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ENDURANCE ATHLETES' WAYS OF GETTING GUIDANCE

1 Endurance Athletes' Current and Preferred Ways of Getting Psychological Guidance

2

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Abstract

This study examined how people who participate in endurance events currently get guidance on psychological aspects of their events and their preferred ways for receiving guidance from researchers and practitioners, so that psychologists can use these ways to disseminate research-derived knowledge. People in the United Kingdom (N = 574) who participated competitively or non-competitively in running (5km and greater), road cycling (time trials, road races, or sportives), or triathlon events completed an online survey. The main questions addressed ways they have intentionally used to find psychological guidance, how they have got guidance without intentionally looking for it, and their preferences for receiving guidance. The most common ways of intentionally finding guidance were looking on websites (48.1% of participants), asking other athletes (46.7%), and asking coaches (32.5%). Athletes most commonly tried to find guidance on coping, motivation, and managing nerves. Posts on social media (51.3%), spoken word (48.0%), and magazines (45.9%) were common ways of unintentionally getting guidance, and athletes (68.1%) and coaches (45.9%) were most often the source of unintentionally received guidance. Websites (49.5%) and online videos (41.8%) were the most preferred ways to receive guidance, although researchers and practitioners working with coaches (35.5%) and event organisers (34.8%), and magazines (34.7%) were also preferable. Psychologists are encouraged to disseminate guidance to endurance athletes using websites, online videos, social media, magazines, and by working with coaches and event organisers. The data can also inform the design of intervention efficacy and effectiveness trials that deliver interventions in these ecologically-valid and preferable formats.

Keywords: Cycling; knowledge translation; research dissemination; running; triathlon

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50 Endurance Athletes' Current and Preferred Ways of Getting Psychological Guidance

51 Psychology is relevant to, and has the potential to benefit, the general public (Kaslow,
52 2015; Sommer, 2006). In the sport and exercise context, psychology research could be used
53 to achieve a range of important outcomes relating to performance, health, and wellbeing, and
54 could benefit people that include, but are not limited to, athletes, exercisers, coaches, parents,
55 and practitioners in a variety of contexts (e.g., Brown & Fletcher, 2017; Gourlan et al., 2016).
56 Sport and exercise psychologists who want research to benefit the people that it was intended
57 for need to consider ways of disseminating information that lead to people finding and then
58 engaging with it. "Dual dissemination" is an important consideration. It refers to
59 disseminating research-derived knowledge to psychologists and academics, as well as other
60 non-overlapping, general audiences such as those outside of academia (Sommer, 2006).
61 These two forms of dissemination use different media (e.g., journal articles and conferences
62 versus websites and magazine articles) and different styles of communication.

63 One population who could benefit from dual dissemination of psychology research
64 are endurance athletes, who are broadly defined as people who participate in endurance
65 events. A vast, and increasing, number of people recreationally participate in endurance
66 events such as running events (e.g., parkruns, 10km runs, marathons), road cycling events
67 (e.g., time trials, road races, sportives), and triathlons at sub-elite competitive and sub-elite
68 non-competitive levels (e.g., Scheerder, Breedveld, & Borgers, 2015; British Triathlon, 2018;
69 parkrun UK, 2018). Although some people may be motivated by the opportunity to compete,
70 many participate for reasons other than competition, such as to engage in more physical
71 activity, as a personal challenge, to accompany a friend, or to raise money for charity (e.g.,
72 Lane, Murphy, & Bauman, 2008). Independent of their motives, psychological interventions
73 can influence how well people perform in endurance events (McCormick, Meijen, &
74 Marcora, 2015). For competitive athletes, efficacious psychological interventions could

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75 determine important competitive outcomes, such as their positions in the standings. For non-
76 competitive participants, efficacious psychological interventions could influence whether
77 they cope with the demands of training for an event, attend and finish an event, and achieve a
78 personal best time, as well as their associated cognitions and emotions. For example,
79 performance improvements may increase feelings of competence after the event, which could
80 predict continued training and participation in events (Ryan, Frederick, Lepes, Rubio, &
81 Sheldon, 1997), as well as associated health benefits (e.g., Chomistek, Cook, Flint, & Rimm,
82 2012).

83 As many endurance athletes are sub-elite, they are unlikely to receive one-to-one
84 psychology support. Alternative ways of disseminating psychology are therefore needed that
85 help to maximise its reach and impact. Recently, literature has documented how “psyching
86 teams” make psychology accessible to people in the context of mass-participation running
87 events (Meijen, Day, & Hays, 2017). These teams use a variety of media such as webpages
88 and webinars, workshops, written handouts, dinner speeches, and brief conversations with
89 athletes to give evidence-based guidance. Research has yet to identify ways of disseminating
90 psychology to endurance athletes that are preferable to them and more likely to be effective.

91 Although research has not examined dissemination of psychology to endurance
92 athletes, research has examined dissemination of psychology and sport science to coaches
93 and National Sport Organisations (NSOs) in various sports. Research on coaches’
94 experiences with sport psychology (Gould, Damarjian, & Medbery, 1999; Pain & Harwood,
95 2004; Pope et al., 2015) and sport science (Martindale & Nash, 2013; Reade, Rodgers, &
96 Hall, 2008; Reade, Rodgers, & Spriggs, 2008; Williams & Kendall, 2007) supports the
97 following ways of disseminating research-derived knowledge: presenting at coaching
98 courses, conferences, or workshops; writing summaries for sport-specific magazines,
99 newsletters, or email lists; incorporating research-derived knowledge into coach accreditation

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100 material; and using websites. This research also shows that: guidance should be written in
101 accessible, user-friendly language (e.g., using the language of the sport); content should be
102 simple and concise; guidance should be concrete (e.g., through specific examples, activities,
103 exercises, tools, and materials) and contextualised (e.g., to the sport and distance, competitive
104 level, age, training versus competition); there should be practical examples of how to apply
105 guidance; and it may be beneficial to limit time demands. However, coaches encounter the
106 following barriers to finding and using research-derived knowledge: not knowing where to
107 find information; lack of time; inaccessible language (e.g., too complicated, academic, or
108 specialised); unclear relevance; and content that could not be applied practically. Adding to
109 the research on coaches, Holt et al. (2018) examined use of research in Canadian NSOs and
110 identified barriers (disconnect between research and practice; understanding research and
111 judging its credibility; lack of capacity in organisations) and facilitators (personal
112 connections with a researcher or a sport scientist; formal meetings with stakeholders) to using
113 research, and NSO suggestions for disseminating research (write short summaries with a
114 practical focus; use a range of digital and social media to target specific groups; facilitate
115 face-to-face interactions).

116 In addition to supporting psychologists with dual dissemination, the present study
117 could inform the design of efficacy and effectiveness trials of psychological interventions for
118 endurance athletes. Bishop (2008) proposed a model for sport science research that aims to
119 improve sport performance in real-life sporting settings. This model has eight phases: 1)
120 defining the problem; 2) descriptive research; 3) predictors of performance; 4) experimental
121 testing of predictors; 5) determinants of key performance predictors; 6) intervention studies
122 (efficacy trials); 7) barriers to uptake; and 8) implementation in a sporting setting
123 (effectiveness trials). A substantial number of efficacy studies have examined the effects of
124 psychological interventions (e.g., psychological skills training) on endurance performance in

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125 controlled settings (stage 6), and these studies have been systematically reviewed
126 (McCormick et al., 2015). To improve real-life endurance performance, however, these
127 interventions need to be accepted, adopted, and complied with by consumers such as
128 endurance athletes, coaches, and practitioners. It is therefore important that researchers
129 consider, at the inception of research, how their research findings might be adapted to the
130 intended population, in the actual sporting setting, when delivered by people with diverse
131 training and skills, and when using the resources available (Bishop, 2008). Psychology
132 research on endurance sports has yet to address stage 7 of the model, which considers the
133 conditions that impede or facilitate widespread use of research-derived knowledge. By
134 understanding these conditions, researchers could modify efficacious interventions so that
135 they address barriers, use facilitators, satisfy preferences, and are more likely to be used
136 optimally by athletes in real-life settings. The effects of modified interventions on the
137 performance of intended recipients (i.e., particular groups of endurance athletes) could then
138 be examined using additional efficacy studies in controlled settings and effectiveness studies
139 in real-life sporting settings.

140 This study has two main research aims. First, this study aims to determine how
141 endurance athletes currently get guidance on psychological aspects of training for, preparing
142 for, and performing in endurance sports. It will examine how endurance athletes intentionally
143 find guidance, as well as how they get it without intentionally looking for it. Second, it aims
144 to identify endurance athletes' preferences for receiving psychological guidance from
145 researchers and practitioners. By doing so, this study will provide data that psychologists can
146 use to disseminate research-derived knowledge of psychology in endurance sports. It will
147 also provide data that can inform the design of efficacy and effectiveness trials of
148 psychological interventions that are conducted with endurance athletes under the constraints
149 of the sporting setting.

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Methods

Survey Design

The survey was administered using Google Forms. Best-practice principles of survey design were followed throughout (Choi & Pak, 2005; Fowler, Jr, 2014). The survey instructions and questions were spread across 14 pages, so that each page was uncluttered. Similar question forms were used throughout, so that participants mostly performed similar tasks that involved selecting one or more option from a list. Simple, specific wording was used. Fewer words were used where possible, without compromising clarity. Definitions of important terms such as “psychological”, “guidance”, and “event” were provided at the beginning of the survey, participants were consistently reminded of them, and the brief definition of guidance (“advice or information”) was included in the questions. Instructions were incorporated into the questions, to make it likely that they would be read. Most questions were closed questions that provided a selection of options, as well as the opportunity to provide “other” answers or choose not to answer. All questions relating to the main research questions were closed questions. The advantages of closed questions are that they place less demands on respondents, respondents more reliably perform the task of answering, answers are more comparable across respondents, the researcher can more reliably interpret the answers, and there is greater likelihood of enough people giving a particular answer to be analytically interesting (Fowler, Jr, 2014). Two open questions were included, where the possible answers were wide-ranging and we did not want to limit responses to those anticipated. When asking about preferences, the question asked about participants’ own preferences, rather than their perceptions of others’ preferences. The survey questions most closely related to the research aims were included first, to minimise impact of response fatigue. The closed responses for the main questions were randomised, and the closed responses for other questions were randomised where logical (e.g., competitive levels

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175 were in ascending order). The final survey is summarised below (Final Survey section), and
176 can be supplied upon request. Shortened wording of the most commonly selected response
177 options are presented in the Results, with the full wording of all options presented in
178 Appendix A.

179 **Pilot Study**

180 Five researchers with expertise in endurance sports provided comments on the survey
181 and its questions¹. Following ethical approval by the department ethics committee, six males
182 and five females who met the eligibility criteria piloted the survey (their data are included in
183 the results). They were asked to complete the survey and think aloud while they prepared
184 their responses. After the four main questions, participants were asked to say in their own
185 words what they thought the question was asking and to explain how they chose their
186 answers over others, in order to check participants understood and answered the questions as
187 intended. They were also asked whether it was clear what the question was asking, whether it
188 was clear what they had to do, and whether any answers were missing from the option list
189 (Fowler, Jr, 2014). Following their completion of the survey, they were asked to comment on
190 the clarity of the layout, ease of understanding and answering questions, question spacing,
191 readability, clutter, and anything else they wanted to raise (Fowler, Jr, 2014). Piloting led to
192 the following changes: one question about non-deliberate finding of guidance was divided
193 into two questions relating to who provided the guidance, and how it was provided; keywords
194 were capitalised to emphasise them (e.g., “In the last 12 MONTHS”); additional instructions
195 were given (e.g., to carefully read definitions); and minor wording changes were made for
196 greater clarity. Piloting indicated that the overall layout was clear, the survey was attractively
197 presented, questions were generally easy to understand, and tasks were easy to complete. In
198 relation to the main questions, participants correctly understood the questions and how to
199 prepare answers, and they found the questions and how to answer them clear. They reported

200 that the main questions were lengthy, but appreciated that the length benefited clarity. Two
201 closed-answer options were added based on suggestions.

202 **Final Survey**

203 The survey was 14 pages. Pages 1-3 addressed research aims and eligibility criteria.
204 Participants needed to be at least 18 years old and to have taken part competitively or non-
205 competitively in one or more running events (5km upwards), road cycling events (time trials,
206 road races, or mass-participation events) or triathlon events (any distance) within the last 12
207 months. Page 4 defined events (“planned or organised public occasions where many runners,
208 cyclists, or triathletes take part either competitively or non-competitively”), and used
209 examples to clarify the definition (competitions and races, organised public events such
210 parkruns, charity events such as Race for Life, and mass-participation events such as 10km
211 runs). Page 5 collected informed consent, and Page 6 asked participants to read each section’s
212 definitions, introductions, and questions carefully. Page 7 defined guidance (“advice or
213 information”) and psychological (“Psychological relates to the MENTAL side of your sport,
214 particularly your thoughts, feelings, motivation, and behaviours”). Twelve examples of what
215 psychological guidance could relate to were provided (e.g., How to set good GOALS for
216 training or events; Ways of coping with PAIN, FATIGUE, and DISCOMFORT). Page 8
217 clarified the difference between deliberately looking for guidance (e.g., by asking people) and
218 being given or becoming aware of guidance without looking for it on purpose (e.g.,
219 happening to read about it). Pages 9-14 included the survey questions, with pages 9-11
220 focusing on the research aims, and 12-14 collecting information about respondents. The four
221 main questions relating to the research aims are presented exactly below (Fowler, Jr, 2014):

- 222 1. Below is a list of ways that people find guidance (i.e., advice or information). There is
223 also an "I have NOT tried to find guidance" option. In the last 12 MONTHS, what
224 ways have you used to find guidance on PSYCHOLOGICAL parts of training for,

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225 preparing for, or performing in running, road cycling, or triathlon events? We are
226 asking about your DELIBERATE attempts to find guidance (i.e., through looking for
227 it on purpose), and not guidance that you have become aware of without looking for
228 it. Please select ALL answers that apply to you.

229 2. Below is a list of ways that you may have been given guidance or become aware of
230 guidance (i.e., advice or information) WITHOUT looking for it on purpose. In the last
231 12 MONTHS, through what ways have you been given guidance or become aware of
232 guidance on PSYCHOLOGICAL parts of training, preparing, or performing, without
233 looking for it on purpose? Please select ALL answers that apply to you.

234 3. Below is a list of people who may have given you guidance or made you aware of
235 guidance (either in person or not in person) WITHOUT you looking for it on purpose.
236 In the last 12 MONTHS, which people have given you or made you aware of
237 guidance on PSYCHOLOGICAL parts of training, preparing, or performing, without
238 you looking for it on purpose? Please select ALL answers that apply to you.

239 4. There are different ways that psychology experts (practitioners or researchers who
240 have knowledge and qualifications that relate to psychology) could provide
241 psychological guidance. They are listed below, and they include ways of finding
242 guidance on purpose and not on purpose. There is also a "NONE of these options are
243 preferable to me" option. Please think about which of these ways would be most
244 preferable TO YOU PERSONALLY (please assume that the guidance will NOT cost
245 money, other than the possible costs of your coaching or a magazine). In other words,
246 if experts wanted to provide YOU with psychological guidance, how would you
247 prefer them to do it? Select UP TO 3 preferred ways.²

248 An open-ended follow-up question after Question 1 asked what respondents were trying to
249 find out by looking for psychological guidance. An open-ended follow-up question after

250 Question 4 offered respondents the opportunity to explain other ways that guidance could be
251 provided.

252 The full survey took approximately 10 minutes to complete. It was emailed to clubs,
253 event organisers, and organisations across the United Kingdom, and shared via social media.
254 To encourage completion, the relevance of the research purpose and the potential benefits to
255 participants and their sport communities were outlined, and a reminder email was sent
256 (Fowler, Jr, 2014).

257 **Results and Discussion**

258 **Respondents**

259 The survey was completed by 612 people who lived in the United Kingdom. Thirty-
260 seven were excluded because qualitative responses indicated that the guidance they had
261 sought was not psychological, suggesting that they had not read or had misunderstood the
262 instructions. An additional one was excluded because they were not participating in relevant
263 events. Of the 574 people who were included, 533 (93.5%) reported British nationality, 294
264 (51.5%) reported being female, and 277 (48.5%) reported being male. The mean age of
265 participants was 43.8 (SD = 11.2, range = 18-79): age 18-29 (n = 62, 10.9%), 30-39 (n = 140,
266 24.6%), 40-49 (n = 185, 32.5%), 50-59 (n = 135, 23.7%), 60-69 (n = 42, 7.38%), 70-79 (n =
267 5, 0.88%). In the previous 12 months, respondents had participated in running events (n =
268 489, 85.3%), road cycling events (n = 213, 37.2%), and triathlon events (n = 194, 33.9%).
269 The most commonly entered events were 5km (n = 376, 65.6%), 10km (n = 331, 57.8%), and
270 half-marathon (n = 289, 50.4%) running events. Other commonly entered events were cross-
271 country running events (n = 153, 26.7%), marathons (n = 143, 25.0%), sprint triathlons (n =
272 134, 23.4%), single-day mass-participation cycling events of up to 100km (n = 102, 17.8%)
273 or above 100km (n = 98, 17.1%), 10 mile or 25 mile individual cycling time trials (n = 96,
274 16.8%), Olympic triathlons (n = 79, 13.8%) and half-iron distance triathlons (n = 76, 13.3%).

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275 With consideration to involvement in multiple sports, 350 (61.1%) had participated in one of
276 running, cycling, or triathlon events in the previous 12 months, 122 (21.3%) had participated
277 in two of them, and 101 (17.6%) had participated in all three of them. The mean number of
278 selected event categories—representing combinations of overall sport (e.g., cycling), event
279 type (e.g., individual time trials) and distance (e.g., 10 mile or 25 mile)—was 4.00 (SD =
280 2.20).

281 The mean combined amount of time that participants reported running, cycling, or
282 swimming during a typical week was 8.26 hours (SD = 4.79) when the survey was completed
283 (between May and September 2017). Highest current competitive levels (including age
284 group) were non-competitive (n = 193, 33.7%), club (n = 273, 47.6%), university (n = 3,
285 0.52%), county (n = 22, 3.84%), national (n = 35, 6.11%), and international (n = 47, 8.20%).
286 None were professional. Approximately half (n = 296, 51.7%) considered themselves to have
287 a coach who they can get instruction from, and 101 (17.6%) considered themselves to be (or
288 have been) a coach. Their main motives for participating in events were as a challenge (n =
289 440, 76.7%), to become fitter or remain fit (n = 421, 73.3%), to benefit their health (n = 328,
290 57.1%), to socialise as part of a community (n = 275, 47.9%), the exercise feels pleasurable
291 or satisfying (n = 236, 41.1%), to benefit their weight (n = 203, 35.4%), to benefit their self-
292 esteem or self-worth (n = 191, 33.3%), and to compete or compare themselves against others
293 (n = 175, 30.5%). Respondents saw improving their performance as very important (n = 234,
294 40.8%), moderately important (n = 298, 51.9%), or not important (n = 42, 7.32%).

295 These findings highlight that many people who could value guidance based on
296 research-derived knowledge, and the benefits to their performance, are recreational and sub-
297 elite and are therefore unlikely to receive one-to-one psychology support. They also suggest
298 that the distinctions between runners, cyclists, and triathletes may over-simplify participation
299 in endurance sports at sub-elite levels, as many people participate in numerous events, and

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300 researchers of these sports should consider the wider applications of the research to athletes'
301 other endurance events. Previous research has typically encouraged disseminating research
302 through sport-specific information (e.g., Martindale & Nash, 2013). For endurance athletes at
303 sub-elite levels (e.g., non-competitive or club level), providing general guidance that can be
304 adapted by the athlete to their numerous events could be preferable.

305 **Main Findings**

306 Most participants (n = 403, 71.1%) reported intentionally looking for guidance. The
307 most common ways of finding guidance were looking on websites or blogs (n = 273, 48.1%),
308 asking other athletes (n = 265, 46.7%), asking coaches (n = 184, 32.5%), looking in
309 magazines (n = 165, 29.1%), looking in books (n = 149, 26.3%), and watching online videos
310 (n = 146, 25.7%). Content analysis of qualitative responses suggested that there were three
311 particularly common areas that people had sought psychological guidance on in the previous
312 12 months. The most commonly cited area of guidance was coping (n = 149), which most
313 notably included coping with the physical demands of the exercise (e.g., pain, exertion,
314 fatigue, discomfort), unwanted thoughts and emotions (e.g., thoughts of quitting, frustration),
315 setbacks (e.g., change in weather conditions, a series of poor performances), and injuries
316 (e.g., managing and dealing with a chronic long-term injury). The second most commonly
317 cited area was motivation (n = 93), which related to ways of increasing and maintaining
318 training and event motivation. The third most cited area was dealing with nerves (n = 66),
319 particularly before an event. These findings are consistent with research on the demands
320 experienced by recreational endurance athletes across various events (McCormick, Meijen, &
321 Marcora, 2016), and they are consistent with potential barriers to effective self-regulation in
322 endurance athletes (McCormick, Meijen, Anstiss, & Jones, 2018). They also reflect areas that
323 sport psychologists are capable of providing evidence-based guidance on (e.g., McCormick et
324 al., 2015). That is, sport psychologists could prioritise disseminating evidence-based

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325 information to endurance athletes on these areas, such as part of psyching team activities.
326 Other areas were focus/concentration (n = 27), confidence (n = 22), setting goals (n = 14),
327 and boredom (n = 8).

328 With consideration to unintentionally finding guidance, posts on social media or
329 internet groups (n = 294, 51.3%), spoken word (n = 275, 48.0%), magazines (n = 263,
330 45.9%), websites or blogs (n = 219, 38.2%), and books (n = 193, 33.7%) were common ways.
331 Athletes (n = 390, 68.1%) and coaches (n = 263, 45.9%) were most often the source of this
332 guidance. Researchers and practitioners (n = 66, 11.5%), personal trainers (n = 64, 11.2%),
333 and event organisers (n = 62, 10.8%) were less common sources of guidance. Websites and
334 online blogs (n = 284, 49.5%) and online videos (n = 240, 41.8%) were the most preferred
335 ways for researchers and practitioners to provide guidance. The other options, in order of
336 preference, were researchers and practitioners working with coaches (n = 204, 35.5%) and
337 event organisers (n = 200, 34.8%), magazines (n = 199, 34.7%), in-person presentations or
338 workshops (n = 168, 29.3%), mobile phone applications (n = 132, 23.0%), podcasts (n = 129,
339 22.5%), interactive online presentations or workshops (n = 121, 21.1%), and no preferred
340 options (n = 16, 2.8%). Participants qualitatively suggested social media (n = 16). We took
341 social media for granted as a means of promoting other forms of guidance, but social media
342 could also be used to provide brief guidance (e.g., a Twitter post about goals leading up to a
343 mass-participation event). Results by gender, competitive level, and age are presented in
344 Appendix B for the interested reader. The study did not aim to compare sub-groups, and
345 specific differences between sub-groups, whilst likely, were not hypothesised.

346 Websites and blogs, online videos (e.g., YouTube), magazine articles, and interactions
347 with athletes, coaches, and event organisers were common and preferable ways of athletes
348 getting guidance. In the endurance research literature, verbal or written instructions,
349 workbooks, and one-to-one work with a practitioner are common intervention methods (see

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350 McCormick et al., 2015). Ecologically-valid and preferable methods such as websites,
351 magazine articles, online videos, and coach-delivered educational workshops have not been
352 used in research. As highlighted in the current study, many endurance athletes who value
353 performance enhancement perform recreationally, particularly at non-competitive and club
354 levels. Many of these populations are unlikely to receive one-to-one psychology support.
355 Websites and blogs, online videos, magazine articles, and working with coaches and event
356 organisers are dissemination methods that could make psychology accessible to the masses,
357 including athletes who are remotely located away from a university. They also offer athletes
358 the opportunity to access psychology guidance in times and locations of their choosing,
359 which is particularly important because endurance athletes often have little free time
360 (McCormick et al., 2016). Similar approaches (e.g., magazine articles, online sources, coach
361 education workshops) are also likely to be favourable methods for sharing guidance with the
362 coaching community (Pope et al., 2015; Reade, Rodgers, & Hall, 2008; Reade, Rodgers, &
363 Spriggs, 2008; Williams & Kendall, 2007), and could be valuable for getting evidence-based
364 guidance “into circulation” for coaches and athletes to share.

365 Endurance researchers interested in recreational populations (e.g., as a form of
366 physical activity) are encouraged to test the efficacy of psychological interventions delivered
367 in these formats. First, however, future research could explore the barriers, facilitators, and
368 consumer preferences (e.g., specific features) that will influence whether these types of
369 interventions are optimally effective. Athletes and coaches could be involved throughout the
370 design and modification of an intervention, by providing input during the design of the
371 intervention and feedback on prototypes (e.g., Bock, Heron, Jennings, Magee, & Morrow,
372 2013).

373 Researchers who complete projects relevant to endurance athletes, as well as athletes
374 in other sports, are encouraged to provide evidence-based guidance through the ways

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375 highlighted by the current findings, namely using websites and blogs, social media,
376 magazines, and by working with coaches and event organisers. Although endurance athletes
377 do receive guidance through these ways already, the guidance may not be evidence-based.
378 The results of the present study also highlight the value of providing guidance in multiple
379 ways (e.g., webpages with embedded online videos and downloadable content), as there were
380 many preferable delivery formats (see also Gould et al., 1999). Sport science research
381 demonstrates that: the language used should be accessible and user-friendly; content should
382 be kept concise and simple; guidance should be made concrete through specific examples,
383 activities, exercises, tools, and materials (rather than just informational content); and
384 downloadable resources such as workbooks and activities are likely to be helpful (e.g.,
385 Martindale & Nash, 2013). Researchers may find it helpful to work with endurance athletes
386 and coaches (e.g., using focus groups) so that guidance is accessible to its users (e.g., using
387 the language of the sport). As explained above (Respondents section), providing general
388 guidance that can be adapted by the athlete to their numerous events could be preferable for
389 sub-elite athletes.

390 There are barriers to disseminating research-derived knowledge in these ways (see
391 Kaslow, 2015). In particular, psychologists may need to learn “public speak”, which requires
392 different skills to “journal speak” (Sommer, 2006). To disseminate to the public, a
393 psychologist would need to explain information in a way that is scientifically-informed,
394 succinct but accurate, clear and understandable, creative and engaging, memorable, relevant,
395 and conveys the “so what” of psychological research (see Kaslow, 2015). In addition,
396 psychologists may need training for some dissemination methods, such as using online
397 videos. For support, psychologists who work in universities could collaborate with colleagues
398 in departments such as marketing, media, or communications, who may be more experienced
399 in these forms of dissemination. Psychologists could also collaborate with people who run

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400 endurance websites, podcasts, and other media. When disseminating by collaborating with
401 non-psychologists or speaking with journalists, there are important ethical considerations to
402 consider (see McGarrah, Alvord, Martin, & Haldeman, 2009). For example, it is important
403 that psychologists have an opportunity to review information (e.g., edited interviews or
404 resources) to ensure that it is accurate before it is published. Finally, Twitter and online blogs
405 are accessible and either free or relatively inexpensive ways of reaching the general public.
406 They allow psychologists to ensure that research is represented accurately, whilst also
407 facilitating bi-directional communication that addresses misunderstandings and allows
408 nuanced discussions (Weinstein & Sumeracki, 2017).

409 With consideration to research limitations, the data presented reflects the ways that
410 respondents get, and would prefer to get, guidance. Respondents are likely to differ from non-
411 respondents in qualities such as availability of time, interests in the research area and getting
412 psychological guidance, and attitudes towards sport psychology (McCormick, Meijen, &
413 Marcora, 2018). Although it is not possible to accurately quantify the percentages of
414 endurance athletes who get, or would prefer to get, guidance in particular ways at the
415 population level, the data will nevertheless be useful for helping researchers and practitioners
416 to disseminate psychology in ways that are more likely to benefit endurance athletes.

417 In conclusion, psychology researchers and practitioners are encouraged to engage in
418 dual dissemination (Sommer, 2006) and share guidance with endurance athletes using
419 websites, social media, magazines, and by working with coaches and event organisers. The
420 data can inform the design of intervention efficacy and effectiveness trials that are conducted
421 with athletes under the constraints of the sporting setting.

422 **Notes**

423 ¹ Thank you to Dr Carla Meijen, Dr Andy Kirkland, Dr Noel Brick, Professor Andy Lane,
424 and Dr David Marchant for their helpful comments.

425 ² Selecting three was intended to encourage discrimination in the selection of responses. If
426 participants selected more than three, all selected options were included in the data analysis.

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Appendix A

518

Full Wording of Response Options

519 Question 1

520

521 Below is a list of ways that people find guidance (i.e., advice or information). There is also an
 522 “I have NOT tried to find guidance” option. In the last 12 MONTHS, what ways have you
 523 used to find guidance on PSYCHOLOGICAL parts of training for, preparing for, or
 524 performing in running, road cycling, or triathlon events? We are asking about your
 525 DELIBERATE attempts to find guidance (i.e., through looking for it on purpose), and not
 526 guidance that you have become aware of without looking for it. Please select ALL answers
 527 that apply to you.

528

Exact wording on the survey	Abbreviation in the manuscript (if applicable)	Abbreviation in Appendix B (if applicable)
Asking a coach in a relevant sport (e.g., asking in-person, asking through social media)	Asking coaches	Coaches
Asking people (e.g., training partner, people on Facebook pages, other social media, or forums) who take part or compete in a relevant sport, but who are NOT a coach	Asking other athletes	Athletes
Asking a practitioner or researcher who has knowledge and qualifications that relate to psychology (e.g., a sport and exercise scientist or a psychologist)		
Looking in magazines deliberately to find guidance	Looking in magazines	Magazines
Looking in books deliberately to find guidance	Looking in books	Books
Reading academic articles such as research reports or journal articles		
Looking on websites or online blogs	Looking on websites or blogs	Websites
Watching online videos (e.g., videos on YouTube) deliberately to find guidance	Watching online videos	Online video
Listening to a podcast deliberately to find guidance		
Attending a workshop or presentation delivered by a practitioner or researcher who has knowledge and qualifications that relate to psychology (e.g., a sport and exercise scientist or a psychologist)		
Attending a workshop or presentation delivered by a coach, an event organiser, or a sport participant		
Using a mobile phone application to find guidance		
I have NOT deliberately tried to find guidance	Have not tried to find guidance	None

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ENDURANCE ATHLETES' WAYS OF GETTING GUIDANCE

530 Question 2

531

532 Below is a list of ways that you may have been given guidance or become aware of guidance
 533 (i.e., advice or information) WITHOUT looking for it on purpose. In the last 12 MONTHS,
 534 through what ways have you been given guidance or become aware of guidance on
 535 PSYCHOLOGICAL parts of training, preparing, or performing, without looking for it on
 536 purpose? Please select ALL answers that apply to you.

537

Exact wording on the survey	Abbreviation in the manuscript (if applicable)	Abbreviation in Appendix B (if applicable)
A person (e.g., coach, sport participant) spoke to you about it in person, either one-to-one or as part of a group (excluding presentations and workshops), or by telephone	Spoken word	Spoken word
A post on social media (e.g., Twitter, Facebook, Instagram, LinkedIn) or in an internet group (e.g., Google Groups) or forum	Posts on social media or internet group	Internet post
When on a website (other than social media) or online blog relevant to running, cycling, or triathlon	Websites or blogs	Websites
A person (e.g., coach, sport participant) sent you an email about it (e.g., a mailing list)		
A presentation or workshop relevant to running, cycling, or triathlon		
When listening to a podcast relevant to running, cycling, or triathlon		
When reading a magazine relevant to running, cycling, or triathlon	Magazines	Magazines
When reading a book relevant to running, cycling, or triathlon	Books	Books
When using a mobile phone application relevant to running, cycling, or triathlon		
I have NOT been given or become aware of guidance		

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ENDURANCE ATHLETES' WAYS OF GETTING GUIDANCE

552 Question 3

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554 Below is a list of people who may have given you guidance or made you aware of guidance
 555 (either in person or not in person) WITHOUT you looking for it on purpose. In the last 12
 556 MONTHS, which people have given you or made you aware of guidance on
 557 PSYCHOLOGICAL parts of training, preparing, or performing, without you looking for it on
 558 purpose? Please select ALL answers that apply to you.

559

Exact wording on the survey	Abbreviation in the manuscript (if applicable)	Abbreviation in Appendix B (if applicable)
A coach in a relevant sport (e.g., running, cycling, swimming, triathlon)	Coaches	Coaches
A person who takes part or competes in a relevant sport, but who is NOT a coach (e.g., a training partner, a person on Facebook or in an internet forum or group)	Athletes	Athletes
A practitioner or researcher who has knowledge and qualifications that relate to psychology (e.g., a sport and exercise scientist or a psychologist)	Researchers and practitioners	
A running, road cycling, or triathlon event organiser	Event organisers	
A personal trainer	Personal trainers	
I am unsure of who gave or made me aware of guidance		
I have NOT been given or become aware of guidance		

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ENDURANCE ATHLETES' WAYS OF GETTING GUIDANCE

580 Question 4

581

582 There are different ways that psychology experts (practitioners or researchers who have
583 knowledge and qualifications that relate to psychology) could provide psychological
584 guidance. They are listed below, and they include ways of finding guidance on purpose and
585 not on purpose. There is also a “NONE of these options are preferable to me” option. Please
586 think about which of these ways would be most preferable TO YOU PERSONALLY (please
587 assume that the guidance will NOT cost money, other than the possible costs of your
588 coaching or a magazine). In other words, if experts wanted to provide YOU with
589 psychological guidance, how would you prefer them to do it? Select UP TO 3 preferred
590 ways.

591

Exact wording on the survey	Abbreviation in the manuscript (if applicable)	Abbreviation in Appendix B (if applicable)
Presentations or workshops by experts that runners, cyclists, or triathletes attend	In-person presentations or workshops	
Online presentations or online workshops (e.g., webinars) by experts that are interactive (e.g., you can ask questions and discuss points)	Interactive online presentations or workshops	
Experts passing on guidance using online videos to watch (e.g., videos on YouTube)	Online videos	Online video
Experts passing on guidance using magazines for runners, cyclists, or triathletes	Magazines	Magazines
Experts passing on guidance using podcasts for runners, cyclists, or triathletes to listen to	Podcasts	
Experts working with coaches so that coaches can pass on the psychological guidance	Researchers and practitioners working with coaches	Coaches
Experts working with event organisers so that guidance is given as part of the event (e.g., guidance given in event emails and registration packs, experts present at events)	Researchers and practitioners working with event organisers	Events
Websites or online blogs that are for runners, cyclists, or triathletes	Websites and online blogs	Websites
Mobile phone applications that are for runners, cyclists, or triathletes	Mobile phone applications	
NONE of these options are preferable to me	None	

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ENDURANCE ATHLETES' WAYS OF GETTING GUIDANCE

Appendix B

Results by Gender, Competitive Level, and Age

Question		Sub-group										Overall
		Gender		Competitive level			Age group					
		Males	Females	None	Club	County +	18-29	30-39	40-49	50-59	60-69	
Intentional	Websites	46.5%	49.1%	45.5%	51.7%	42.7%	69.1%	46.8%	47.0%	50.0%	31.0%	48.1%
	Athletes	42.5%	50.5%	42.9%	52.8%	35.9%	60.0%	54.0%	48.1%	40.2%	31.0%	46.7%
	Coaches	31.9%	33.0%	23.6%	35.3%	40.8%	30.9%	34.5%	36.6%	31.1%	21.4%	32.5%
	Magazines	30.8%	27.8%	28.3%	29.7%	29.1%	29.1%	29.5%	29.5%	31.8%	19.0%	29.1%
	None	29.7%	28.5%	35.6%	24.5%	29.1%	20.0%	28.1%	29.5%	26.5%	52.4%	28.9%
	Books	33.0%	19.6%	21.5%	29.0%	29.1%	25.5%	20.9%	27.3%	33.3%	21.4%	26.3%
	Online video	31.5%	19.9%	25.7%	27.5%	21.4%	38.2%	26.6%	24.6%	27.3%	14.3%	25.7%
Unintentional – Methods	Internet post	46.2%	56.0%	49.5%	54.2%	46.2%	66.1%	53.6%	53.5%	48.9%	26.8%	51.3%
	Spoken word	41.5%	54.3%	43.2%	50.9%	48.1%	51.6%	56.4%	43.2%	47.4%	39.0%	48.0%
	Magazines	46.9%	45.1%	38.5%	50.9%	46.2%	43.5%	40.7%	49.2%	46.7%	48.8%	45.9%
	Websites	39.4%	36.9%	39.1%	37.4%	38.5%	46.8%	39.3%	35.7%	37.8%	39.0%	38.2%
	Books	40.8%	26.3%	26.0%	35.9%	42.3%	29.0%	27.9%	31.4%	40.7%	43.9%	33.7%
Unintentional – People	Athletes	61.7%	74.1%	65.3%	72.4%	61.5%	80.6%	68.6%	68.6%	59.7%	71.4%	68.1%
	Coaches	44.0%	47.8%	35.2%	47.1%	61.5%	48.4%	48.6%	44.9%	45.5%	40.5%	45.9%
Preferences	Websites	48.0%	50.7%	49.7%	49.8%	48.1%	53.2%	57.1%	49.7%	47.4%	31.0%	49.5%
	Online video	51.6%	33.0%	36.8%	41.4%	52.9%	40.3%	46.4%	45.4%	36.3%	35.7%	41.8%
	Coaches	37.2%	34.0%	30.6%	36.6%	41.3%	40.3%	37.1%	31.9%	34.8%	42.9%	35.5%
	Events	26.0%	43.2%	44.6%	33.7%	19.2%	46.8%	34.3%	35.1%	35.6%	23.8%	34.8%
	Magazines	33.6%	35.7%	32.1%	38.1%	30.8%	25.8%	32.9%	36.2%	37.0%	33.3%	34.7%

Note. The most commonly selected responses are presented. Full data is available on request. See Appendix A for the full wording of the selected responses.