

**Effective Delivery of Pressure Training: Perspectives of Athletes and Sport Psychologists**

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### 1 **Abstract**

2 Pressure training (PT) strategically increases pressure in training to prepare athletes to perform  
3 under pressure. Although research has studied how to create pressure during training, PT's  
4 effectiveness may depend on more than creating pressure. A practitioner's delivery of sport  
5 psychology interventions can moderate their effectiveness, so the current study explored  
6 perspectives of sport psychologists and athletes on the characteristics of effective PT delivery in  
7 applied settings. Eight international-level athletes and eight sport psychologists participated in  
8 semi-structured qualitative interviews in which they described their experience participating in or  
9 conducting PT, respectively. Thematic analysis produced four themes relating to effective  
10 delivery: a) Collaboration with athletes and coaches: "with," not "to", b) Integration into  
11 training, c) Upfront transparency, and d) Promoting learning before and after PT. The themes  
12 provide guidance for planning, conducting, and following up on PT sessions in applied settings.  
13 The best practices discussed could increase athletes' receptiveness to PT.

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### 14 **Effective Delivery of Pressure Training: Perspectives of Athletes and Sport Psychologists**

15 Pressure training (PT) is an intervention that applies pressure on athletes while they  
16 practice their sport to help them learn to perform under pressure. Pressure refers to athletes'  
17 increased perceived importance to perform well (Baumeister, 1984), and practitioners or coaches  
18 can create this pressure strategically. Pressure manipulations used in PT studies have included  
19 having to clean the changing rooms (Bell et al., 2013), judgment from an authority figure (Alder  
20 et al., 2016), and the chance to win a starting spot in the next competition (Kent et al., 2021).  
21 Coaches may already make athletes run sprints or do similar consequences for losing a drill in  
22 training, but PT attempts to increase pressure above the level that athletes feel in a typical  
23 training session.

24 In addition to the strategic creation of pressure, PT is also strategic in its application of  
25 that pressure. PT's purpose distinguishes it from running, push-ups or other physical  
26 punishments that are used to motivate or discipline athletes. Athletes could be motivated but still  
27 need to improve their abilities to cope with pressure, and training such abilities likely requires PT  
28 to take place regularly enough to have lasting effects. Furthermore, PT can also accompany other  
29 mental training that teaches coping skills that athletes can then practice during PT.

30 Research has suggested that PT can in fact improve performance under pressure. In Low  
31 et al.'s (2021) meta-analysis, 13 out of 14 studies found that PT-trained participants  
32 outperformed control groups when under pressure. After PT, athletes may perform under  
33 pressure as well as they do in situations without pressure (Alder et al., 2016). PT does not  
34 necessarily prevent athletes from feeling pressure, but it does help them acclimate to that  
35 pressure so they can maintain performance (Oudejans & Pijpers, 2009). Although replicating

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36 competition can be difficult, training under mild levels of pressure can still benefit future  
37 performance under higher levels of pressure (Oudejans & Pijpers, 2010).

38         While early studies focused on the effect of training under pressure, few showed  
39 practitioners how to create that pressure (Stoker et al., 2016). Some studies in experimental  
40 settings used pressure manipulations that may not be practical or sustainable over time in applied  
41 settings. For example, many teams may not be able to afford the monetary rewards used in some  
42 research (e.g., Lawrence et al., 2014). Recognizing that creation of pressure had not been  
43 studied, Stoker et al. (2016) examined stressors that elite-level coaches used to intentionally  
44 create pressure during training sessions. The ensuing framework categorized stressors into  
45 demands and consequences. Demands increased the difficulty to perform. Examples included  
46 adding distractions to the environment or changing the rules of a drill. Consequences included  
47 rewards (e.g., selection), forfeits (e.g., having to miss a training session), or judgment (e.g., being  
48 watched by the national team’s performance director). Subsequent research found that  
49 consequences increase pressure more than demands do (Stoker et al., 2017, 2019). Kegelaers et  
50 al. (2020) also identified additional “planned disruptions,” such as unfairness and physical  
51 taxation, that coaches use to familiarize athletes with pressure and other challenges common in  
52 competition.

53         Pressure manipulations may be necessary but not sufficient for PT to improve  
54 performance because effectiveness may also depend on a practitioner or coach’s delivery of the  
55 intervention. Previous studies have illustrated the importance of delivery and relationships in  
56 sport psychology (e.g., Sharp et al., 2015). In Poczwardowski and Sherman’s (2016) heuristic for  
57 sport psychology service delivery, delivery consists of many elements of science and “art”  
58 beyond the psychological tools or skills that a practitioner teaches. Practitioners have attributed

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59 success of interventions to elements such as strong working alliances and active engagement  
60 from athletes (Sharp et al., 2015; Tod et al., 2019). Other factors, including involvement of  
61 coaches, can create an environment conducive to athletes' engagement and relationship with  
62 practitioners (Henriksen et al., 2019).

63         The link between effectiveness and delivery is well-established, but sport psychology  
64 intervention studies have often neglected to assess or account for delivery (Ivarsson & Andersen,  
65 2016). One reason for this “practitioner-evacuated” research is a preference to control for  
66 variables so that only the intervention's content explains results, as in randomized control trials  
67 (Ivarsson & Andersen, 2016, p.13). PT research has reflected this bias. Some studies took place  
68 in experimental settings with university students instead of athletes (e.g., Lewis & Linder, 1997),  
69 and other studies trained athletes but did not describe the researcher/practitioner's delivery or  
70 relationship with the athletes (e.g., Oudejans & Pijpers, 2009). One exception is Bell et al.  
71 (2013), who delivered PT with a transformational leadership style in which coaches expressed  
72 belief in players and connected PT to an inspirational vision for the team's future performance.  
73 However, no subsequent studies have further examined this or any other style of delivery.

74         Some elements of delivery (e.g., working alliance) may apply universally across sport  
75 psychology, but PT has unique challenges that warrant extra attention to its delivery. Because PT  
76 generally takes place during training sessions, practitioners must be comfortable working in an  
77 environment that may traditionally emphasize physical or tactical skills before psychology.  
78 Opportunities to deliver PT may depend on the receptiveness of coaches, who could view PT as  
79 infringing on their domain. Added pressure may also make training sessions less enjoyable and  
80 more threatening to athletes, so practitioners cannot assume that athletes will automatically  
81 recognize PT's value and want to participate. Although PT often creates threatening

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82 environments so that athletes learn to view them as a challenge (van Rens et al., 2021), athletes  
83 might instead mistake PT for bullying. Some coaches have described how planned disruptions  
84 damaged relationships with athletes and fellow staff members, including loss of trust (Kegelaers  
85 et al., 2020). A coach or practitioner's attention to delivery therefore may need to be  
86 commensurate with an intervention's level of risk. This delivery could include conveying PT's  
87 intent to help, not hurt, athletes (Kegelaers et al., 2020).

88         Exploring delivery is especially pertinent now because of the recent increase in applied  
89 PT intervention studies. With the involvement of coaches, researchers have conducted PT in  
90 teams' training sessions for basketball (Kegelaers et al., 2021), cricket (van Rens et al., 2021),  
91 and soccer (Kent et al., 2021). Effective delivery is necessary for accurate evaluation of  
92 interventions. If an intervention's effectiveness depends on delivery, then poor delivery could  
93 confound results and limit conclusions about the intervention itself. On the other hand, delivery  
94 that helps athletes accept and understand PT could increase chances that an intervention does  
95 improve performance.

96         To some extent, authors of interventions have already described aspects of their delivery.  
97 Van Rens et al. (2021) let players choose pressure manipulations because autonomy could  
98 increase motivation for the intervention. Leading up to PT, multiple researchers have conducted  
99 workshops to teach athletes skills for coping with pressure, such as cognitive restructuring (e.g.,  
100 Kent et al., 2021). Although a workshop itself could be considered part of the intervention's  
101 content, the act of providing this support may also contribute to the facilitative environment that  
102 Fletcher and Sarkar (2016) argue is essential when training qualities related to performance  
103 under pressure, such as resilience. By describing these aspects of delivery along with content of

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104 their intervention, researchers remind readers that translating PT to applied settings entails more  
105 than creating pressure.

106 More research can build on this increased transparency about delivery. There may be no  
107 single formula for PT, but there may be aspects of delivery that are especially important for PT.  
108 Fletcher and Sarkar (2016) did discuss the hands-on role that practitioners have before, during,  
109 and after PT to help ensure it improves performance. For example, practitioners need to adjust  
110 levels of pressure and support according to athletes' responses to pressure, and language used to  
111 describe pressure can influence whether athletes view pressure as a challenge or threat (Fletcher  
112 & Sarkar, 2016). Nevertheless, Fletcher and Sarkar (2016) acknowledged that writing about  
113 these ideas is easier than applying them and achieving positive results in applied practice. An  
114 intervention can be well-planned, but its implementation depends on an organization's culture  
115 and politics, interpersonal dynamics, and key decision-makers' views on psychology. Examining  
116 PT in applied settings could suggest how practitioners navigate these environments and  
117 challenges.

118 In their study of how coaches create pressure in training, Stoker et al., (2016) showed that  
119 applied practice can guide theory and future applied practice. Similarly, practitioners could  
120 highlight specific challenges and best practices for delivering PT. Whereas intervention studies  
121 each describe a single intervention, practitioners may be able to reflect on extensive experience  
122 with PT. Their approaches to delivery may reflect lessons learned and strategies developed over  
123 time from delivering various PT interventions with different athletes. Their PT may also differ  
124 from interventions that are conducted as research. Practitioners may have more flexibility when  
125 not restricted by research designs, and they may also face more challenges of applied settings  
126 when integrating PT into athletes' training over the course of a season rather than three or four

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127 weeks. Their insight could bridge the gap that Fletcher and Sarkar (2016) acknowledged exists  
128 between ideas and implementation.

129         Although practitioners are often the ones who deliver PT, athletes are the ones who can  
130 confirm best practices and identify obstacles that practitioners still need to address. Elite athletes  
131 in particular could have valuable insight on the aspects of delivery that improve outcomes and  
132 receptiveness to the intervention. PT may simultaneously be especially relevant to elite sport  
133 environments yet garner skepticism there. Elite sport emphasizes a “ruthless pursuit of  
134 performance” (McDougall et al., 2015, p. 270), and PT’s purpose of enhancing performance  
135 under pressure supports that pursuit. However, practitioners may also encounter elite sport’s  
136 resistance to change (Eubank et al., 2014). A first step toward reducing this resistance could be  
137 to understand potential misconceptions about PT and how to address them. Effective consulting  
138 involves listening to and partnering with athletes (Sharp et al., 2015; Tod et al., 2019), so  
139 recommendations from research should also consider athletes’ point of view.

140         Navigating barriers to receptiveness adds complexity to delivering an intervention, and  
141 qualitative methods can help to reveal and make sense of such complexities (Smith & Caddick,  
142 2012). In their studies on consulting effectiveness in sport psychology, Henriksen et al. (2019)  
143 and Sharp et al. (2015) have also used qualitative methods. “Thick” descriptions allow a reader  
144 to reflect on participants’ experiences and relate them to the reader’s own experience. This  
145 “naturalistic generalizability” occurs when a study resonates with, provokes action in or  
146 stimulates curiosity among readers” (Smith & Caddick, 2012, p.69). Accordingly, the present  
147 study attempted to prompt practitioners to consider delivery and make informed decisions about  
148 how they deliver PT. The study’s purpose was to explore perspectives of sport psychologists and  
149 athletes on the characteristics of effective PT delivery in applied settings.



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**Method**

**Philosophical Approach**

This study adopted a pragmatic approach to research. Pragmatism prioritizes generating useful knowledge (Giacobbi et al., 2005), and this study aligned with that aim because it attempted to learn about experiences and best practices that can inform practitioners’ delivery of PT. Pragmatism does not seek absolute truth, and the goal was not to identify a single best way to deliver PT. Instead, it attempted to bring to light some important ideas to consider when delivering PT. Dialogue between stakeholders and researchers can help to approach a “practical level of truth” about an issue (Giacobbi et al., 2005, p. 22), and methods were selected to increase this dialogue.

**Participants**

Participants were eight international-level athletes (3 male, 5 female) and eight sport psychologists (4 male, 4 female). Purposeful sampling identified “information rich” participants who had extensive knowledge of PT delivery (Smith & Caddick, 2012). For the athletes, inclusion criteria were: a) experience training under pressure that sport psychologists and/or coaches had intentionally created, and b) experience competing at the international-level. Each athlete had competed in at least one Olympics, World Championships, or Paralympics. Sports included para and able-bodied sports, including boxing, table tennis, shooting, basketball, archery, trampoline, gymnastics, and taekwondo. Recruitment prioritized athletes who met inclusion criteria, so no specific sport or type of sport was targeted. However, most athletes who were identified as meeting both inclusion criteria came from individual sports. The athletes’ mean age was 28.5 years ( $SD = 8.7$ ), ranging from 19 to 47 years. Mean years of experience in

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172 their sport was 11.5 years ( $SD = 4.1$ ), ranging from seven to 20 years. One athlete had retired  
173 from sport two years before data collection, and the rest were still active.

174 For sport psychologists, inclusion criteria were: a) experience conducting PT, and b)  
175 chartered status from the British Psychological Society and registration with the Health & Care  
176 Professions Council, the regulatory professional body for practitioners in the UK. The  
177 psychologists had conducted their PT with international-level athletes and/or podium athletes  
178 preparing for future international competitions in various team and individual sports. Mean age  
179 was 34.8 years ( $SD = 3.8$ ), ranging from 31 to 40 years. Mean experience as a sport psychologist  
180 was 9.3 years ( $SD = 3.8$ ), ranging from six to 17 years.

### 181 **Procedure**

182 The study was approved by a university ethics committee. Sport psychologists were  
183 recruited from core organizations for supporting elite performance in the UK. As the research  
184 team identified psychologists known to conduct PT, each was invited via text message or email  
185 to participate in the study. Eight psychologists were contacted, and all eight agreed to participate.  
186 Although not all used the term “pressure training,” all had intentionally increased pressure on  
187 athletes during training to improve the athletes’ performance in competition. Athletes were  
188 identified through contacts on national teams or by asking the participating psychologists to  
189 recommend athletes who had participated in PT. Eight athletes were contacted, and all eight  
190 agreed to participate. Informed consent was obtained, and each individual participated in a one-  
191 on-one semi-structured interview with the first author via Skype or Zoom.

192 Separate interview guides were developed for sport psychologists and athletes. The  
193 interview guide for psychologists asked them about the process of developing and delivering PT  
194 (e.g., “Can you describe your experience conducting pressure training?”). Some questions

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195 focused on delivery, such as monitoring levels of pressure (e.g., “How do you know when you  
196 have put athletes under enough pressure”). Other questions about creating pressure and impacts  
197 of PT elicited responses about delivery because it is intertwined with creating pressure and  
198 impacts. The athlete interview guide included some questions that directly asked about delivery  
199 (e.g., “Besides increasing pressure, what else do sport psychologists do that makes pressure  
200 training effective?”). As with the psychologists, athletes also discussed aspects of delivery when  
201 answering more general questions about their experience participating in PT. Both interview  
202 guides used open-ended questions to provide participants with flexibility to discuss the ideas that  
203 they felt were most relevant and to encourage participants to provide in-depth answers (Smith &  
204 Caddick, 2012). The semi-structured nature of interviews allowed the researcher to ask follow-up  
205 questions for the participants to elaborate on answers. For example, after an athlete described  
206 rewards and punishments used to create pressure, a follow-up question was, “How did [sport  
207 psychologist] get you to buy into those rewards and punishments?”. Interviews were recorded  
208 and lasted 35-55 minutes. The first author then transcribed each interview verbatim. Names of  
209 the athletes and sport psychologists were replaced with ID numbers (e.g., A1 or SP1).

### 210 **Analysis**

211 Analysis followed Braun and Clarke’s (2012) guidelines for reflective thematic analysis.  
212 The first author first read and re-read each transcript to gain familiarity with the data. The next  
213 step was to code the transcripts. Codes were descriptive labels assigned to segments of text that  
214 related to the study’s purpose. Coded segments were then reviewed, and related ones were  
215 grouped into themes. Themes were then reviewed to assess how well they represented the data  
216 and adjust them when necessary. Related themes were collapsed into one. The names and  
217 definitions for the final themes were then determined by the all of the co-authors.

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218 Throughout the analysis, the second and third authors also reviewed the initial analysis as  
219 “critical friends” to enhance trustworthiness of the results (Smith & McGannon, 2018). After  
220 reading and analyzing one of the transcripts, they shared their approach to coding and theming  
221 with the first author. They also provided feedback on the themes presented by the first author.  
222 Researchers play an active role in constructing themes (Braun & Clarke, 2019), and the different  
223 perspectives from critical friends helped the first author see patterns and alternative  
224 interpretations of data. We met several times and produced multiple iterations of analysis.  
225 Instead of reaching total agreement, we attempted to enhance the defensibility of findings and  
226 their ability to achieve the study’s purpose as best as possible (Smith & McGannon, 2018).  
227 Throughout data collection and analysis, the first author also wrote memos in a reflexive  
228 research journal to note trends in the data, record rationale for analytical decisions, and think  
229 about feedback from critical friends (Culver et al., 2012).

### 230 **Results**

231 Participants discussed processes and approaches to PT that helped athletes develop  
232 performance under pressure and be open-minded about the intervention. Four themes  
233 encapsulated these aspects of delivery: a) Collaboration with athletes and coaches: “with,” not  
234 “to”, b) Promoting learning before and after PT, c) Upfront transparency, and d) Integration into  
235 training. Each theme is summarized in Table 1 and described in more detail below. Raw data  
236 quotes are presented to allow readers to interpret data independently.

#### 237 **Collaboration with athletes and coaches: “with,” not “to”**

238 All psychologists and some athletes discussed the importance of collaboration when  
239 conducting and designing PT, including development of pressure manipulations. According to  
240 SP6, psychologists should do PT “with” athletes rather than “to” them. To choose demands or

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241 consequences that would in fact increase pressure, psychologists needed to know and listen to  
242 their specific athletes or team. Differences in sport and team cultures could mean that a certain  
243 forfeit or form of judgment might increase pressure for some populations but not for others.  
244 Therefore, psychologists and athletes needed to work together to identify pressure manipulations  
245 that were meaningful to the athletes. SP1 provided an example that fit the personality for one  
246 boxer:

247         So when we've done a consequence with her, it was that she had to sing in front of the  
248         group afterwards, like to serenade them. So that was the consequence, and she was like "I  
249         am *not* doing that. That's horrendous." But she came up with it, and she's like, "I'm  
250         going to do everything in my power not to do that."

251         Collaboration did not mean simply letting athletes think of and choose how to create  
252         pressure. Sport psychologists facilitated athletes' involvement in the process. SP2 developed a  
253         questionnaire that asked divers to rate the level of pressure they feel in different sport-specific  
254         situations, and results suggested what kinds of consequences or demands would increase  
255         pressure the most. SP3 would propose ideas for pressure manipulations in a meeting with  
256         athletes, who could then consider and alter the ideas if necessary. In team settings, creating the  
257         same amount of pressure for every athlete was not possible, so psychologists based pressures on  
258         themes from team discussions or allowed the team to agree on the source of pressure. As many  
259         athletes as possible would then feel pressure, and frequent PT with various pressure  
260         manipulations would allow each athlete to eventually feel pressure.

261         Knowing and listening to athletes also involved noticing pressure that athletes would  
262         already feel in training in addition to the pressure intentionally created for PT. This pressure  
263         could come from several sources. Selection commonly raised the importance of training sessions

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264 as teammates competed with each other for spots on a team. The pressure from selection could  
265 also increase further at certain times, such as when selection dates were approaching or when  
266 performance directors and head coaches watched training. Athletes also felt more pressure as the  
267 date of competitions neared. SP1 noted that too much pressure could damage confidence or  
268 impede development of mental skills, and psychologists accounted for these existing pressures so  
269 that any added consequences or demands would not stress the athletes excessively. The same  
270 consequence that was appropriate one day could be too stressful on another occasion, as SP8  
271 observed:

272         You might actually go, “God, the level of pressure they’re under already, two weeks out  
273         from a competition, means actually that we don’t need to add too much in.” We just need  
274         to add a little bit...and actually, at a different time of the year, that little bit might not feel  
275         like very much, but right now everyone’s up to here in pressure.

276         Coaches were often key to tailoring PT to athletes appropriately. Coaches contributed  
277         expertise on the athletes and the sport, which helped determine the technical or tactical drills to  
278         pressurize. SP4 said:

279         It’s about working with [coaches] and the rest of the team on, “Okay, when do we see  
280         some of those examples happening in real life?” and “How can we use the different drills,  
281         the different exercises that we might do on the pitch to activate some of those  
282         behaviors?”. You’ll find head coaches, assistant coaches, goalkeeper coaches, they  
283         particularly will be highly trained in recognizing, “I’ve seen that response. I’ve seen *that*  
284         behavior response,” so they are incredibly well-equipped and knowledgeable in the kinds  
285         of things we can do on the pitch.

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286 PT was not an exercise that was led exclusively by the psychologist. It was integrated  
287 into physical or technical training, so coaches were active in the delivery. SP5 worked with  
288 coaches to agree to the content and “feeling” of a PT session: “We used to agree a number of  
289 principles for the feeling of the session. The session would have to feel competitive. It has to feel  
290 serious and have to feel...yeah, it’d have to feel quick-paced.” Coaches could also lead debriefs  
291 or explain pressure manipulations to athletes. SP3 would pair each para shooter with a coach or  
292 staff member who would conduct a debrief with that shooter after PT. Such involvement could  
293 keep coaches open-minded about implementing PT, as SP6 explained:

294 So I think very early in that that kind of idea-generation stage, if you collaborate from the  
295 outset, rather than trying to say, “I’ve got this thing that we should definitely do,” people  
296 are a bit more open and bit more curious about it, rather than defensive: “Why are you  
297 trying to change my...my practice?”

### 298 **Promoting learning before and after PT**

299 All psychologists actively helped athletes learn to cope with pressure in PT, and several  
300 athletes also discussed this training that accompanied PT. Mental skills training (MST) and  
301 debriefs not only taught athletes coping skills for pressure but also signaled that PT was an  
302 opportunity to develop, not a punishment. MST involved group workshops or one-on-one  
303 sessions that psychologists provided in conjunction with PT. Psychologists often started by  
304 teaching athletes about the effects of pressure on performance. A next step was to introduce  
305 coping skills that athletes could then practice during PT. SP1 described working with one boxer:

306 So we knew under pressure, he tenses and tries to load up and “kill” people, basically.

307 And...in his head, the way he would debrief that is “I’m trying to win” and it’s that

308 pressure of “I’ve got to win.” So he’ll chase, and it makes him tense and makes him not

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309 breathe properly...so we did...we coupled it together: so we did a strategy to develop his  
310 ability to breathe and relax anyway.

311 MST was not unique to PT because the psychologists would already teach many of the  
312 same mental skills, but PT provided athletes an opportunity to refine these skills under pressure  
313 similar to the conditions when they would need the skills in competition. The progression from  
314 MST to PT fit into a team or athlete's overall goals:

315 It might be, "Well, okay, in a year's time I want them to go deliver at an Olympic Games,  
316 why are they falling short when they tried to deliver at World Champs or whatever?" And  
317 then...I'll do a skills program and educate first, and then get on the [cycling] track with  
318 them and do, like, education not just in the classroom but kind of be giving them  
319 opportunities to practice it with me there, and then we'll expose them to however number  
320 of these [PT] sessions... –SP8

321 After PT sessions, debriefs prompted athletes to reflect on their experiences and  
322 performance in the session. The psychologist would ask athletes to consider how they responded  
323 to pressure, and this reflection increased athletes' self-awareness and clarified skills, behaviors,  
324 or thinking patterns that they needed to maintain or improve. SP2 said:

325 So I think the education side that I've mentioned a few times, that has been key and that  
326 has come up multiple times with athletes in debriefs: of them understanding either why  
327 they're feeling pressure because they know their triggers or, at the very least, understand  
328 that their brain's changing and what they needed to do to put themselves in a better  
329 situation. Or even seeing their first kind of physical signs—so, loss of fine motor control  
330 and stuff—so they know if they see that, that based on past experience, they know that  
331 they're going down a path that's actually not going to be great.



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332           The format and delivery of debriefs varied. Some debriefs were structured meetings after  
333 training sessions, and others were informal chats between the psychologist and athlete. Coaches  
334 often joined the debriefs, or a psychologist might train coaches to lead the debrief themselves.

### 335 **Upfront transparency**

336           Driven primarily by psychologists, this theme describes how upfront transparency about  
337 the purpose and content of PT was a prerequisite for psychologists to collaborate well with  
338 athletes and coaches. Psychologists explained PT to athletes before expecting them to participate  
339 in it. The intent to increase pressure was not meant to be a secret. In fact, some psychologists  
340 conducted workshops to educate athletes on pressure, its effects on performance, and reasons for  
341 PT. This transparency was especially important for PT because feeling pressure would not  
342 necessarily be comfortable for athletes. A4 described times when coaches did not explain why  
343 they enforced consequences during training, and “everyone hated it so much” because the  
344 coaches “just did it because that was who they were. And that’s how they trained people, through  
345 pressure and through brutal sessions, really.” In contrast, psychologists emphasized to athletes  
346 that any discomfort or unpleasantness was intended to help them learn and prepare for  
347 competition:

348           And people need to understand “the why,” so “why are we doing this?”. And it’s not to  
349 harm you. It’s not to make you look silly or to force you to make mistakes. It’s “actually,  
350 we have a responsibility to you to prepare you for potentially extremely stressful  
351 situations.” –SP6

352           Psychologists did have slight variations in how they used PT. Some used PT to train a  
353 specific technical skill that coaches wanted to see from the athlete whereas others pressurized  
354 training to let athletes practice coping with pressure in general. Whatever the exact goal of the

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355 PT session was, psychologists communicated it to athletes before starting. For SP7, clarifying the  
356 goal helped ensure athletes benefited as intended. For example, training the physical execution of  
357 a skill under pressure was distinct from training the decision making of that skill under pressure.

358 Although psychologists often introduced the idea of PT during workshops or  
359 conversations, SP1 had each athlete read and sign written “contracts” that explained the  
360 intervention. A contract helped ensure that the athlete understood the purpose of PT, and it also  
361 allowed coaches and the psychologist to individualize PT for each of their athletes. Each  
362 individual could have his or her own consequences, procedure for debriefs, and tactics to work  
363 on, and the contract communicated those components to him or her. Psychologists also supported  
364 “re-contracting” regularly. They understood that needs of the athlete and circumstances will  
365 change over time, so it was necessary not to assume athletes would always be receptive to PT  
366 just because they agreed once.

### 367 **Integration into training**

368 Some psychologists and some athletes suggested that for PT to be effective and  
369 sustainable over time, it needed to be integrated into athletes’ training regimens. Some  
370 psychologists initially conducted PT as structured and novel events that required much planning  
371 and preparation to develop and implement pressure manipulations. Although transparency about  
372 PT’s purpose was important, excessively drawing attention to the added pressure could deter  
373 some athletes. A1 eventually recognized the value of PT, but he did not initially:

374 I hated it at first. I used to just be like, “This is just nonsense” because it was like this  
375 whole thing: “Whoo, this afternoon’s pressure training, boys. Remember.” Going into the  
376 hall, they try and make a different feel. You open the door and everybody looks at you,  
377 like, “Ooh, you know what’s going on here today.”

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378 Psychologists moved away from singular events and instead included PT as a regular part  
379 of training. SP2 described her approach as “little and often” because she would incorporate PT  
380 more routinely into training in the form of smaller-scale exercises. SP5 similarly embedded PT  
381 into training by adding pressure to warm-up drills or the last exercise of a training session. Big  
382 events could, however, lead to such integration because they showed coaches how to create  
383 pressure. SP5 said, “by doing a couple of really big ones, the coaches then got a grip of it and  
384 they just included it on a more...frequent basis in a less-structured way.” For A5 and A7,  
385 coaches already added pressure to their practice competitions without the assistance of a  
386 psychologist. As A7 described it, “I kind of always did it from a young age, so at this point I  
387 don’t know any different.” That coaches independently integrated pressure into training further  
388 demonstrates that PT can be a natural extension of preparation for competition. SP8 recognized  
389 that some coaches already pressurize training well, so he would not need to intervene:  
390 “Sometimes it’s okay to go, ‘I don’t need to do anything there.’”

391 Integration was also reflected in the language used (or not used) to talk about PT. To  
392 prevent preconceived notions from interfering with PT, SP6 and SP8 both avoided labeling any  
393 exercise or drill as “pressure training.” According to SP8, overusing the word “pressure” in a  
394 training environment could cause some athletes to “switch off.” Although levels of pressure can  
395 vary, psychologists said that athletes often associated the term “pressure” with only the highest  
396 levels of pressure. SP8 explained, “Some of them will go, ‘Aww, you can’t replicate what’s  
397 going to happen in an Olympic Games, in a World Champs.’” Overemphasizing pressure could  
398 prompt athletes to look for or expect pressure, so SP8 advocated directing athletes’ attention to  
399 relevant mental skills instead. Psychologists could still teach the skills (e.g., in a workshop) but  
400 do so without making practicing them appear to be a novel exercise. SP8 said, “I’ve never sold it

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401 as ‘pressure training.’ I’ve always tried to sell it as ‘We’re going to learn a bunch of skills  
402 first...and then we’re going to expose you to situations where you get a chance to practice that.’”

403 Some psychologists did still distinguish PT from other training sessions, but they did so  
404 by mirroring the flow of competition. Building up to PT throughout the day could enhance  
405 pressure by signaling to athletes that their performance in training would be scrutinized more  
406 than usual:

407 so we try and make it a little bit more like a bout where you’d be prepping to go in and  
408 box someone specific rather than whenever they...might be sparring somebody, they  
409 might know 10 minutes before: “Oh, I’m sparring him today but it’s fine.” So we try and  
410 create a little bit more of, “This is your opponent, these are your tactics, this is what you  
411 need to do”...We get them to properly warm up and make sure they’re as it would be in a  
412 bout. –SP1

413 Despite wanting PT to “feel different” from other training, SP1 did not force the  
414 perception of pressure. The physical and tactical preparation implied the importance of the  
415 session, which contrasted the explicit reminders about pressure that A1 described experiencing in  
416 his first PT. Despite differences in their approaches, psychologists seemed to agree on  
417 normalizing PT as a part of athletes’ preparation. This psychological component of athletes’  
418 training did not have to be framed as separate. As SP6 explained, PT was “just training.”

### 419 **Discussion**

420 This study explored perspectives of sport psychologists and athletes on the characteristics  
421 of effective PT delivery in applied settings. Thematic analysis highlighted four themes that  
422 described effective delivery: a) Collaboration with athletes and coaches: “with,” not “to”, b)  
423 Promoting learning before and after PT, c) Upfront transparency, and d) Integration into training.

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424 The findings echoed existing guidelines for PT. For instance, the theme of collaboration supports  
425 Fletcher and Arnold's (2021) guidance that listening to input from athletes can increase their  
426 buy-in for PT. However, the current study's qualitative nature expanded on how practitioners can  
427 apply such ideas in competitive sport environments. Each theme included concrete steps that  
428 contributed to developing and conducting PT. Just as importantly, these steps also could increase  
429 coaches and athletes' engagement with PT and, therefore, increase their benefit from the  
430 intervention.

431 Collaboration with athletes and coaches helped psychologists to identify pressure  
432 manipulations that would successfully create pressure. PT should be tailored as much as possible  
433 to each context (Fletcher & Arnold, 2021), and discussing pressure manipulations with athletes  
434 allowed psychologists to learn which demands and consequences would be meaningful and  
435 relevant to those athletes. Coaches could also generate and vet ideas for creating pressure.  
436 Whereas input from athletes depends on their self-awareness, coaches might add another  
437 perspective from having seen how and when their athletes feel pressure.

438 Even if a practitioner could independently develop pressure manipulations, collaboration  
439 remained important for keeping athletes and coaches receptive to PT. For athletes, collaboration  
440 could reduce a power imbalance that inherently exists between practitioner and athlete (Sharp et  
441 al., 2015; Tod et al., 2019). PT especially might deepen this imbalance if practitioners appear to  
442 force demands and consequences on athletes (Kegelaers et al., 2020), but collaboration seems to  
443 balance the practitioner-athlete dynamic going into PT. Asking athletes for their input could  
444 provide them with autonomy to influence the training, and autonomy helps individuals see a  
445 task's relevance to their goals and, in turn, value doing that task (Ryan & Deci, 2000). The  
446 resulting commitment is illustrated in the way SP1 described her athlete's motivation to avoid a

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447 consequence of singing in front of others: “She was like ‘I am *not* doing that. That’s horrendous.’  
448 But she came up with it, and she’s like, ‘I’m going to do everything in my power not to do that.’”

449       Collaboration gained coaches’ support for PT too. Because PT generally took place  
450 during training sessions, it could appear to encroach on a coach’s territory. Yet psychologists did  
451 not feel that they had to lead PT entirely on their own. SP3 had coaches and staff lead debriefs,  
452 and coaches have also contributed to PT in intervention studies. In van Rens et al.’s (2021)  
453 study, coaches designed sport-specific drills and performance standards that players would have  
454 to reach in PT. As SP6 noted, including coaches in the process could encourage them to be “a bit  
455 more open and bit more curious about [PT], rather than defensive.” This involvement could then  
456 impact the culture or environment surrounding PT. For example, in Bell et al.’s (2013) study, the  
457 researchers worked with coaches to take a transformational approach to leadership, and coach  
458 buy-in could promote other “ingredients” of successful interventions, such as athlete engagement  
459 (Tod et al., 2019).

460       For the theme of promoting learning, the most direct benefit may be the development of  
461 coping skills that athletes can then apply during PT. Kent et al. (2021) have found partial support  
462 to suggest that PT accompanied by MST improves performance better than PT alone. After  
463 pressurized drills, psychologists in the current study continued the learning process by leading  
464 debriefs that prompted athletes to reflect on their responses to pressure during the training  
465 session. Reflection is a skill that practitioners may need to help athletes develop (Neil et al.,  
466 2013), so debriefs could be an important element of PT to maximize learning.

467       Promoting learning might also develop the facilitative environment that Fletcher and  
468 Sarkar (2016) recommend should accompany PT. While pressure manipulations create challenge  
469 for athletes, conducting workshops and debriefs may communicate to athletes that a coaching

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470 staff is supporting them to overcome that challenge. Just as collaboration promotes autonomy,  
471 MST could increase athletes' sense of competence, which is another psychological need that  
472 increases internal motivation for a task (Ryan & Deci, 2000). If athletes feel they have been  
473 equipped with skills to cope with pressure, then they may be more willing to experience that  
474 pressure.

475         Like collaboration and promoting learning, the theme of upfront transparency also had  
476 multiple dimensions. In some cases, psychologists might need to explain the nuances of PT that  
477 targets specific aspects of performance under pressure, such as decision making or a technical  
478 skill that tends to decline under pressure. Communicating these targets enables athletes to match  
479 their focus and behavior to the psychologist or coach's intent for the drill. More generally,  
480 upfront transparency clarified that PT was intended to help, not harm, athletes. Although that  
481 purpose may seem obvious to a practitioner or coach delivering PT, it may not be so obvious to  
482 athletes (Kegelaers et al., 2020). Some participants in the current study suggested that athletes  
483 might conflate PT with previous experiences of disciplinary punishments or be accustomed to  
484 sport psychology support taking place in "classroom" settings. Transparency could be verbal  
485 explanations or take the form of a written "contract" that outlined what PT would involve. Such  
486 measures were another way to proactively address any misperceptions of PT.

487         After psychologists' explained PT to athletes, the intervention's integration into physical  
488 training further demonstrated that PT was an extension of, rather than a departure from, existing  
489 preparation for competition. PT did not have to be large-scale events that were separate from  
490 physical training, and integration into training meant less novelty for athletes to grow  
491 accustomed to. Compared to conducting PT as a separate event, pressurizing a drill did not  
492 disrupt an athletes' typical routine if the athletes already would do that drill in training. During

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493 that training, psychologists did not need to overemphasize the presence of added pressure. Terms  
494 such as “pressure training” are useful in research for providing a common and concise language  
495 to refer to the intervention, but psychologists do not necessarily need to label PT in applied  
496 practice. As SP6 said, PT was “just training.”

497         Taken together, this study’s findings can advance the trend in the literature toward more  
498 holistic PT interventions. Early studies focused on the effect of pressure in controlled  
499 experimental conditions (e.g., Oudejans & Pijpers, 2010), but recent studies have incorporated  
500 elements such as workshops and debriefs that supplement pressurized drills and better represent  
501 how practitioners may conduct PT in applied practice (e.g., Kegelaers et al., 2021; van Rens et  
502 al., 2021). Still, research has largely remained “practitioner-evacuated” (Ivarsson & Andersen,  
503 2016). The current study highlighted processes and principles that practitioners can implement  
504 and that future studies can evaluate to assess the practitioner’s influence on PT’s effectiveness.

### 505 **Applied Implications**

506         Practitioners can increase athletes’ engagement with and learning from PT by ensuring  
507 that their delivery incorporates the themes found in this study. There are several steps that  
508 practitioners can take to do so. One is to help coaches develop skills for leading PT sessions.  
509 Skills could include explaining rationale for PT, implementing pressure manipulations, and  
510 conducting debriefs. For instance, practitioners can teach debriefing skills by identifying  
511 behaviors to observe during PT and demonstrating questions that prompt athletes to reflect  
512 during debriefs. A hands-on role in PT may help coaches buy into PT and fully understand the  
513 nuances of delivery. Kegelaers et al. (2020) have similarly argued that debriefs led by a coach  
514 are important to help athletes understand and reflect on their responses to pressure. In addition,  
515 coaches with these skills can continue PT if practitioners are not always present at each training



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516 session. The ability to continue PT is valuable because a second implication is that practitioners  
517 should encourage consistent and systematic use of PT. The theme of integration does not mean  
518 doing PT once during training or only when practitioners suggest it. Coaches should strive to  
519 integrate PT into their training cycle rather than use it on isolated occasions.

520         Practitioners can normalize sport psychology within training sessions. Because PT  
521 requires athletes to simultaneously practice physical and mental skills, it shows that sport  
522 psychology does not need to be confined to classrooms or individual consulting sessions.  
523 Practitioners can prime athletes to be receptive to PT by regularly providing guidance and  
524 support to athletes during training sessions. If practitioners are already present at training to  
525 advise coaches and follow up on mental skills taught previously, athletes may more readily  
526 accept the practitioner making one more addition to training (i.e., pressure).

### 527 **Future Directions and Limitations**

528         This study was the first to present perspectives of sport psychologists and athletes on  
529 delivery of PT at the international level of sport, but it did have limitations that future research  
530 can address. One limitation is that this study did not reflect the impact of each aspect of delivery  
531 (e.g., collaboration, upfront transparency) relative to other potential aspects. Empirically testing  
532 each aspect of delivery could be unethical if it requires withholding them from a control group,  
533 but future qualitative research can add more perspectives to the ones discussed in the current  
534 study. Triangulating findings from different studies may uncover patterns that strengthen  
535 evidence for including a certain finding into PT delivery. Furthermore, although several of the  
536 current findings center around avoiding negative misperceptions of PT, additional considerations  
537 could serve to enhance the training benefits of planned disruptions even when athletes already  
538 understand PT's intent (Kegelaers et al., 2020). Examples included periodization and surprise

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539 timing of disruptions (Kegelaers et al., 2020). The strategic use of timing and other aspects of  
540 delivery could be important when the nature of a pressure manipulation itself may be restricted  
541 by material resources or ethical concerns.

542         The absence of coaches from the sample is one reason that the study's findings were not  
543 the only keys to effective delivery. The theme of integration into training suggested that coaches  
544 can and should participate in the delivery of PT. In fact, two athletes in the current study referred  
545 to PT that was led by coaches without the help of a sport psychologist, so the absence of  
546 coaches' perspectives is a reminder that the findings are only some of the characteristics of  
547 effective delivery. Therefore, future research should interview coaches who intentionally  
548 pressurize training to prepare athletes for pressure. Coaches may have different approaches to  
549 leading pressurizing training compared to sport psychologists. They may also contribute a  
550 valuable third-party perspective on how sport psychologists can work best with athletes to  
551 deliver PT.

552         Another limitation was the purposeful sampling of participants who had extensive  
553 experience with PT. These individuals were more likely to view PT favorably, and the risk of  
554 this bias increased because several athletes were recruited via recommendations of participating  
555 psychologists. Although many participants did discuss lessons from mistakes that they or their  
556 psychologists had made previously, researchers still have more to learn from individuals with  
557 less favorable views of PT. It may be equally valuable to understand what steps limit the  
558 effectiveness of PT or athletes' receptiveness to the intervention, but participants with positive  
559 experiences of PT may not be aware of such pitfalls or feel comfortable discussing them. Studies  
560 can instead interview sport psychologists and athletes who acknowledge that they feel PT has  
561 been ineffective. Wide cross-sections of a team can also be interviewed after a PT intervention.

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562 In recent research with post-intervention focus groups, not all participants found PT helpful (e.g.,  
563 Kent et al., 2021). Future intervention studies can continue such focus groups and specifically  
564 examine aspects of delivery that may have influenced negative or indifferent reactions to PT.

565 Finally, this study's sample consisted of elite athletes and sport psychologists who  
566 worked with elite athletes, so findings may not generalize to athletes at lower levels of sport.  
567 Research has found that youth and adolescent athletes may feel pressure to perform (Dunn et al.,  
568 2022; Harwood & Knight, 2009), and Kent et al.'s (2021) study at a soccer academy found  
569 preliminary evidence that PT can benefit youth and adolescent athletes across several age groups.  
570 More research is therefore needed to support practitioners and coaches in delivering PT at these  
571 levels of competition. Because the current study's sample of athletes also came primarily from  
572 individual sports, future studies can explore any differences when delivering PT with team  
573 sports.

### 574 **Conclusion**

575 Practitioners have already espoused the importance of delivery in applied practice (Tod et  
576 al., 2019), so it makes sense for research on a specific intervention to examine delivery in  
577 addition to content. The current study provided such balance to the literature on PT by giving  
578 attention to delivery. According to both psychologists and athletes, psychologists increased the  
579 effectiveness of PT through: a) Collaboration with athletes and coaches, b) Promoting learning  
580 before and after PT, c) Upfront transparency, and d) Integration into training. Each theme  
581 included direct benefits to the design of PT and athletes' experience of PT. For example,  
582 collaboration led to selecting pressure manipulations, and integration fit PT into training  
583 schedules. In addition, each theme may contribute equally as much to the environment  
584 surrounding the intervention. PT that embodied these themes generated buy-in from athletes and

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585 coaches, and it distinguished PT as a form of training rather than punishment. To include these  
586 themes in applied practice, a practitioner can work closely with coaches to ensure they  
587 understand their roles in PT and the role that delivery plays in the intervention's outcome.

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