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Jackman, P, Whitehead, A, Swann, C and Brick, N (2023) Self-regulatory processes in goal striving during excellent distance-running performances: A qualitative study. Psychology of Sport and Exercise. ISSN 1469-0292

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1 **Self-regulatory processes in goal striving during excellent distance-running performances: A**
2 **qualitative study**

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20 **CRedit author statement**

21 **Patricia C. Jackman:** Conceptualisation, Methodology, Formal analysis, Investigation, Writing -
22 Original Draft, Writing - Review & Editing, Visualisation, Project administration; **Amy E.**
23 **Whitehead:** Formal analysis, Writing - Review & Editing; **Christian Swann:** Formal analysis,
24 Writing - Review & Editing; **Noel E. Brick:** Conceptualisation, Methodology, Formal analysis,
25 Writing - Original Draft, Writing - Review & Editing; Visualisation.

26

Abstract

27
28 **Objective:** Goal setting can improve endurance performance, yet how endurance performers
29 maintain goal striving and bring it to a successful close has received limited attention. In this
30 study, we investigated the self-regulatory processes employed by long-distance runners during
31 goal striving in excellent competitive performances.

32 **Method:** Through in-depth, event-focused interviews, we explored 21 long-distance runners'
33 experiences of goal striving in excellent competitive performances ($M = 77.43$ hours post-race).
34 Furthermore, we recruited 10 additional participants with relevant experiences (runner $n = 7$,
35 coach $n = 2$; sport psychologist $n = 1$) for external member-reflection interviews.

36 **Findings:** Through our matrix analysis, we interpreted that by contrasting their current and future
37 goal status periodically throughout their excellent performances, using a process called *mental*
38 *contrasting with implementation intentions* (MCII), this helped the runners to make decisions
39 about whether to persist with a goal, or disengage from a goal and reengage with an alternative.
40 Furthermore, our findings depict how these goal decisions unfolded when runners perceived they
41 were behind, equalling, or exceeding their goal(s). We also illustrate how goal revision was used
42 as an adaptive process to maximise performance, and to avert or manage action crises.

43 **Conclusions:** Our findings extend theoretical understandings of goal striving and the self-
44 regulatory processes endurance performers employ to attain and/or adapt their goals.
45 Psychological support provided for athletes should go beyond simply setting goals, but also
46 include training on mental frameworks such as MCII to manage goal-striving challenges and
47 decisional conflict encountered during performances.

48 **Keywords:** action crisis; elite athlete; endurance activity; goal revision; mental contrasting
49 with implementation intentions; self-regulation.

50

51

Highlights

52

- New insights offered into the dynamics of goal striving and goal revision in running

53

- Contrasting current and future goal status aided goal-striving decisions

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- Goal revision can be an adaptive process to aid performance

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- Mental contrasting with implementation intentions could help to avert and manage

56

action crises

57

- Education for runners on flexible goal-revision processes could enhance interventions

Introduction

58
59 Setting goals can be an effective way to improve performance in sport (Williamson et al., 2022)
60 and, more specifically, within endurance sport contexts (McCormick et al., 2015). Despite this,
61 endurance athletes often fall short of meeting their race goals (e.g., Markle et al., 2018; Waleriańczyk
62 et al., 2022). One reason for this may be that goal attainment not only depends on the content of a
63 goal that a person sets (e.g., performance, outcome) but also relies on their ability to cope with self-
64 regulatory difficulties they encounter during goal striving (i.e., goal implementation - Gollwitzer &
65 Oettingen, 2012). These difficulties include challenges with getting started (e.g., procrastination),
66 staying on track (e.g., maintaining concentration in competitive situations), and bringing goal pursuit
67 to a successful close (e.g., maintaining pace despite experiencing greater physical discomfort)
68 (Gollwitzer & Oettingen, 2019). Although the need to distinguish between goal setting and goal
69 striving has long been recognised (Lewin et al., 1944), comparatively less is known about goal
70 striving in endurance sport (Wolff et al., 2019). Goal striving is a key psychological process
71 underpinning athletic flourishing (Beauchamp et al., 2023) and considerable interest exists in
72 understanding how endurance athletes progress toward, and ultimately achieve, their goals
73 (Hutchinson, 2018). Questions remain, however, as to how endurance athletes maintain goal striving
74 and bring it to a successful close despite the many internal (e.g., high effort, distracting thoughts) and
75 external (e.g., competitor actions, weather conditions) challenges that endurance activity can bring
76 (e.g., Wolff et al., 2019). Therefore, in the current study, we investigated the self-regulatory processes
77 employed by long-distance runners during goal striving in competitive performances.

78 In line with much of the discourse about success in sport, theories of goal pursuit generally stress
79 the value of persistence for achieving goals (Brandstätter & Bernecker, 2022). Although continued
80 engagement can facilitate goal attainment, persevering with unattainable goals can be costly
81 (Ntoumanis et al., 2014). In scenarios where a goal is perceived as unattainable, goal disengagement
82 (i.e., the dissolution of one's interest in a goal - Brandstätter & Bernecker, 2022) is sometimes an
83 adaptive self-regulatory response that can protect individuals against some unhealthy, negative

84 emotional consequences of perceived goal failure, such as guilt, shame, or depressive mood (Wrosch
85 & Scheier, 2020). Various theories are proposed to explain persistence and disengagement in goal
86 pursuit (see Brandstätter & Bernecker, 2022 for a review). Ntoumanis and Sedikides (2018), for
87 example, proposed a tripartite model of goal striving, which posits that goal motives (i.e., autonomous
88 and controlled) and two complementary, metacognitive self-regulatory processes, namely *mental*
89 *contrasting* and *implementation intentions*, interact to shape an individual's self-regulatory response
90 in challenging situations (i.e., the thoughts and actions that lead to goal persistence or goal
91 disengagement). In turn, this decision to persist or disengage from a goal will produce distinct
92 consequences (e.g., performance, goal progress and attainment, affective and cognitive outcomes).
93 Furthermore, individual differences and traits (e.g., perfectionism, pessimism, goal flexibility,
94 affectivity) are proposed to influence the interaction between goal motives, mental contrasting, and
95 implementation intentions (Ntoumanis & Sedikides, 2018).

96 Of particular interest in the present study are the metacognitive self-regulatory processes that
97 help individuals to make decisions about goal pursuit (i.e., goal commitment and goal striving) and
98 to cope more effectively with problems encountered during goal striving (Oettingen, 2012). The first
99 component, mental contrasting, enables people to decide between striving for attainable and
100 unattainable goals by imagining a desired future (i.e., achieving a goal) and then reflecting on the
101 barriers in the present reality that impede its attainment (Oettingen, 2012). According to fantasy
102 realisation theory (Oettingen, 2000), contrasting an imagined future with the present reality activates
103 expectations of success, which provide a platform for expectancy-dependent goal pursuit. If a person
104 expects that they can surmount the obstacles to goal achievement, it is proposed that they will
105 mobilise greater effort towards reaching that desired future, but if expectations of success are low,
106 mental contrasting will help someone to refrain from committing to an unfeasible goal. Oettingen
107 (2000) also proposed that mental contrasting differs from two other routes to goal pursuit: indulging
108 and dwelling. Indulging entails envisioning a desired future and the potential benefits of this without
109 reflecting on the present reality. In contrast, dwelling involves focusing on the obstacles in the present

110 reality without considering the desired future. As neither of these processes activate expectations of
111 success, indulging and dwelling lead to unchanged goal pursuit (Oettingen, 2012). Mental
112 contrasting, therefore, is the only one of these three self-regulatory processes that facilitates goal-
113 related decision-making and performance based on the feasibility of goal attainment (Oettingen,
114 2000).

115 The second component of MCII, implementation intentions, involves the creation of a mental
116 connection between a cue or situation (e.g., obstacle) and a goal-directed response in the form of an
117 ‘if-then plan’, which details where, when, and how an individual will take action (e.g., “If situation
118 X occurs, then I will do Y to achieve goal Z”; Gollwitzer & Oettingen, 2019). Implementation
119 intentions can minimise resource depletion by fostering a less effortful and more automatic form of
120 self-regulatory control during goal striving (Oettingen et al., 2013). Mental contrasting provides the
121 prerequisites to form more effective implementation intentions, by creating strong goal commitment,
122 and specifying impeding obstacles (i.e., for the ‘if’ part) and the actions needed to surmount them
123 (i.e., for the ‘then’ part; Oettingen & Reininger, 2016). MCII is, therefore, a synergistic strategy that
124 can support goal-directed behaviour, with a meta-analysis of 21 studies revealing a small-to-moderate
125 effect ($g = .34$) of MCII on goal attainment (Wang et al., 2021).

126 The relevance of MCII to endurance performance is apparent given the many obstacles that
127 endurance athletes face during goal striving. Once endurance athletes initiate goal-directed
128 behaviours, they often encounter difficulties that threaten goal attainment, such as pacing errors,
129 falling behind a competitor, feelings of boredom, and experiencing unpleasant or effort-related bodily
130 sensations (Marcora, 2019; McCormick et al., 2018; Venhorst et al., 2018). These difficulties span a
131 range of endurance tasks and include urges to slow down in 800m running (Cooper et al., 2021) and
132 “hitting the wall” in the latter stages of a marathon (Buman et al., 2008; Smyth, 2021). In these
133 situations, athletes will need to make strategic decisions about whether their current resources and
134 goal-striving approach are sufficient to allow them to continue to move toward, and ultimately reach,
135 their goal. When someone has already invested substantial effort into achieving a goal, but meets

136 setbacks that threaten its attainability, the decisional conflict between persistence and disengagement
137 that arises has been defined as an action crisis (Brandstätter et al., 2013; Venhorst et al., 2018). Higher
138 action-crises ratings in a marathon are related to increased physiological distress, slower running
139 times, reduced perceived goal attainability, and a desire to disengage (i.e., stop or quit) from the
140 running task (e.g., Brandstätter et al., 2013; Schüler & Langens, 2007). Thus, an action crisis can
141 undermine effective goal striving and lead an individual to consider the desirability and feasibility of
142 both the pursued goal and alternate goals (Brandstätter & Schüler, 2013; Venhorst et al., 2018).

143 Consistent with the tripartite model of goal striving (Ntoumanis & Sedikides, 2018), some
144 recreational runners have reported disengaging from their goal during an action crisis (e.g., giving up
145 on a time goal) and renegotiating their goal – rather than quitting – to cope (Buman et al., 2008).
146 Aligned with endurance performance models (e.g., Marcora, 2019; Pageaux, 2016), this goal revision
147 (i.e., lowering a goal rather than abandoning it) may be interpreted as an adaptive process to optimise
148 potential motivation based on current progress and, consequently, to direct and maximise the effort
149 exerted in pursuit of a new, yet valued goal. Equally, goal revision may help individuals return to an
150 implemental mindset (i.e., tune into information on where, when, and how to act) from the
151 deliberative mindset (i.e., consideration of the feasibility and desirability of persevering with a goal)
152 characteristic of an action crisis (Venhorst et al., 2018). One reason why athletes might decide to
153 revise their goal is because of a discrepancy between a goal (e.g., a target pace) and current
154 performance (e.g., running pace) (e.g., Brick et al., 2015). A goal-performance discrepancy (GPD;
155 Donovan & Williams, 2003) can take several guises, as an athlete may be behind (i.e., negative GPD),
156 equalling (i.e., no GPD), or ahead of (i.e., positive GPD) the performance standard needed to achieve
157 their initial goal. If a discrepancy exists, individuals might adjust their behaviour (e.g., exert more
158 effort) or goal to close the discrepancy (Donovan & Williams, 2003). Underlining the dynamics of
159 goal striving in sport, GPDs have been linked to goal-driven self-regulatory processes (e.g., pace
160 regulation; McCormick et al., 2019), positive and negative affective states (Gaudreau et al., 2002),
161 and, of particular interest to the current study, decisions to maintain or adjust one's goals during a

162 season (Donovan & Williams, 2003). These studies offer initial insight into the dynamics of goal-
163 striving decisions in sport, but there is a need to deepen understanding of the complex decision-
164 making processes endurance athletes engage in about their goal(s) as performance unfolds *within* an
165 event and how strategic decisions that aid goal attainment are made.

166 **The Current Study**

167 In this study, we investigated the self-regulatory processes employed by long-distance runners
168 during goal striving in excellent competitive performances. We developed two research questions to
169 guide our investigation: 1. How do runners make decisions about goal striving during excellent
170 competitive performances? 2. What self-regulatory processes do runners use to make these decisions?
171 To address our research questions, we adopted a qualitative approach to generate insight into
172 participants' experiences of goal striving in real-world events. Researchers have highlighted the
173 importance of using methods that can better understand the dynamics of goal striving and self-
174 regulation (Neal et al., 2017) and the experiences of endurance athletes in real-world competition
175 (McCormick et al., 2015). Qualitative methods appear well positioned to achieve this as qualitative
176 research can generate novel insights into psychological phenomena in real-world settings and is well
177 suited to examining how these may unfold in specific contexts, which can lead to advancements (and
178 accelerations) in the theoretical development of a research area (Hagger & Chatzisarantis, 2011).

179 In the current study, we generated data through event-focused interviews (Jackman et al., 2022)
180 as this method can develop detailed accounts about specific moments, events, or experiences and is
181 suitable for investigations of dynamic, context-dependent phenomena. Given that runners often fall
182 short of meeting their race goals (e.g., Markle et al., 2018; Waleriańczyk et al., 2022) and the limited
183 research on within-event goal striving in real-world sport competition, we focused on excellent
184 competitive performances as these were events in which runners were more likely – though not
185 guaranteed – to have brought goal striving to a successful close despite the likely experience of
186 obstacles to goal attainment. By focusing on specific, excellent performances, we believed this would
187 enable us to recruit information-rich cases (Patton, 2014), who were likely to possess valuable

188 knowledge that could help to address our research questions. Ultimately, we sought to expand
189 theoretical understanding of goal striving and provide evidence that could inform guidance and
190 educational content for runners, coaches, and sport psychologists working within endurance sport.

191 **Methods**

192 The theoretical frameworks that guided the current study are grounded in a postpositivist
193 worldview, as phenomena such as goals, goal setting, goal striving, and self-regulation are
194 conceptualised as mental entities that reside within the mind and are proposed to influence a person's
195 behaviour (see McGannon & Mauws, 2000). This perspective therefore aligned with a realist
196 ontology, whereby it is assumed that although not directly observable or knowable, mental
197 phenomena exist in an external reality independent of the researcher's beliefs about them (Maxwell,
198 2012). Studies utilising these theoretical frameworks are often guided by a modified objectivist
199 epistemology and the use of quantitative research designs. In an attempt to enrich and diversify
200 understanding of goal striving and self-regulatory processes and to move this field beyond the
201 predominant use of quantitative research designs, we adopted an alternative position. Specifically,
202 while maintaining a realist ontology, we combined this with a constructivist epistemology (Maxwell,
203 2012). Thus, we assumed that although not directly observable, mental processes (e.g., goal striving
204 and self-regulatory processes) are real, mind-independent phenomena, but believed that any
205 knowledge generated about such phenomena is garnered from a particular perspective and is theory-
206 laden, context-dependent, and partial. Our use of a qualitative approach was coherent with this
207 philosophical position (Maxwell, 2012). We gained ethical approval for the study from the first
208 author's university's ethics committee.

209 **The Researchers**

210 Before the study, I (first author) had been a runner for several years and could be regarded as a
211 cultural "insider" (Dwyer & Buckle, 2009). Across the project, my degree of "insider" status evolved,
212 as I began to compete in races and run new distances (e.g., ultra-marathon). Although my cultural
213 and embodied understandings of running helped me to generate (e.g., via recruitment, building

214 rapport, empathy), interpret, and represent the dataset, my insider status also presented challenges.
215 During interviews, for example, I needed to remember to notice, explore (e.g., via follow-up
216 questions), and not take for granted the meaning of language used in the running community that was
217 familiar to me. The second and fourth authors were also runners and had prior research experience in
218 endurance sport, yet they, alongside the third author, held a greater degree of “outsider” status (Dwyer
219 & Buckle, 2009) due to not being involved in the data generation process. The co-authors acted as
220 critical friends (see Rigour) throughout the research project, which provided a space for me to engage
221 in critical dialogue and develop my interpretations. The second and fourth authors’ experiences of
222 working with endurance athletes as sport psychologists also encouraged questions about the practical
223 implications of the study (e.g., Why is this important? What might a practical implication be?), which
224 enriched our analysis and representation of findings.

225 **Participants and Sampling**

226 Following sampling guidelines for event-focused interviews (Jackman et al., 2022), we specified
227 that runners who recorded a recent excellent performance in a competitive distance-running event
228 were eligible to participate. Adapting criteria used previously (Swann et al., 2017), we defined an
229 excellent performance as one in which runners achieved a record performance (e.g., personal, course,
230 national, world) or finished in a leading position. Embracing a maximum-variation sampling
231 perspective (Sparkes & Smith, 2013), we sought adult participants across various race distances and
232 competitive standards. To identify eligible runners, we monitored race results and posts on websites,
233 social media, and digital fitness applications (e.g., Strava) over a 22-month period. We contacted
234 eligible runners and invited them to partake in the study if they felt their performance matched the
235 eligibility criteria. No incentive was offered for participation. We recruited 21 runners (M age = 34.90
236 years old) for event-focused interviews, ranging from those who competed at local/regional level to
237 those with Olympic Games experience (Table 1). To enhance rigour, 10 additional participants with
238 experiences relevant to the research topic (runners $n = 7$; running coaches $n = 2$; sport psychologist
239 $n = 1$) were recruited for ‘external’ member-reflection interviews (see Rigour). The additional runners

240 were sub-elite and competed in local/regional races. Both running coaches and the sport psychologist
 241 also had experience as endurance runners, with one of the coaches previously coaching a runner to a
 242 World Championship Final. All participants provided informed consent to partake in the study.

243 **Table 1**

244 *Summary of event-focused interview participant characteristics and sampling rationale.*

Participant group	Demographic characteristic	Descriptions	<i>n</i>	
Event-focused interview participants	Gender	Female	6	
		Male	15	
	Age	20-29 years	7	
		30-39 years	7	
		40-60 years	7	
	Ethnicity	White-British	15	
		White-Irish	6	
	Highest standard of performance	Olympic Games	2	
		World Championship	2	
		European Championship	2	
		Represent nation in lower-tier international race (e.g., Masters, invitational race)	7	
		National-level races	1	
		Regional/local races	7	
	Sampling rationale	<i>Record performances</i>		
		Personal record		7
		Age-grade world record		1
		National and personal record		1
		<i>Finished in a leading position</i>		
		1 st in regional race		2
		2 nd in international race		1
2 nd in regional race			1	
<i>Finished in leading position and record performance</i>				
1 st in national championship, national record, and personal record			1	
1 st in regional race and course record			1	
1 st finisher for country in international representative-race and personal record			1	
2 nd in regional race, personal record, and qualifying time for international race			1	
2 nd in national championship and personal record			1	
3 rd in international race and personal record		1		
4 th in national race and personal record		1		
5 th in age group in international representative race		1		
Additional member-reflection interview participants	Gender	Female	6	
		Male	4	
	Age	30-39 years	2	
		40-49 years	4	
		50-60 years	4	
	Ethnicity	White-British	9	
		White-Spanish	1	
Role	Runner	7		
	Coach and runner	2		
	Sport psychologist and runner	1		

245 **Procedures**

246 After eligible participants agreed to take part, I interviewed them online ($n = 19$) or via phone (n
247 $= 2$) just over three days after the races finished on average ($M = 77.43$ hours post-race, range = 21-
248 180 hours). During the interviews, I adopted a semi-structured approach (see Supplementary File 1
249 for interview guide), as this allowed me to pose relatively focused, open-ended questions and be
250 flexible in responding to and exploring areas of interest that arose (Sparkes & Smith, 2013). As we
251 sought to construct a detailed account of each runner's experience in a specific race, the dialogue
252 direction was largely controlled by participants, so I found myself moving between a semi-structured
253 and unstructured approach to ensure I moved *with* the story conveyed (Smith & Sparkes, 2016).
254 Before each interview, I gathered race information, where available, to heighten my understanding
255 of the performance that would be discussed. These insights allowed me to build rapport with
256 participants and heightened my empathic understanding of their account (e.g., features of the route;
257 Roulston, 2022).

258 After opening the interview by asking questions about the runner's background in running, I
259 posed questions in four areas. First, to develop a chronological description of the race, I invited
260 participants to talk about how their performance in the sampled activity unfolded ("From start to
261 finish, can you explain how the race unfolded?"). As they recalled their race, I built a timeline of key
262 events (i.e., participant-identified events or crossroads) and reflected this back for clarification before
263 continuing. Second, to understand each runner's experience and goals *before* the race, I asked about
264 their preparation ("Can you tell me about the build up to the performance") and their goal(s) ("What
265 were you hoping to achieve?"). Third, I then asked questions that focused on their experience *during*
266 each race stage they identified, using the information in the timelines as a guide. To orient participants
267 to the relevant point in the race, I used phrases like, "I would like to take you back to [stage]" or "I
268 would now like to move onto [stage]", before progressing to asking specific questions about the
269 runners thoughts ("What were you thinking about in this stage?"), feelings ("How were you feeling in
270 this stage?"), actions ("Can you tell me about how you were performing in this stage?"), and within-

271 event goals (“What were you trying to achieve in this stage?”). By adopting this stage-by-stage
272 approach and shifting flexibly back and forth between stages, I could elicit more detail on the runners’
273 decisions and explore any within-person changes described over time (e.g., contrasts between an
274 earlier and a later stage). Finally, I invited the participants to talk about their feelings and reflections
275 *after* the race (e.g., “Reflecting back now, can you tell me how you feel about the performance?”).
276 Throughout the interviews, I posed curiosity-driven questions (Smith & Sparkes, 2016) to generate
277 more insight into the accounts shared by participants and to clarify the meaning of terminology from
278 the participant’s perspective. To give an example, during the interview with 10-kilometre Runner 3,
279 I responded to a description conveyed by the runner by stating, “I’m curious. You mentioned a stage
280 where it was the first point you checked as to how long was left. [pause] What happened for that to
281 be the first check in?” Before finishing, each participant was asked if they had anything further to
282 add. I recorded the interviews (*M* length = 76.04 minutes) and transcribed them verbatim.

283 **Data Analysis**

284 To address our research questions, we used matrix analysis (Miles & Huberman, 1994).
285 According to Braun and Clarke (2021), matrix analysis is a form of ‘codebook’ thematic analysis
286 characterised by the use of a coding frame (i.e., matrix) and maintenance of a commitment to
287 qualitative philosophical assumptions, including acknowledgement of researcher subjectivity and the
288 context-dependency of knowledge. We selected the time-ordered variant of matrix analysis as this is
289 suited to examining the “*sequence, timing, and stability* of processes and experiences” (italics in
290 original; Miles et al., 2019, p. 198) and allowed us to organise and interpret data generated
291 chronologically. Thus, our analysis was coherent with our philosophical position, research questions,
292 and interview method. In a time-ordered matrix, time periods are displayed on the x-axis and the
293 concepts of analytic interest presented as rows on the y-axis (Miles & Huberman, 1994). Applied to
294 our study, the time-ordered matrix comprised separate: (1) columns on the x-axis about the race
295 stages; and (2) rows on the y-axis representing areas pertinent to our research questions.

296 We undertook the main analysis in two stages. The first stage involved within-person analysis,
297 which I started by reading each transcript multiple times to further my familiarisation. While doing
298 so, I made jottings on areas of interest (e.g., patterns, theoretical links) and, building on my interview
299 notes, created a race timeline for each runner. I began with first-cycle coding (Miles et al., 2019) for
300 a small number of transcripts, highlighting relevant segments of text pertinent to the runners' goals,
301 goal-striving decisions, and self-regulatory processes. Here, I created descriptive codes (i.e., basic
302 meaning of a passage, such as 'specific outcome-goal') and process codes (i.e., codes that focus on
303 action, such as 'increasing the pace') (Miles et al., 2019), adding concise snippets of this information
304 to the runners' timelines. As I began to progress through the transcripts, I realised that I needed to
305 expand the time-ordered matrix. For example, I quickly recognised the need to code information on
306 'goal progress', something I gained further insight into by engaging with literature on goal revision
307 (Donovan & Williams, 2003). I also made more additions after 'critical friends' discussions (Miles
308 & Huberman, 1994) with the co-authors, as I began to draw upon the tripartite model of goal striving
309 (Ntoumanis & Sedikides, 2018) and MCII (Oettingen, 2012) in my interpretations.

310 Informed by these new perspectives, the 'final' time-ordered matrix (see Supplementary File 2)
311 contained four categories: (1) *desired future* (i.e., goal type); (2) descriptions of, and obstacles (e.g.,
312 internal, external, potential) in, the *present reality* (e.g., GPD, race stage, and perceived physical
313 condition); (3) *goal-attainment expectancy*; and (4) *goal-striving decisions* (i.e., persist or disengage
314 and re-engage with an alternative). Using this coding frame, I revisited the transcripts, created codes
315 for each stage of the race for the four categories, and entered this information into each runner's time-
316 ordered matrix. While coding data for the *desired future* and *present reality* categories, I adopted an
317 abductive approach (i.e., shift between inductive coding and coding shaped by existing literature).
318 For example, I drew on extant literature on goal types (e.g., process, performance, outcome – Hardy,
319 1997) and endurance running (e.g., Brick et al., 2014; 2015; Jackman et al., 2021) to cluster initial
320 codes into a smaller number of sub-categories within these categories. In contrast, for the *goal-*
321 *attainment expectancy* and *goal-striving decision* categories, I utilised a deductive approach guided

322 by past literature (Ntoumanis & Sedikides, 2018; Oettingen, 2012). After coding, I examined data
323 within each matrix, and, in a fifth row, noted any within-person patterns over time (e.g., changes from
324 one goal type to another) and processual links between categories (e.g., no GPD + high expectation
325 of success → goal persistence) (Miles & Huberman, 1994). Each participant was sent their race-
326 analysis summary as a timeline (see Supplementary File 3 for examples), asked if the interpretation
327 was recognisable, and invited to make changes or additions as per the member reflections process
328 (Tracy, 2010). As a result, I made minor changes to two timelines (e.g., 10-kilometre Runner 3
329 suggested the addition of “exploring their effort” to a later stage of their timeline).

330 In the second stage, I undertook a cross-case analysis, which involved creating a series of meta-
331 matrices (Miles & Huberman, 1994) that displayed and synthesised information from the individual
332 matrices in master charts. ‘Clustering’ is a technique used to group similar cases for cross-case matrix
333 analysis (Miles & Huberman, 1994). To develop meta-matrices based on relevant clusters, I
334 considered both variable-oriented (i.e., organise information based on coherent themes that cut across
335 cases) and case-oriented (i.e., assembling similar cases to permit comparison) information (Miles &
336 Huberman, 1994). As goal striving was the concept of central interest to our analysis, I extracted
337 information from columns in the individual time-ordered matrices and inputted this into one of two
338 initial meta-matrices, which segmented information based on whether the *goal-striving decision* was
339 to (1) persist with a goal or (2) disengage from a goal and re-engage with an alternative. After
340 examining the meta-matrices, I then divided each meta-matrix into three based on the GPD within
341 the *present reality* (i.e., positive GPD, no GPD, or negative GPD), leading to analysis across six meta-
342 matrices (see Supplementary File 4 for example): (1a) negative GPD and goal persistence; (1b) no
343 GPD and goal persistence; (1c) positive GPD and goal persistence; (2a) negative GPD and goal
344 disengagement and re-engagement; (2b) no GPD and goal disengagement and re-engagement; and
345 (2c) positive GPD and goal disengagement and re-engagement. After assembling the information, I
346 examined patterns within and across the meta-matrices, asking questions such as: Under what
347 conditions (e.g., race stage, perception of effort, goal-attainment expectancy) was this decision

348 made?; How did these decisions compare based on the type of goal(s) pursued?; What is similar or
349 different between cases?; Are there any exceptions? and How does this link to existing theories or
350 research? To retain a sense of the ‘whole’ accounts provided, I also shifted between the meta-
351 matrices, time-ordered matrices, and transcripts, assessing their coherency and constantly questioning
352 my interpretations (e.g., Do the cross-case analysis conclusions make sense in the context of each
353 runner’s account?). After further discussions with the co-authors and engagement in the member
354 reflections process (see Rigour and Supplementary File 5), we developed a visual display to depict
355 the runners’ goal-striving decision-making processes. In representing our findings, we integrated
356 literature to illustrate the interpretative nature of our analysis.

357 **Rigour**

358 In the current study, we took actions to enhance rigour and address several markers of quality.
359 By responding to calls for further research on goal striving in endurance sport (Wolff et al., 2019),
360 we sought to make a *significant contribution* to theoretical and applied understanding in this area
361 (Tracy, 2010). Through our sampling (i.e., event-focused and maximum-variation sampling), data
362 generation (i.e., interview method suited to generating chronological data), and data analysis (i.e.,
363 consideration of temporality and dynamics; within- and cross-case analyses), we aimed for *rich*
364 *rigour* and *methodological coherence* (Tracy, 2010). Our engagement with the ‘critical friends’
365 process (Miles & Huberman, 1994; Smith & McGannon, 2018) developed the analytical rigour.
366 Throughout the study, I shared my reflexive notes and interpretations (i.e., in writing, voice notes,
367 and diagrams) regularly with the co-authors, who provided written and verbal feedback. In regular
368 critical friends’ meetings, our intention was not to reach consensus, but to explore other, and
369 challenge my, interpretations. These discussions pushed me to justify my interpretations (i.e., What
370 was the evidence for this?) and led to the integration of new perspectives. One example of this was
371 when literature on goal striving (Ntoumanis & Sedikides, 2018) and MCII (Oettingen, 2012) were
372 suggested, and I subsequently drew upon this in the analysis. During the peer review process, we
373 were encouraged to think more deeply about the analysis, which prompted me to revisit and integrate

374 other literature (e.g., Oettingen, 2000). In the later stages of the write up, the co-authors offered me
375 a valuable sounding board for considering the theoretical and applied implications of the findings.

376 To enhance the *credibility* of our research and explore the findings' *resonance* (i.e., as a form of
377 naturalistic generalisability – Stake, 1995), we engaged in member-reflection interviews (Tracy,
378 2010). By sharing and discussing research with participants, the co-participatory dialogue involved
379 in member reflections “is argued to have the potential to lead to more robust and intellectually
380 enriched understandings” (Everard et al., 2022, p. 2). In addition to sharing a summary of each
381 participant's within-case analysis, we sent a summary of our preliminary findings to the 21 runners
382 and invited them for another interview. Four participants accepted this invite and took part in a
383 subsequent interview (*M* length = 34.66 minutes). We also engaged in “external” member reflections,
384 by sharing a summary of the findings in written and video (23 minutes) formats with 10 additional,
385 relevant people (see Table 1). I conducted an interview (*n* = 6) or dyad-interview (*n* = 4) with these
386 participants (*M* length = 54 minutes), similar to the “internal” member-reflection interviews. During
387 these relatively unstructured, member-reflection interviews, I asked broad questions such as: What
388 are your impressions of the findings?; Do the findings make sense?; How do the findings resonate
389 with your experiences?; and What, if anything, have you taken away from the findings? Overall, the
390 outcomes of the member reflections process were overwhelmingly positive and strengthened our
391 confidence in the findings. More so, the member reflection process with these 14 participants
392 generated additional data that enriched our analysis (Cavallerio et al., 2020). For example,
393 participants from both sets of member-reflection interviews recalled similar race situations that the
394 findings ‘spoke to’, including in both excellent and less-than-excellent performances. As a team, we
395 were acutely aware that our study sampled excellent performances, but in the member-reflection
396 interviews, I asked follow-up questions when participants mentioned examples of other race
397 outcomes to gain additional detail. With these new insights from the member-reflection interviews
398 in mind, I revisited and deepened my interpretations, as a form of ‘analytic expansion’ (Thorne,

399 1994). For instance, I engaged with additional literature (e.g., consideration of other facets of fantasy
400 realisation theory – Oettingen, 2000) and integrated additional interpretations into the write-up.

401

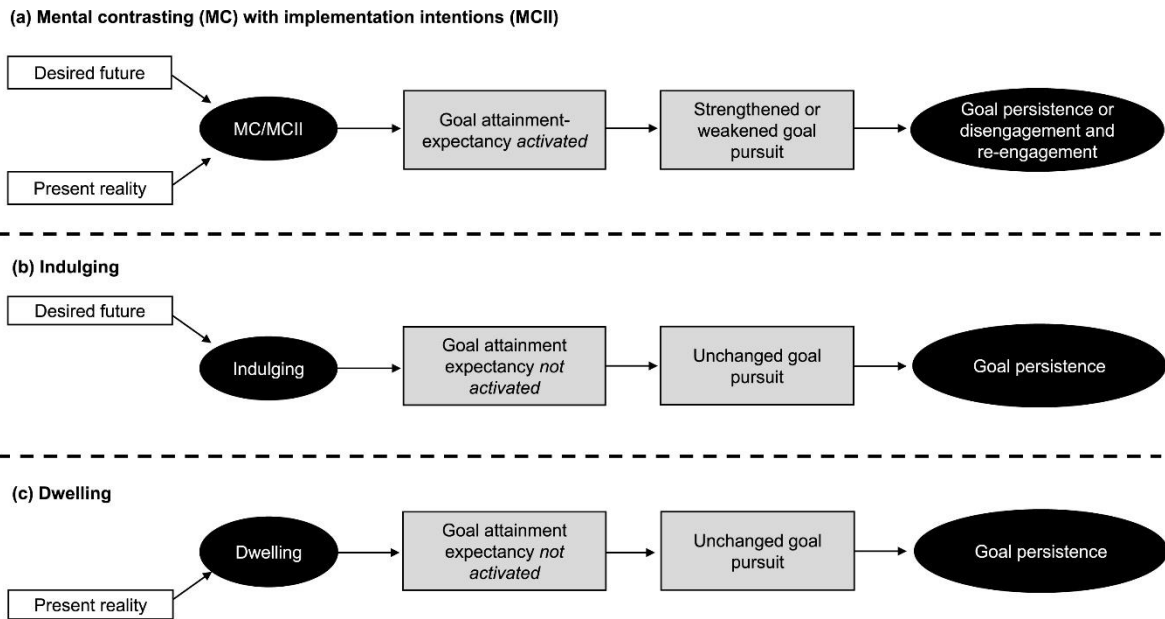
Findings

402 The runners' decisions about goal striving represented the central construct in our analysis. All
403 21 runners reported goal persistence at some point in their race, with 10 also reporting disengagement
404 from a goal and re-engagement with an alternative (see Supplementary File 6 for overview). As
405 depicted in Figure 1, we interpreted that these within-event *goal-striving decisions* were facilitated
406 by a process analogous to mental contrasting (Oettingen, 2000), as the runners reflected on the
407 *desired future* (i.e., goal) and elements of the *present reality* that impeded achievement of this. We
408 interpreted that goals set by the runners before and during the races differed in proximity (i.e., distal
409 vs. proximal), specificity (e.g., specific vs. non-specific), content (i.e., outcome, performance, or
410 process goals – Hardy, 1997), and/or priority (i.e., prioritising one goal in a hierarchy of multiple
411 goals) (see Supplementary File 7 for coding frame). The *present reality* included descriptions such
412 as: the GPD (i.e., behind, equalling, or ahead of their goal); the race stage, competitive situation, and
413 obstacles (e.g., physical duress); and perceptions of the runners' physical, affective, and cognitive
414 state. By conjointly elaborating their *desired future* and *present reality*, this activated a *goal-*
415 *attainment expectancy*, with the perceived expectation of success (i.e., high/low) influencing whether
416 the runner decided to persist with their goal or to disengage from it and reengage with an alternative.
417 In some cases, the runners also described what we interpreted as implementation intentions
418 (Gollwitzer, 1993), by establishing a plan to achieve their goal. Although this process of MCII
419 (Oettingen, 2012) was generally described during the runners' excellent performance, we also noted
420 instances when the runners could have been susceptible to solely dwelling on the obstacles they faced
421 or indulging in a wished-for-future (see Figure 1), both of which may result in a sub-optimal
422 performance (Oettingen, 2000). We draw upon these concepts to depict these self-regulatory
423 processes and illustrate how the use of MCII aided the runners' goal-striving decision-making.

424

425 **Figure 1**

426 *Self-regulatory processes described by participants during goal striving*



427

428 Notes: In some cases for process (a), mental contrasting was described without implementation
429 intentions. Alt Text (alternative text) for this figure is presented in Supplementary File 8.

430 In line with our analysis, we structure our findings into three sections based on the GPDs (i.e.,
431 negative, no, positive) and goal-striving decisions (i.e., goal persistence, and goal disengagement and
432 re-engagement) reported. We organised our findings in this way to convey the complex, dynamic
433 self-regulatory processes involved in goal striving and how contrasting goal-striving decisions played
434 out across contexts during which runners described situations with similar and different GPDs.
435 Throughout the narrative for each sub-section, we also integrate other categories (italicised in text)
436 from our analysis depicted in Figure 1 to illustrate the linkages between these processes.

437 **Goal-Striving Decisions when Performance is Not Meeting a Goal Set**

438 Four runners made decisions about goal striving in the final quarter of their race after their
439 performance fell below the standard required to achieve their goal (i.e., negative GPD). As these
440 runners had already invested extensive effort and the achievement of their goal was threatened, these
441 scenarios resembled an action crisis (Brandstätter et al., 2013). Using MCII (Oettingen, 2012) helped
442 these runners to make decisions about goal striving and to negotiate the action crisis.

443 ***Goal Persistence***

444 Two 5-kilometre runners discussed the use of MCII (Oettingen, 2012) when deciding to persist
445 with goal striving in the final kilometre of their races. Exemplifying the process of mental contrasting,
446 the *desired future* for both runners was the goal of finishing the race in a specific time, while the
447 obstacles in the *present reality* included the negative GPD, the goal-achievement pace required, and
448 need to cope with the rising feeling of difficulty, all of which could be catalysts for an action crisis
449 (Brandstätter et al., 2013). Illustrating the use of *implementation intentions* (Gollwitzer, 1993), both
450 recognised that if they were to get back on track, then they would need to exert additional effort,
451 increase their pace, and, in turn, cope with the physical duress that these changes could produce. This
452 process of MCII provided a platform to activate a *goal-attainment expectancy*, with the runners' high
453 expectations of success resulting in a decision to persist with their goal (Ntoumanis & Sedikides,
454 2018). An excerpt from one of these runners describing the decisional conflict encountered in the
455 final kilometre of their race portrays these points:

456 I had a guy who surged past. That made a difference and made me think “right, obviously the
457 pace has slowed down, and if I do want to run quick, I need to go with it. Otherwise, if I settle
458 with the people behind me, I’ll never PB [personal best]”. The main thought was, “it is going to
459 be hard, and it is going to hurt, but do it and go for it”. Another thought was, “if I do get to 200
460 or 300m left and I have nothing left, then at least I gave it a good crack, rather than saving all
461 my energy for the last 100m and outsprinting someone, and still running 14.40 and not PB-ing.
462 The fact that I knew the PB was on and was reachable, that was the main thing that made me,
463 not forget the pain, but battle through it. It’s a pain that you’re aware of, but you know you can
464 push through. (5-kilometre runner 1)

465 The above example illustrates how mental contrasting can help a runner to avoid the potential for
466 dwelling on impeding obstacles in an action crisis and, when this activates an expectation of success,
467 it can strengthen a runner’s commitment to achieving a goal (Oettingen, 2012).

468 *Goal Disengagement and Re-Engagement*

469 In contrast, the two remaining runners who fell behind the performance standard required to
470 achieve their goal used MCII (Oettingen, 2012) to revise their goal and cope with an action crisis
471 (Brandstätter et al., 2013) in the final quarter of their longer-distance races (marathon and 24-hour
472 race). Drawing on fantasy realisation theory (Oettingen, 2000), we interpreted that by considering
473 both the *desired future* and aspects of the *present reality* simultaneously, the resultant *goal-attainment*
474 *expectancy* helped them to realise that the goal was no longer feasible. Both runners subsequently
475 revised their goals (Donovan & Williams, 2003), disengaging from their original goal and swiftly re-
476 engaging with a more feasible alternative, which enabled them to avert the action crisis and finish the
477 race (i.e., rather than quitting). The use of mental contrasting thus appeared to help these runners to
478 avoid the potentially negative consequences of indulging about a no-longer-feasible goal or dwelling
479 on the barriers impeding their goal (Oettingen, 2000). These interpretations were supported through
480 our member-reflection interviews, when other participants recalled action-crises situations in which
481 they responded less adaptively. The following excerpt exemplifies this process of mental contrasting
482 for one runner and reveals how disengagement from an unfeasible goal and re-engagement with an
483 alternative helped to maintain their motivation in a 24-hour race:

484 [At 18 hours] I knew the 264 [-kilometre target] was gone, but mentally that didn't affect me. I
485 accepted the fact that we had missed the A-target. That's okay, because now I have a B-target to
486 still aim for. The race hasn't gone perfect, but 24 hours is a very long time to get something to go
487 perfect, so I'm still thinking positively, as positively as I can. (Ultra-runner 3)

488 The above example for Ultra-runner 3 also illustrates the potential for a 'tiered' performance-goal
489 (i.e., A-goal, B-goal, C-goal) to support the enactment of an implementation intention (Gollwitzer,
490 1993), as this runner had a response prepared (i.e., B-goal) if a scenario arose in which their *desired*
491 *future* was out of reach in the race. Applying the combined use of MCII here, we interpreted that
492 mental contrasting (Oettingen, 2012) enabled timely goal-disengagement from a goal that was no

493 longer feasible, while drawing upon an implementation intention (Gollwitzer, 1993) accelerated the
494 switch to an alternative and more feasible goal.

495 **Goal-Striving Decisions when Performance is Equalling a Goal Set**

496 Twenty participants reported being on track to achieve their pre-performance-set goal (i.e., no
497 GPD) at some point in their race and persisting with that goal. Eight runners recounted being on track
498 to achieve their pre-performance-set goal yet decided to pursue an alternative goal, with these
499 decisions described at the halfway stage or after.

500 *Goal Persistence*

501 Runners who were on track to achieve their goal reported making decisions to persist with their
502 goal when they formed a positive *goal-attainment expectancy* about the achievement of their *desired*
503 *future* after contrasting this with their *present reality* (Oettingen, 2000). Yet, in instances when they
504 felt they were close to, or at, their limit, these runners recalled feeling that any pace or effort increase
505 could have deleterious consequences. In recounting their races chronologically, most specified a point
506 at which they felt that the running task became more difficult – and thus the *present reality* appeared
507 to verge on that of an action crisis (Brandstätter et al., 2013). This is illustrated in the following
508 extract, where an Olympian discussed the “fine line” of managing the pace during a record attempt:

509 You’re always worried in the middle of a race that the wheels could come off, that you could run
510 out of energy, or something happens and you just slow down. You’re always worried about that,
511 but you’re going, “let’s deal with this pace, let’s keep going, let’s keep going, let’s keep going”.
512 You just keep taking it a bit at a time. I wouldn’t really break it into miles or anything like that. I
513 just keep going, “yeah I feel okay”, and then in another bit, “yeah I feel okay”, and in the last two
514 miles, I was going, “I’m going to have to dig deep now and, even to hold the same pace I’ve been
515 doing, I’m going to have to hurt a bit more”. I knew what was coming. (Half-marathon Runner 1)

516 Interpreting the above example through the lens of mental contrasting (Oettingen, 2012), this runner
517 identified the effort and discomfort associated with maintaining their goal pace throughout the event
518 as a goal-achievement obstacle (*present reality*) that may have impeded their goal (*desired future*).

519 By forming implementation intentions (Gollwitzer, 1993), this runner recognised that engaging task-
520 relevant, cognitive strategies (Brick et al., 2014, 2015), including instructional (i.e., “I’m going to
521 have to dig deep now”) and motivational (i.e., “let’s keep going”) self-talk statements could help
522 them to persevere and maintain their performance despite anticipating an elevated perception of effort
523 (i.e., “I’m going to have to hurt a bit more”). Differences in goal-striving decision-making were also
524 interpreted based on goal content, which had implications for challenges encountered during the race.
525 Whereas runners pursuing time-oriented, performance goals tended to maintain a consistent pace and
526 described a relatively gradual increase in difficulty, for runners pursuing outcome goals, increases in
527 pace and exertional effort tended to be more variable and subsequent goal-striving decisions were
528 strongly dictated by the competitive scenario and their perceived physical state. The following
529 excerpt from 10-kilometre Runner 4, who eventually won this national championship race, provides
530 one such example of how mental contrasting (Oettingen, 2012) can aid decisions about running pace
531 and race tactics, with this runner’s decision to persist stemming from a *goal-attainment expectancy*
532 that an alternative outcome-goal was not feasible at two moments in the race:

533 After the 5-kilometre point, you start another lap, which involves going up a little bit of a hill.
534 That was the first point at which I started to feel a bit of lactate build up. My legs felt a little bit
535 heavier. It was the first time I had to take my foot off the gas a little and rally myself up. I had
536 two little rough spots; maybe a little rough spot at around four miles, which I shook off pretty
537 quickly and stayed in the group, but closer to that 7-kilometre point, a few people made some
538 more aggressive moves. So, a guy that finished in fourth in the end, made a real aggressive move
539 at seven kilometres, which I didn’t feel like I was able to go with at the time. So, I just kind of
540 focused on myself and keeping moving and keeping my legs going.

541 Here, the benefits of mental contrasting can also be interpreted through comparisons with other
542 aspects of fantasy realisation theory (Oettingen, 2000); indulging on an alternative *desired future*
543 (e.g., running more quickly) or dwelling on the obstacles in the *present reality* (e.g., physical duress,
544 pace required to address move of opponent) might not have activated a *goal-attainment expectancy*

545 and thus helped this runner to persist with a feasible goal at that point in the race and avert an action
546 crisis (Brandstätter et al., 2013). The effective use of mental contrasting (Oettingen, 2012) was also
547 observed in scenarios when runners in a position to achieve their initial outcome-goal continued to
548 persist with, rather than adjust, that goal. The decision to persist with their outcome goal and resist
549 engaging with an alternative goal (e.g., run a specific time) stemmed from a concern that continuing
550 to exert that level of effort could lead to an action crisis and an expectation that such a switch could
551 jeopardise their primary goal. For instance, one runner (Half-marathon Runner 5) recalled how
552 decisional errors from past races when they “went beyond that ‘red line’ for too long” influenced
553 their decision to persist with their goal of winning the race after taking the lead in a race:

554 Once I had broken away in the race, I did have a fear. There was more in the tank, and I could
555 run faster, but then I was also like, “it only takes a minute or so of hard running and I will get a
556 stitch”. So, once I had broken away, I was like, “first and foremost, I need to win this race”.

557 This extract indicates how connecting with their past experiences through MCII aided this runner to
558 make a strategic decision and illustrates how mental contrasting can help to protect one’s resources
559 (Oettingen et al., 2013). This also depicts how a *goal-attainment expectancy* about a current and
560 alternative (or additional) goal formed through mental contrasting (Oettingen, 2012) can help to
561 circumvent an action crisis when on track to achieve a goal.

562 ***Goal Disengagement and Re-Engagement***

563 The eight runners that disengaged from their pre-performance-set goal used mental contrasting
564 (Oettingen, 2012) to contrast an alternative, *desired future* with their *present reality*, with this process
565 subsequently leading to a *goal-attainment expectancy* that the obstacles impeding their goal were
566 surmountable. A relatively consistent pattern among runners who decided to disengage from a pre-
567 performance-set goal when on track to achieve it and to re-engage with an alternative was that these
568 decisions took place in the second half of the race and these runners reporting disengaging from a
569 non-specific or flexible goal set prior to the race. By engaging in mental contrasting (Oettingen, 2012)
570 and forming implementation intentions (Gollwitzer, 1993) during the race, this appeared to help the

571 runners to realise that a different (and usually more challenging) goal was feasible and enabled them
572 to identify how to achieve this. This process was illustrated in the case of an international mountain
573 runner, who set a non-specific goal prior to the race, but by comparing an alternative *desired future*
574 and aspects of the *present reality* (i.e., making progress, feeling good) midrace, they realised a leading
575 position was attainable and subsequently decided to commit towards achieving that new goal:

576 It was quite a gradual incline up to the halfway point and then it got *really* steep in sections. I
577 would say when I got to the halfway, my legs were feeling good and that was when I made the
578 decision to have a go and see if I could go for the win. (Mountain Runner 1)

579 Rather than hold back when they felt good, this example illustrates how mental contrasting
580 (Oettingen, 2012) during a race can encourage runners to expand potential futures and, subsequently,
581 seize opportunities to pursue an alternative goal. Thus, thinking about the *desired future* and *present*
582 *reality* concurrently not only helped the runners to make decisions about goal striving, but also
583 enabled some to activate a positive *goal-attainment expectancy* about goals that related to unexpected
584 or unprecedented levels of performance, with high expectations of success strengthening the runners'
585 commitment to achieving these goals (Oettingen, 2012). These points are conveyed in the following
586 example shared by 10-kilometre Runner 2, an Olympian, whose main pre-performance=set goal was
587 “to be competitive” in an elite race due to uncertainty concerning their capabilities:

588 At 4K[ilometres], I went to the front a little bit and they came around me but then by 5K, I was
589 at the front of the pack again and I pulled away a little bit. But then I came back, and it was more
590 like a test, you know, to see if anyone comes with me. I knew that I was pushing then, and I
591 knew that I didn't have as many people with me when I made that little semi-move up. By that
592 point, I was like, “oh, okay, you can *actually* do this and you're over halfway now”. And then I
593 think at 6K, I went around a corner between 6 and 7K, and by that point, I saw my coach actually
594 at 7K and I didn't even know he was going to be there. And he shouted, “you're away now”. And
595 I was thinking, “oh, God, if he's there now, I can't go back. So I best push on” [laughs]. So yeah,

596 it was between like that middle section that I actually started to think, “OK, we could do all right
597 here”, and I could actually possibly make that podium.

598 Illustrating the value of mental contrasting (Oettingen, 2000) when goal striving has begun, this
599 athlete envisioned an alternative *desired future* (i.e., finishing on the podium) and by contrasting this
600 with their *present reality* (e.g., perceived capabilities, comparison to competitors, race stage) midrace,
601 this activated a more positive *goal-attainment expectancy* about finishing on the podium compared
602 to before the race. Thus, mental contrasting (Oettingen, 2000) helped this athlete to transition from a
603 non-specific goal to a more specific and challenging goal during the performance.

604 **Goal-Striving Decisions when Performance is Ahead of a Goal Set**

605 Nine runners described moments within their races that involved making decisions about whether to
606 persist with a goal or not when they found themselves exceeding the performance standard required
607 to attain their goal (i.e., positive GPD). Five runners subsequently decided to persist with their pre-
608 performance-set goal, three runners disengaged from their goal and re-engaged with an alternative,
609 with one runner engaging in each of these decisions at contrasting race stages.

610 ***Goal Persistence***

611 All decisions to persist with goal striving in a situation involving a positive GPD occurred in the
612 first-third of races. In these situations, the runners’ adoption of MCII (Oettingen, 2012) made them
613 recognise that continuing to stay ahead (*present reality*) of their goal (*desired future*) could yield a
614 better outcome relative to their pre-performance-set goal, but they also recalled a realisation that they
615 could not continue to exert the same level of effort until the finish-line and anticipated that an action
616 crisis (Brandstätter et al., 2013) could arise if they were to switch to a more challenging goal. The
617 use of MCII (Oettingen, 2012) appeared to safeguard the runners from making a goal-striving
618 decision that stemmed solely from indulging (Oettingen, 2000) with an alternative *desired future*
619 (e.g., running a quicker time). To give an example, an experienced international runner recalled the
620 moment when she decided to slow her pace after realising that continuing to run at their early race-

621 pace was not feasible, leading to a strategic decision to persist with the goal set pre-performance
622 rather than adjusting to a more challenging and unfeasible alternative:

623 I sped up with them [quicker male runners] as much as I could before I reached that point [2
624 kilometres], and then I was like, “oh nooo! This isn’t sustainable for another 4-5 miles”. I was
625 like, “I just need to settle, at my own pace”. (10-kilometre Runner 2)

626 As illustrated in the above example, the use of MCII (Oettingen, 2012) helped the runners’ pace-
627 related decision-making based on their *goal-attainment expectations* of the original goal and of
628 alternative goals. Some runners spoke about how memories of past races when they had struggled
629 after setting off too quickly served as a useful reference point to inform their decision to refrain from
630 running at an unsustainable pace. For instance, Ultra-runner 4 realised her pace was too quick in the
631 first mile of a 33-mile race, but recalling a past experience aided her decision to slow down:

632 I did just go off at a steady pace, which was probably a good thing because the other (ultra-
633 marathon) race I did was a 35-miler. That was on my mind, because that race went disastrously,
634 well, not *disastrously* wrong, but I went way too fast in the first half of that and then I just hated
635 the second half and was close to pulling out and then loads of people went past me.

636 Drawing on fantasy realisation theory (Oettingen, 2000), the above example of a less-than-excellent
637 performance portrays how indulging in a *desired future* (i.e., goal that could be achieved by running
638 quicker) without considering the *present reality* (e.g., consequences of running at this pace for 35
639 miles) can produce an action crisis (Brandstätter et al., 2013). This particular instance also highlights
640 how drawing upon a past experience of indulging, and the consequences of this, through the process
641 of MCII (Oettingen, 2012) helped her to refrain from repeating these in a subsequent event.

642 ***Goal Disengagement and Re-Engagement***

643 All four runners who disengaged from their goal, and shifted towards an alternative goal, while
644 surpassing their goal reported these decisions specifically in the final-third of their races. Illustrating
645 the use of MCII (Oettingen, 2012) when describing these decisions, the runners recalled positive
646 *goal-attainment expectancies* about an alternative *desired future*, such that they could exert the

647 additional effort required to achieve an even higher target. This process is conveyed in the following
648 quote, when an international runner recalled reflecting upon his perceived physical state (*present*
649 *reality*) before a decision to strive for a more challenging goal in a half-marathon:

650 You're still aware that you're breathing really heavy at mile-10, but you're like, "I can still go a
651 bit harder here", so you're still in the process of getting to that. You are still in control somewhat.
652 You still have somewhere to go. You can still push a bit more. I think mile-10 was really about
653 aiming for that guy ahead of me. (Half-marathon Runner 2)

654 Although several runners remarked on the intensifying difficulty of running as the finish neared,
655 using MCII (Oettingen, 2012) enabled them to envision various future scenarios and derive an
656 appropriate decision based on their *present reality* (e.g., current knowledge, perception of their
657 capabilities, race context). This is exemplified in the following excerpt, in which Ultra-Runner 1
658 revised their goal upwards after exceeding their initial target distance (100 miles) 24 hours into an
659 elimination race (i.e., runners eliminated when they can no longer run 4.17 miles every hour):

660 Because my [first] night was so tough, I did have that thought that I cannot go through another
661 night. I did say to my friend, "I don't think I can go another night, but I do think I can put my head
662 torch on again and go for a bit", but I just physically felt I couldn't put myself through another
663 night like I had. That was how positive I felt. I did think I was going to get through to another
664 night. And then, I did have those thoughts, if I could get to another night, I wouldn't have to do
665 the whole night, if I could do until 1.00 a.m. in the morning, that would be 150 miles. How amazing
666 would that be? So, I did start having distance goals in my head and I thought that I could do it at
667 that point.

668 Illustrating the process of MCII (Oettingen, 2012), the above example depicts how this runner
669 considered an alternative *desired future* and that based on various elements of their *present reality*
670 (e.g., feeling good, perception of their capabilities), they believed another goal was feasible (*goal-*
671 *attainment expectancy*), which they subsequently committed to trying to achieve.

General Discussion

672

673 In the current study, we make a contribution towards addressing calls for research to expand
674 understandings of goal striving and self-regulation in endurance sport (Wolff et al., 2019) by
675 providing an in-depth account of the dynamics of goal-striving decision-making and the intricacies
676 of the self-regulatory processes that lead to goal-striving decisions in this context. In response to our
677 research questions, our findings illustrate the utility of MCII (Oettingen, 2012) as a self-regulatory
678 process that can help runners to make decisions about goal persistence, goal disengagement, and goal
679 reengagement. Furthermore, we offer detailed insights into how runners draw upon these self-
680 regulatory processes to make such decisions when they perceived that they were: (1) not meeting a
681 goal; (2) on track to achieve a goal; or (3) currently exceeding a goal.

682 Our findings offer new insights into the dynamic processes of goal striving and the application
683 of MCII (Oettingen, 2012) to make decisions during competitive endurance races. Consistent with
684 fantasy realisation theory (Oettingen, 2000), mentally contrasting a desired future and present reality
685 periodically throughout their performances helped the runners to decide between goal persistence or
686 goal disengagement. These runners recognised the need to manage the effort exerted to maximise
687 performance, maintain goal striving, and avoid running excessively fast, which they anticipated could
688 elicit an action crisis and hinder goal attainment. Rather than solely indulge in a desired future or
689 dwell on current or potential obstacles (Oettingen, 2000), our findings illustrated how mental
690 contrasting could help to protect the runners from an action crisis by aiding their decision-making
691 about goal striving (e.g., to refrain from pursuing a more challenging goal). This was particularly
692 important in the early stage of races, when several runners recalled intentionally slowing down after
693 starting at a pace they perceived to be unsustainable until the finish. Our findings offer evidence to
694 suggest that these pace-related decisions were influenced somewhat by previous experience, as some
695 runners spoke about how memories from past races helped them to refrain from running too quickly.
696 This complements past research indicating that less-experienced runners were more likely to run too

697 fast in the early stages of endurance events and, by failing to effectively regulate their performance,
698 experience an action crisis as a result (Deaner et al., 2015).

699 In addition to helping to protect athletes from an action crisis, our findings also highlight how
700 the use of MCII (Oettingen, 2012) can be beneficial in actual moments of action crises. Runners who
701 encountered an action crisis used mental contrasting to make expectancy-dependent decisions about
702 goal striving, which helped them to avoid solely indulging in their desired future or dwelling on
703 impeding obstacles (Oettingen, 2000). For runners who maintained an expectation of success despite
704 being in an action crisis, the process of mental contrasting provided a platform for them to form an
705 implementation intention (Gollwitzer, 1993) and to take the necessary actions required to reduce the
706 GPD and achieve their goal. Conversely, runners who felt their goal was no longer attainable in an
707 action crisis reported that revising their goal, via the processes of disengagement and re-engagement,
708 enabled them to redirect their attention towards a new goal compatible with their current
709 performance. Schüler and Langens (2007) demonstrated the utility of motivational self-talk during
710 action crises to maintain higher performance levels in marathon running (Schüler & Langens, 2007).
711 Insight into alternative, yet effective cognitive processes to manage or avert action crises is limited,
712 however. Accordingly, we highlight the potential value of goal revision in such scenarios and provide
713 insights into the dynamic processes involved in revising a goal during endurance performance.

714 Past research in sport has suggested that athletes revise their goals between competitive events
715 and over the course of a season in response to GPDs (Donovan & Williams, 2003). The present study
716 provides evidence of goal adjustments within a single event, however, and offers insight into the
717 dynamic, self-regulatory processes underpinning goal revision. The utility of goal revision to
718 optimise endurance performance extends existing theoretical propositions within this domain
719 (Marcora, 2019; Brehm & Self, 1989), such that goal revision can be viewed as a novel self-regulatory
720 strategy to alter potential motivation. Applied to practice contexts, by increasing the difficulty of
721 one's goal during a scenario involving a positive-GPD, for example, an endurance athlete could
722 increase the effort they are willing to exert in pursuit of that goal. In contrast, when a goal no longer

723 appears achievable, rather than abandoning goal pursuit completely (i.e., quitting), an athlete may
724 lower their goal to maximise potential motivation and, consequently, continue to exert effort in
725 pursuit of their revised goal. Our findings, for runners in marathon and ultra-marathon races in the
726 present study, suggest athletes can prepare for such scenarios by adopting a more flexible approach
727 to goal setting and being willing to make adjustments during races. Meijen et al. (2017) previously
728 suggested that runners could benefit from applying different levels of goals in marathon races, but to
729 our knowledge, the current study is the first to offer empirical insights into runners' experiences of
730 implementing this strategy during long-distance running. Our findings suggest that such tiered goals
731 can prepare an athlete to use MCII (Oettingen, 2012) during a race, as the primary goal (e.g., most
732 challenging goal) provides a platform for mental contrasting (Oettingen, 2000), while the
733 identification of obstacles to goal attainment, and of subsequent responses, supports the formation
734 (and swift enactment) of implementation intentions (e.g., if the primary goal is unfeasible, then I will
735 strive for a less challenging goal) (Gollwitzer, 1993).

736 Finally, the value of MCII for adaptive goal striving has traditionally been emphasised in
737 situations of goal unattainability (Oettingen, 2012; Ntoumanis & Sedikides, 2018). Yet, in the current
738 study, we present evidence that illustrates how MCII can be applied to situations in which runners
739 decide to disengage from an easily *attainable* goal within a race and re-engage with an alternative,
740 desirable, and compatible goal. Numerous runners reported situations, typically from the distance-
741 midpoint or time-midpoint onwards, in which they found themselves equalling or exceeding their
742 initial goal and subsequently decided to disengage from that goal and switch to an alternative goal.
743 The initial goals the runners disengaged from were typically non-specific (e.g., open, do-your-best,
744 range) or specific goals with flexibility, with the re-engaged goals usually being specific and either
745 more challenging or qualitatively different (e.g., switching goal content from performance to
746 outcome). Drawing upon fantasy realisation theory (Oettingen, 2000), a potential reason for this could
747 be that as the runners would have mentally contrasted different information before and during the
748 race, contrasting goal-attainment expectancies would have been formed. For instance, a runner who

749 was feeling good in the second half of a race may have been able to envision alternative and new
750 futures that might not have been considered pre-race (e.g., due to uncertainty). In sum, our findings
751 suggest that goal disengagement and re-engagement might not only be adaptive processes in
752 scenarios of goal unattainability (Ntoumanis & Sedikides, 2018; Wrosch & Scheier, 2020); rather,
753 when exercised in appropriate situations (i.e., when MCII suggests high expectation of success), these
754 processes might facilitate runners to reach for alternative, desirable, and feasible future end-states,
755 which could allow them to seize new opportunities and to elevate their performances beyond the
756 standard explicated in their initial goals.

757 **Limitations and Future Research Directions**

758 Despite our efforts to enhance the rigour of this work, several limitations should be noted. First,
759 each runner recruited for an event-focused interview discussed their experience in relation to a single
760 competitive race and excellent performance. Although comparisons with other races, including
761 poorer performances, were often discussed during these interviews and additional insights were
762 generated through member-reflection interviews with our original and new participants, in future,
763 researchers could explore experiences of goal striving over multiple performances. Second, although
764 our event-focused interviews offered valuable insights and enabled us to construct timelines
765 representing interpretations of the runners' experiences, interviews are not the only method that can
766 yield such in-depth accounts (Smith & Sparkes, 2016). Future research could adopt alternative
767 methods (e.g., diaries, go-along interviews, think aloud) that could yield potentially novel and
768 complementary insights. Laboratory and field-based studies could explore findings regarding the
769 influence of goal revision on perceptual and performance outcomes during endurance activity. Third,
770 the current study sampled athletes from the self-paced activity of distance-running and although the
771 findings might offer naturalistic generalisability within this sport, further research exploring athletes
772 from other single-discipline (e.g., cycling) or multi-discipline (e.g., duathlon, triathlon) endurance
773 events is warranted. Finally, given the diversity of goals reported and the prevalence of goal revision,
774 a methodological implication is that future studies examining goal realisation within events could

775 adopt a more open-ended approach when exploring pre-performance-set goals (i.e., go beyond
776 specific running times) and ask whether athletes revised their goals in races.

777 **Applied Implications**

778 Informed by our study findings, we offer several practical implications. Coaches and sport
779 psychology practitioners should be aware of the need to move beyond focusing solely on goal *setting*
780 *before* performances and help athletes prepare for the process of goal *striving during* performances.
781 Guidelines for implementing goal setting in sport often highlight the importance of re-evaluating
782 one's goals over time (Bird et al., 2023), yet these recommendations are generally focused on goals
783 that performers might set over a more extended period (e.g., a season) or that may differ from one
784 event to the next. Based on our interpretations of the use of goal revision, we suggest a need for
785 greater awareness of the complexity of goal striving and to prepare endurance athletes for the various
786 forms of decisional conflict that may arise within a single event. Additionally, we suggest that MCII
787 (Oettingen, 2012) may provide a useful framework to help athletes make better decisions within
788 performances. Some studies have explored the use of implementation intentions alone as part of a
789 brief-contact educational intervention with endurance athletes (Meijen et al., 2021) and noted that
790 implementation intentions were no better than self-talk training or a control condition (i.e., normal
791 performance strategies) to facilitate goal attainment in running events. More recently, Riddell et al.
792 (2023) included a brief (5-minute) MCII intervention with cyclists about to perform a simulated,
793 virtual competitive 500m race. The findings revealed that MCII training and subsequent use directly
794 predicted a reduction in perceived obstacles to goal attainment (i.e., to beat a virtual opponent) and
795 indirectly predicted easier goal striving via a reduction in perceived obstacles, though not goal
796 attainment. These findings support the benefits of MCII highlighted in the current study, albeit
797 Riddell et al. (2023) only included a binary win/loss as a measure of goal attainment, in contrast with
798 the less clear-cut, more refined indicators of goal achievement inherent within our study. As mental
799 contrasting helps people discriminate which goals to pursue or not, and provides the prerequisites for
800 implementation intentions to enhance goal attainment (Oettingen, 2012), the findings of Riddell et

801 al. (2023), added to those of the present study, suggest that combining MCII is more beneficial than
802 either component alone. Further investigation of the utility of MCII is warranted both in controlled,
803 experimental settings, and in real-life (e.g., competitive) contexts, however. Nevertheless, we suggest
804 sport psychology practitioners could help athletes to achieve excellent performances and/or cope with
805 action crises by educating them on the utility of MCII and the potential deleterious effects of
806 indulging or dwelling. Practitioners could also support runners to adopt a more flexible approach to
807 goal striving and bolster their contextual knowledge about when to apply specific strategies. Equally,
808 educating endurance athletes, such as runners, on goal revision processes in performances could add
809 to the array of evidence-based, brief-contact educational interventions provided to enhance
810 performance during such events (e.g., Meijen et al., 2017).

811 **Conclusion**

812 In this qualitative study, we extend understanding of goal striving and the self-regulatory
813 processes endurance athletes employ to make decisions about goal striving in excellent
814 performances in competitive races. Our findings provide novel insights into the dynamics of goal
815 pursuit and illustrate how adaptive goal striving involves a continual process of committing to a
816 goal, assessing the attainability of a goal (and alternate goals), and making expectancy-dependent
817 decisions about goal persistence, goal disengagement, and goal re-engagement. Based on our
818 analysis, we suggest that MCII (Oettingen, 2012) and goal revision represent adaptive self-
819 regulatory processes that runners can employ to maximise performance and/or to avert or manage
820 action crises during competitive events. Our findings have multiple theoretical and practical
821 implications and offer a platform to develop goal-striving and self-regulation research in sport.

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