn't run well at trials, but I still had a consistent belief in my ability to win races. From talking with a sport psychologist, I reflected on my races and realised I was inconsistent, in my approach, my plan, my thought processes. I started to rationalise the aims and results of my performances in relation to where I should be in the season taking into consideration if I had any niggles, was coming back from injury and what kind of shape I was in. I was able to win races, I proved that I just need to work on consistently performing. (Middle distance athlete)

As well as retaining belief in achieving their goals, participants also described how their psycho-behavioral skills helped them to *retain belief in overcoming future traumas*. For instance, one participant noted how this outcome was enabled by goal setting, focus, and self-

1   reinforcement skills when responding to a poor performance in the opening round of a major

2   international competition:

3   I was just so focused on qualification at the start rather than the performance. After

4   my first round I just thought right it's done now, what do I need to focus on and do in

5   my next round. I treated them as separate performances. My next rounds were really

6   good, and I managed to climb back up the rankings. I think that [memorable

7   challenge] showed me that even if I thought the end of the world was happening I

8   would always get through it; that I had to stick by my goals and what I was thinking.

9   (Equestrian athlete)

10   Similar to the other higher order themes, it was evident from the analysis that belief in

11   one's ability to overcome challenges was typically refined and enhanced as more challenges

12   were faced. Indeed, performers with experience of multiple traumas noted benefits from the

13   accumulated deployment of psycho-behavioral skills. For example, the following athlete had

14   experienced several setbacks related to their fear of failure in competition but, through

15   realistic evaluation, self-reinforcement, and focus skills, retained belief in their ability to

16   overcome more traumas:

17   I think what I had in that period was the realisation that I used to think it was really

18   embarrassing if you aim really high and fail when people have high expectations of

19   you. But once you've done that a few times you think "ok, it's happened now, the

20   worst didn't happen, so why not just aim really high? It doesn't matter if you fail."

21   (Middle distance athlete)

22   **Discussion**

23

24   While previous research has provided evidence on what psycho-behavioral skills help

25   performers to achieve post-traumatic growth in a general sense, a particular shortcoming has

1   been the limited focus on what *specific* psychological outcomes these skills enable. As such,

2   the aim of this study was to explore the outcomes facilitated by psycho-behavioral skills

3   when high-level, senior international performers faced and overcame traumas, or memorable

4   challenges, during their development. Subsequently, our results revealed that the deployment

5   of relevant psycho-behavioral skills supported *perspective in the response to trauma*, *control*

6   *of the response to trauma*, and *belief in the response to trauma*. In other words, the

7   participants' psycho-behavioral skills helped them to frame the trauma against the bigger

8   picture, assume responsibility for their response, and have confidence in their ability to

9   recover and grow.

10 **Integration with Previous Literature**

11   As an important validation, the outcomes reported in this paper (i.e., perspective,

12 control, and confidence) are consistent with the principles of post-traumatic growth. Indeed,

13 it has earlier been established that growth after a trauma is based on an individual managing

14 their distress before proactively reconciling their pre-trauma beliefs against the information

15 and outcomes related to the trauma (see Calhoun et al., 1999; Joseph et al., 2012; Tedeschi &

16 Calhoun, 2004); or similarly, from sport-specific work, focusing on why a distressing feeling

17 was experienced (rather than the feeling itself) from a position of self-distance rather than

18 self-immersion (Sarkar & Fletcher, 2015). Clearly, the perspective, control, and confidence

19 facilitated by psycho-behavioral skills aligns with these ideas – as they do with need for the

20 growth process to be performer- rather than other-led.

21   Perhaps more significantly, our results also suggest that higher levels of these psycho-

22 behavioral skills might encourage *constructive* growth over *illusory* growth after a traumatic

23 event (Howells & Fletcher, 2016). More specifically, constructive growth has been earlier

24 characterized by the ability to endure distress, find meaning (rather than just seek meaning),

25 engage in cognitive processing (rather than cognitive manipulation), undertake philosophical

1   change, and adapt one's behaviors (Howells & Fletcher, 2016); all of which were conveyed

2   in the collected data. Indeed, all interviewees in this study typically described an emotional

3   response to their traumatic experience before proactively evaluating and modifying their pre-

4   trauma beliefs or approaches; leading to relatively immediate consequences (at least when

5   compared to descriptions of illusory growth: Howells & Fletcher, 2016) that were beneficial

6   in the long-term (e.g., deciding to change their training centre or coach). In contrast to this

7   constructive growth, no participant described the type of enduring avoidance, denial, wishful

8   thinking, self-consolidation, or self-deception that has been characterized as illusory growth

9   (Howells & Fletcher, 2015). Notably, participants in this study did not detail aspects of

10   illusory growth in their initial coping strategies, or any significant attempts to maintain

11   normality; rather, illusory growth was mentioned briefly and performers reported an initial

12   emotional response that was then followed by a line of internal reason-finding, goal setting,

13   planning, and reassurance.

14   Rather than illusory growth being a normal or necessary feature of post-traumatic

15   growth, the findings in this study would therefore suggest that the increased or enduring

16   presence illusory growth aspects (e.g., denial, self-deception) might reflect a gap in the

17   performer's psycho-behavioral skills or limitations in their deployment of, or confidence in

18   these skills (cf. Collins et al., 2016a, 2016b; Kassam, Koslov & Mendes, 2009). Indeed,

19   Howells and Fletcher (2016, p. 183) have suggested that "temporality is significant in that

20   those who exhibit constructive growth experience some aspects of illusory growth in the

21   past" and that "the passing of time and possibly retirement from sport, and associated

22   distancing from events and broadening of experiences, can facilitate the realization of

23   constructive growth". The message that post-traumatic growth takes time is, of course,

24   entirely appropriate; indeed, some of our findings in this study highlight that such growth can

25   sometimes take a significant period of time to be reached. However, the findings from our

1   study also challenge the extent of this time in many cases. More specifically, our results

2   suggest that the time taken for constructive growth might occur on a significantly shorter

3   scale, at least for the levels of trauma usually referred to in the literature cited earlier.

4   Accordingly, and on the basis of complimentary evidence, we would be far more inclined to

5   conclude that constructive growth might operate more as a function of a performer's

6   possession, deployment, and confidence in their psycho-behavioral skills; from which the

7   perspective, control, and belief required for post-traumatic growth can be achieved (Calhoun

8   et al., 1999; Joseph et al., 2012; Tedeschi & Calhoun, 2004). Notably, Howells and Fletcher

9   (2016) also highlighted that the primary differentiators between illusory and constructive

10   growth were, respectively, "the manipulation versus the processing of cognitions, and the

11   associated integration into a pre-existing schema (i.e., assimilation) versus the shattered and

12   reformation of schema (i.e., accommodation)" (p.183); in other words, different *skills,* or

13   *skills* that are used in a *different* way.

14   **Implications**

15   Turning to the implications of these findings, we therefore stress the need for applied

16   psychologists and talent development leaders to emphasise skills within their trauma-related

17   work; indeed, to focus on the development of these skills as an essential component of

18   development-focused support that enables positive outcomes. Our results suggest that psych-

19   behavioral skills can help performers to achieve outcomes relating specifically to perspective,

20   control, and confidence as they respond to memorable setbacks. It also appears that these

21   skills might ultimately provide a greater chance for constructive than illusory growth (i.e.,

22   growth that carries the greatest long-term benefits). Our findings have also shed light on a

23   number of important sub-outcomes (i.e., the sub-themes developed by our analysis) and the

24   psycho-behavioral skills that can enable their achievement (as conveyed by our participants'

1   quotes); all of which can support a more targeted approach by applied sport psychologists

2   (i.e., targeting specific sub-outcomes through the use of specific skills).

3   On this basis, we support calls for a proactive approach to the development of

4   performers' psycho-behavioral skills (Collins et al., 2016a, 2016b; Savage et al., 2017) but

5   also strongly encourage practitioners to avoid an inappropriate reliance on time (including

6   waiting until the performer has retired), for optimal constructive growth to occur (cf. Howells

7   & Fletcher, 2016). Of course, such an outcome cannot be rushed. However, if talent

8   pathways and performers are to maximise the conversion of potential, it does need to be

9   achieved as *efficiently* as possible. As such, we would suggest that the proactive

10   development of psycho-behavioral skills (i.e., that done in anticipation of inevitable and

11   regular setbacks) offers a logical approach for enhancing the speed and level to which post-

12   traumatic growth can be independently and repeatedly achieved. Additionally, given that

13   some reactive work will still be inevitable, there are also some additionally important

14   considerations for applied psychologists and coaches. In particular, practitioners can

15   facilitate the progression to constructive growth through several "skills-promoting" methods;

16   such as prompting the athlete to identify, reflect upon, and draw upon the skills that they have

17   previously utilised to overcome past adversity.

18   On a theoretical level, and beyond our emphasis on the role of skills in constructive

19   growth, further evidence has been presented to support the idea that post-traumatic growth

20   relies on skills that performers *bring to* – rather than generate from – the traumatic

21   experience. As per previous findings (e.g., Savage et al., 2017), traumas do not seem to

22   cause a new skill to emerge but rather, provide an opportunity to deploy, test, and refine an

23   evolving skillset. Furthermore, ideas on the cumulative effects of negotiating trauma have

24   also been reinforced, whereby prior episodes of successful coping can be harnessed for future

25   episodes; including an acceptance of the inevitability of these episodes (Savage et al., 2017).

1   Indeed, the experience of traumas early in one's development was viewed as an advantage by

2   all; not in the sense that future traumas were perceived as less impactful or less of a threat but

3   rather that performers felt better equipped to cope with and learn from them.

4   **Strengths, Limitations, and Conclusions**

5   Of course, these implications need to be considered against the strengths and

6   limitations of the research undertaken. Regarding the latter, the perceptions acquired from

7   our participants might have been affected by recall issues plus hindsight and, perhaps shaped

8   by pre-existing relationships with the first author, self-presentational biases (Patton, 2002).

9   Regarding this latter point, however, it is important to note that the majority of events

10   recalled by participants occurred before they were part of the high performance centre and

11   knew the first author. The relatively small number of participants also has to be

12   acknowledged given some common misunderstandings of generalizability in qualitative

13   research (Smith, 2017). However, as our pragmatic philosophy directed us to focus on the

14   outcomes of using psycho-behavioral skills during memorable challenge – and therefore one

15   that required us to explore specific examples in detail – we would consider our approach to

16   be methodologically coherent (Mayan, 2009) and a useful precursor to future studies that aim

17   to explore the value of such skills in broader contexts. In this sense, we ask the reader to

18   evaluate the *naturalistic generalizability* and *transferability* of our findings; or, in other

19   words, to consider how the findings resonate with, and apply to, their personal or vicarious

20   experiences and contexts (Smith, 2017). As a cornerstone of pragmatic research, we also ask

21   the reader to apply the "so what?" principle (Bryant, 2009) to evaluate the relevance and

22   potential impact of our findings to practice-oriented theory and consultancy (Giacobbi et al.,

23   2005). In support of this, our findings have firstly added another dimension to empirical

24   evidence by highlighting some *specific* outcomes of using psycho-behavioral skills during

25   memorable challenges; thus, moving beyond recent recognition that such skills are perceived

1   to be generally important (Collins et al., 2016a; MacNamara et al., 2010, Savage et al., 2017).

2   Secondly, and in contrast to Howells and Fletcher (2016), our results also promote a more

3   skills-weighted than time-weighted approach to supporting constructive growth.

4   **Next Steps**

5   In terms of continued research, we recognize that the findings in this study all point to

6   the positive effects of psycho-behavioral skills in negotiating trauma (as per our purposes).

7   Of course, however, it has been established that some of these skills can also have negative or

8   dual effects when inappropriately deployed (e.g., Hill, McNamara, & Collins; 2015). Indeed,

9   Howells and Fletcher (2016) have identified that skills related to cognitive manipulation and

10   derogation of adversity were associated with illusory rather than constructive growth in their

11   sample. As such, future research should consider how psycho-behavioral skills can help or

12   hinder the negotiation of trauma by also exploring phases where athletes have struggled or

13   failed to develop after a notable setback. It would also seem advisable for future work to

14   explore the use of psycho-behavioral skills across the full traumatic experience more

15   generally to consider any phases-specific patterns (e.g., whether certain psycho-behavioral

16   skills are more or less useful as performers anticipate, negotiate, grow, and move on from the

17   event). Other work may also start to check for the presence of any gender- or sport-specific

18   (including team sport) differences. Building on this study's aim, to explore athlete

19   perceptions specifically, future research could consider triangulation with coach perspectives.

20   As well as broadening our focus, it is also important that future research continues to

21   evolve on a design level. For example, as the bulk of trauma-related research to date has

22   been retrospective in nature, real-time longitudinal tracking would likely allow for a

23   significant advance on both a theoretical and applied level; especially when multi-stakeholder

24   perspectives and additional sources of data are included (e.g., that related to performance and

25   well-being measures). To optimally inform practice, such an approach should be harnessed

1   within action-research and intervention studies whereby "live" experience and the related

2   deployment and development of psycho-behavioral skills can be captured. In this way, we

3   hope that this paper has helped to further shift attention from the questions of *what* to the

4   questions of *how* that are needed to make the most tangible difference to trauma-related

5   practice in talent development.

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