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**The influence of perceived parental responsiveness on athletes' goal accomplishment, trait
cognitive sport anxiety, and thriving: a semi-longitudinal study**

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7 **The influence of perceived parental responsiveness on athletes' goal accomplishment, trait**

8 **cognitive sport anxiety, and thriving: a semi-longitudinal study**

9

Abstract

10
11 The purpose of this study was to examine temporally distal influence at a three-month
12 interval of perceived parental responsiveness on athletes' goal accomplishment, trait cognitive
13 sport anxiety, and thriving. Young players (154 males, 51 females, $M = 12.50$ years, $SD = 0.65$)
14 involved in rugby, basketball, and handball participated in the study. Initially, participants set
15 three goals to accomplish over the next three months and completed questionnaires assessing
16 their perceptions of their parents' responsiveness, perceived self-efficacy, and self-esteem. Three
17 months later, participants completed questionnaires assessing their goal accomplishment, worry
18 about sport performance, and thriving. The results showed that athletes' perceptions of their
19 mother's/father's responsiveness, mediated by perceived athletes' self-efficacy to accomplish
20 their goals, influenced their goal accomplishment and trait cognitive sport anxiety three months
21 later. The results also showed that athletes' perceptions of their mother's/father's responsiveness,
22 mediated by athletes' self-esteem, influenced athletes' thriving and trait cognitive sport anxiety
23 three months later. Overall, the present study uniquely contributes to the understanding of
24 parent-athlete relationships by showing that athletes' perceptions of their mother's and father's
25 responsiveness influence certain distal outcomes three months later (i.e., goal accomplishment,
26 sports anxiety, and thriving) while mediated by self-efficacy and self-esteem.

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29 Keywords; Adolescence, Attachment, Parent-Child relationship, Youth sport, Wellbeing

30 There is a growing consensus regarding the importance of ensuring that athletes
31 experience positive long-term outcomes and optimal wellbeing (i.e., thriving) through their
32 involvement in sport (Bergeron et al., 2015; Harwood et al., 2019). To achieve such outcomes,
33 consideration of the sporting environment, including athletes' support network, is important
34 (Dorsch et al., 2020). For instance, research generally demonstrates that perceived available
35 support from significant others (e.g., parents, coaches, peers) can lead to long-term positive
36 psychosocial outcomes for athletes (Felton & Jowett, 2017; Lee et al., 2018). Similarly, the
37 quality of relationships that athletes have access to has been recognized as a key contributor to
38 thriving in and through sport (Brown et al., 2018).

39 Within the youth sport setting, parents are particularly important and influential (Knight,
40 2017). Parents can influence their children's experiences through various avenues including the
41 provision of tangible, emotional, informational, or motivational support (Warmenhoven et al.,
42 2020; Wolfenden & Holt, 2005). For example, by paying for children to participate in sport and
43 transporting children to training and competitions, parents not only facilitate children's
44 participation but also communicate the value and importance they place on their children's
45 participation (Dunn et al., 2016). Further, through the comments they make and the expectations
46 they have for their children, parents can enhance or hinder their children's, motivation,
47 perception of competence, life skills development, or enjoyment in sport (Furusa et al., 2020;
48 Mossman & Cronin, 2019).

49 Given this influence, researchers have increasingly concerned themselves with trying to
50 understand the mechanisms and factors that affect the quality of parent-athlete relationships and
51 perceptions of parental support (e.g., Clarke et al., 2016; Dorsch et al., 2016; Knight & Holt,
52 2014). Various factors have been suggested, including warmth and positive affect (Dorsch et al.,

53 2016), unconditional parental regard (Assor & Tal, 2012), parents' endeavours in understanding
54 their children's sport experiences (Clarke et al., 2016; Knight & Holt, 2014), and the manner and
55 timing of parental feedback and communication (Knight et al., 2011, 2016; Tamminen et al.,
56 2017). Most recently, research has focused upon the concept of parental responsiveness (Cook et
57 al., 2018; Jiang et al., 2017). Anchored in attachment theory as a component of securely attached
58 relationship (Bowlby, 1973), responsiveness is an interpersonal process that describes how
59 people in a relationship attend to and support each other's needs and goals (Reis & Gable, 2015).
60 Within a relationship, the perception of the partner's (e.g., parent) responsiveness includes
61 perceptions of being understood, validated, and cared for (Reis & Gable, 2015).

62 An initial study examining parental responsiveness in sport identified that both the
63 provision of responsive support from parents, and athletes' perceptions of their parent's
64 responsiveness, were associated with proximal increases in athletes' perceived self-efficacy to
65 accomplish their goals (Rouquette, Knight, Lovett, & Heuzé, 2021). A subsequent study
66 identified that athletes' general perceptions of their mother's and father's responsiveness were
67 positively related with their self-esteem. Athletes' self-esteem mediated the relationship between
68 perceived parental responsiveness, thriving (i.e., life satisfaction, positive affect, vitality), and the
69 worry component of trait cognitive sport anxiety (Rouquette, Knight, Lovett, Barrell, et al.,
70 2021). Together these findings highlight the impact of parental responsiveness on athletes' self-
71 perceptions and thriving and point to the value of encouraging the provision of responsive
72 support from parents. However, although these studies draw attention to the importance of
73 responsive support within youth sport, both studies were cross-sectional and focused only upon
74 proximal outcomes associated with responsiveness, rather than the more temporally distal
75 longer-term consequences of such support.

76 Drawing on Bowlby's (1973) attachment theory, long-term positive consequences are
77 expected for athletes who perceived their parents as being responsive to their needs. This is
78 because, when parents continuously display responsive behaviours towards their child, over time,
79 these are gradually internalised and assimilated into a secure internal working model (i.e., a
80 cognitive model that represents others as trustworthy, and the self as worthy of respect and
81 attention). A secure internal working model can subsequently, lead to long-term changes in self-
82 perceptions (i.e., self-efficacy and self-esteem) resulting in positive psychosocial outcomes
83 (Bowlby, 1973; Bretherton & Munholland, 2008; Duchesne & Larose, 2007). For instance,
84 longitudinal studies among adolescents have shown that higher levels of attachment security
85 (which includes responsiveness) with their mother predicted higher perceived academic
86 competence and lower anxiety one year later (Maltais et al., 2015, 2017). As such, it may be
87 anticipated that consistency in parental responsiveness will lead to positive long-term changes in
88 self-perceptions for children/young athletes; however, it has yet to be considered in sport.

89 Developing positive long-term changes in self-perceptions, namely self-efficacy (i.e.,
90 individual's beliefs in their capabilities to produce a given attainment by their own actions;
91 Bandura, 1997) and self-esteem (i.e., general sense an individual has about their self; Marsh et al.,
92 2010), are important in sport for a number of reasons. Higher levels of perceived self-efficacy in
93 sport typically result in positive outcomes such as engaging in more challenging goals, selecting
94 effective performance strategies, increased effort and persistence while facing difficulties, and
95 higher performance (Bandura, 2012; Feltz et al., 2008). Further, perceived self-efficacy is
96 consistently related with lower levels of sport anxiety (Besharat & Pourbohloul, 2011; Feltz et al.,
97 2008) and with higher levels of goal accomplishment (Tomlinson et al., 2016). Meanwhile, self-
98 esteem is a relatively stable construct situated at the top of the hierarchy of individual's self-

99 perceptions (Marsh et al., 2007), with higher levels of self-esteem leading to higher levels of
100 positive affect, life satisfaction, performance, and lower competitive trait anxiety among athletes
101 (Lewthwaite & Scanlan, 1989; Marsh & Perry, 2005). Further, self-esteem plays an important
102 role in mediating a positive relationship between high levels of childhood parental bonding (i.e.,
103 emotional warmth, affection, empathy, and closeness) and lower levels of trait anxiety in
104 adulthood (Shimura et al., 2017) as well as between parental responsive support and thriving
105 (Rouquette, Knight, Lovett, Barrell, et al., 2021).

106 Given the considerable positive consequences associated with higher levels of self-efficacy
107 and self-esteem, identifying factors that may enhance self-efficacy and self-esteem among
108 athletes is clearly valuable. Based on the positive association between a responsive interaction
109 and immediate levels of self-efficacy and self-esteem, combined with the assimilation
110 consequences detailed within attachment theory, it seems likely that parental responsiveness may
111 result in increases in these two constructs over-time. That is, it can be anticipated that as a result
112 of continuous responsive interactions between parents and athletes, young athletes' gradually
113 build a secure internal working model, leading to higher levels of self-esteem and self-efficacy
114 and subsequent long-term outcomes such as long-term goal accomplishment, thriving, and lower
115 anxiety (Duchesne & Larose, 2007; Feeney & Collins, 2015). As such, the aim of the present
116 study was to examine the distal three-month influence of perceived parental responsiveness on
117 athletes' self-perceptions (i.e., self-efficacy and self-esteem), thriving, trait cognitive sport
118 anxiety, and goal accomplishment. Specifically, this study sought to examine four hypotheses:

119 H1: Athletes' initial (T1) perceptions of their mother's and father's responsiveness would
120 be positively related to their perceptions of their mother's and father's responsiveness three
121 months later (T2).

122 H2: Athletes' perceived self-efficacy to reach their goals at T1 would mediate the
123 relationship between athletes' perceived mother/father responsiveness at T1 and their goals
124 accomplishment at T2.

125 H3: Athletes' self-esteem at T1 would be positively related to their self-esteem at T2 and
126 would mediate the relationship between athletes' perceived mother/father responsiveness at
127 T1 and thriving at T2.

128 H4: Athletes' perceived self-efficacy and self-esteem at T1 would be negatively related to
129 trait cognitive sport anxiety at T2 and mediate the relationship between athletes' perceived
130 mother/father responsiveness and trait cognitive sport anxiety.

131 **Method**

132 **Participants.** The sample size was determined based on Monte Carlo power analysis
133 simulations for mediation models (Schoemann et al., 2017). Simulations were run for two
134 parallel mediators with the following inputs: 1000 power analysis replications with 5000 Monte
135 Carlo draws per replication, confidence level = 95%, predictor-outcome correlation = 0.35,
136 predictor-mediator correlation = 0.35, mediators-outcome correlation = 0.35, correlations
137 between mediators = 0.2. The results of the simulations showed that the study needed between
138 140 participants to achieve power at .82, and 200 participants to achieve power at .94. Based on
139 those simulations, the desired number of participants was set at: $N = 200$. In total, 205 young
140 players (154 males and 51 females) participated at data collection point one (T1) and, 171 of the
141 205 participants (131 males and 40 females) at point two (T2) (retention rate of 83.41%). The
142 participants ranged from 10 to 15 years ($M_{age} = 12.50$, $SD = 1.14$). This age range was selected to
143 ensure that participants were capable of answering the questions and producing self-determined
144 goals (Harter, 2012) while their parents still had a large influence in their lives (Wylleman &

145 Rosier, 2016). Participants were involved in rugby ($n = 83$), basketball ($n = 69$), and handball (n
146 $= 53$) at regional level. Players were all in the specialisation phase of their sport development
147 (Côté, 1999), they trained on average 2.57 times/week ($SD = 0.65$) and were involved in sport for
148 an average of 5.39 years ($SD = 2.35$).

149 **Procedure.** Following receipt of ethical approval, technical directors of French regional
150 leagues in rugby, handball, and basketball were contacted to help identify clubs and coaches who
151 may be interested in participating in the study. Clubs were subsequently contacted and, if
152 interested, coaches or managers coordinated a time for the researcher to attend a training session
153 to speak about the study. Potential participants were given an information sheet and informed of
154 the schedule of the data collection at their club. Interested athletes were asked to return the
155 consent form signed by their parents on the day of the first data collection (T1).

156 Data collection occurred twice at each club, three months apart during the regular season.
157 Time one (T1) of data collection occurred during the first half of the season (i.e., between
158 October and December) while (T2) occurred during the second half of the season (i.e., between
159 January and April). At time one (T1), participants were informed of the study procedures and
160 were invited to set three important sport-related goals that they wanted to accomplish over the
161 next three months. They were asked to write these goals on a sheet of paper and complete a
162 series of questionnaires assessing their perceptions of their parent's responsiveness, along with
163 their own perceived self-efficacy and self-esteem. At the second data collection point (T2),
164 athletes received a copy of the goals they had previously written and were asked to indicate the
165 extent to which they had accomplished these. They subsequently completed a series of
166 questionnaires assessing their mother's and father's perceived responsiveness, their self-esteem,
167 sport anxiety, and the thriving factors of positive affect, vitality, life satisfaction, and health

168 quality. The content of the goal was not critical for the study, rather the aim of the activity was to
169 set a reference point from which to evaluate athletes' self-efficacy (T1) and goal accomplishment
170 (T2). As such, the content of the goal was not used in further analyses.

171 **Measures.** For each questionnaire, internal consistency was assessed with Omega_{total} (ω_t ;
172 Revelle & Zinbarg, 2009). Further examination of construct validity was assessed when
173 necessary (i.e., modified scale, composite variable) with confirmatory factorial analysis (CFA).
174 Support for the goodness of fit between the model and the observed data were considered when;
175 (a) comparative fit index (CFI) and Tucker Lewis index (TLI) values were close to .95 or greater,
176 and; (b) root mean square error of approximation (RMSEA) values were close to .06 or below,
177 and standardized root mean square residual (SRMR) values were close to .08 or below (Brown,
178 2015). CFA analysis considered parameter estimates (e.g., factor loadings, error variances, factor
179 variances) such as standardized residuals and the content of each problematic item (e.g., weak
180 factor loading, cross-loading) to ensure that its deletion would not affect the theoretical meaning
181 of a construct (Brown, 2015). Due to potential non-normal distribution of the data, CFA analysis
182 were computed with robust maximum likelihood estimator with Satorra-Bentler scaled tests.

183 ***Perceived parental responsiveness.*** At T1 and T2, athletes' perceptions of parental
184 responsiveness were assessed with a six-item version of the Perceived Partner Responsiveness
185 Scale (PPRS; Reis et al., 2017). The PPRS was used to assess the extent to which participants
186 perceived that a particular relationship was responsive to their needs. The six items are: my
187 mother/father usually, (a) *knows me well*, (b) *understands me*, (c) *really listens to me*, (d) *seems*
188 *interested in what I am thinking and feeling*, (e) *values my abilities and opinions*, and (f) *is*
189 *responsive to my needs*. Responses were provided on a 7-point Likert scale ranging from 1 (*not*
190 *at all*) to 7 (*completely true*). An additional NA option was provided for participants who

191 reported having no contact with one of their parents. Athletes' perception of father
192 responsiveness at T1 and T2 ($\omega_t = 0.90$, $\omega_t = 0.93$ respectively) and athletes' perception of
193 mother responsiveness at T1 and T2 ($\omega_t = 0.82$, $\omega_t = 0.88$ respectively) showed a good internal
194 consistency. The six items accounting for athletes' perceptions of their father and mother were
195 averaged respectively into single scores of perceived father/mother responsiveness with higher
196 scores representing stronger perceptions of father/mother responsiveness.

197 **Perceived self-efficacy.** At T1, athletes' perceived self-efficacy to accomplish their goals
198 was assessed with a five-item self-efficacy scale (Bandura, 2012). The measure of self-efficacy
199 was designed to reflect athletes' perceived capability to execute the goals they had set and
200 included the perceived level of difficulty of the tasks. For each of the three goals that athletes had
201 set, they were asked to indicate on a 5-point Likert scale anchored by 1 (*not at all*) and 5
202 (*extremely*) the extent to which they perceived, (a) the goal was important for them (i.e.,
203 *importance*), (b) they felt capable to accomplish this goal (i.e., *capability*), (c) if they were
204 capable of continuous efforts to reach this goal (i.e., *effort*), (d) if they will pursue the goal
205 continuously (i.e., *pursuit*), and (e) if this goal was difficult to reach (i.e., *difficulty*). Perceived
206 capability, effort, and pursuit were weighted by importance and difficulty. The three items of
207 self-efficacy demonstrated a sufficient factor loading (0.55–0.73) and fair internal consistency
208 ($\omega_t = 0.69$). An average score of perceived self-efficacy was computed with higher scores
209 representing stronger perceptions of self-efficacy.

210 **Self-esteem.** The five items from the short version of the Physical Self-Description
211 Questionnaire (Marsh et al., 2010) assessing self-esteem were used at T1 and T2. The athletes
212 indicated the extent to which, during the last month in their everyday life, (a) *they had a lot to be*
213 *proud of*, (b) *they did well*, or (c) *things turned out well*; and (d) *if they were no good* or (e) *if*

214 *nothing they did ever seemed to turn out right* (reverse items). Their responses were provided on
215 a 5-point Likert scale anchored by 1 (*strongly disagree*) and 5 (*strongly agree*). The scale
216 showed a good internal consistency at T1 and T2 ($\omega_t = 0.74$, $\omega_t = 0.79$ respectively). The five
217 items were averaged to create a global score of self-esteem with higher scores indicating higher
218 levels of self-esteem.

219 **Goal accomplishment.** At T2, for each of the three goals that the athletes had previously
220 set, they were asked to indicate on a 5-point Likert scale, anchored by 1 (*not at all*) and 5
221 (*extremely*), the extent to which they perceived that; (a) the goal was still important for them (i.e.,
222 *importance*); (b) they had achieved this goal (i.e., *achievement*); (c) if they had to make
223 continuous efforts to reach this goal (i.e., *effort*), and; (d) if this goal was difficult to reach (i.e.,
224 *difficulty*). For each of the three goals, achievement and effort were weighted by importance and
225 difficulty. The three goals demonstrated a sufficient factor loading (0.50–0.71) and fair internal
226 consistency ($\omega_t = 0.66$). An average score of goal achievement for the three goals was
227 subsequently computed with higher scores representing higher goal accomplishment.

228 **Trait cognitive sport anxiety (Worry).** Athletes' worry was assessed at T2 with five items
229 from the Sport Anxiety Scale - 2 (Smith et al., 2006). Athletes indicated the extent to which they
230 usually felt before or while competing in sport (a) *worry that they will not play well*, (b) *worry*
231 *that they will let others down*, (c) *worry that they will not play at their best*, (d) *worry that they*
232 *will play badly*, and (e) *worry that they will mess up during the game*. Their responses were
233 provided on a 5-point Likert scale anchored by 1 (*not at all*) and 5 (*very much*). The scale
234 showed a good internal consistency ($\omega_t = 0.94$). The five items were averaged to create a global
235 score, with higher scores indicating higher levels of cognitive trait anxiety in sport.

236 **Thriving.** In the present study thriving was conceptualized as an optimal state of wellbeing
237 (Feeney & Collins, 2015). Research indicates that the wellbeing sub-components belonging to
238 different categories can be explain by a general factor of wellbeing (i.e., thriving) (Longo et al.,
239 2016). Usual indicators include positive affect, vitality, and life satisfaction, and health quality
240 (Gallagher et al., 2009; Longo et al., 2016), and thus these were selected as the measures for
241 thriving within the current study. The specific measures selected were the Positive Affect and
242 Negative Affect Schedule for Children (PANAS-C; Ebesutani et al., 2012) to assess players'
243 positive affect, the subjective vitality scale (Ryan & Frederick, 1997) to assess participants'
244 vitality, the Cantril Ladder of self-rated life satisfaction (Cantril, 1965) to assess participants' life
245 satisfaction, and a single indicator of health quality (Benjamins et al., 2004). These scales were
246 selected because they demonstrated good psychometric properties among a similar sample (Duda
247 et al., 2013).

248 **Affect.** At T2, positive affect was assessed with the five positive affect items from the 10-
249 item PANAS-C (Ebesutani et al., 2012). The positive affect dimension demonstrated good
250 internal reliability ($\omega_t = 0.87$). The items were averaged to create a global score of positive affect,
251 with higher scores indicating higher levels of positive affect.

252 **Subjective vitality.** At T2, athletes' subjective vitality was assessed with the 5-item
253 subjective vitality scale (Ryan & Frederick, 1997). Athletes rated, on a 5-point Likert scale from
254 1 (*strongly disagree*) to 5 (*strongly agree*), the extent to which, during the last month in their
255 everyday life, (a) *they felt full of excitement*, (b) *they had high spirit*, (c) *they looked forward to*
256 *each day*, (d) *they felt alert and awake*, and (e) *if they had a lot of energy* (Ryan & Frederick,
257 1997). The five items demonstrated a good internal reliability (i.e., $\omega_t = 0.87$). The five items

258 were averaged to create a global score of vitality with higher scores indicating higher levels of
259 vitality.

260 **Life satisfaction.** At T2, life satisfaction was assessed using the single item of Cantril's
261 Ladder of self-rated life satisfaction (Cantril, 1965). This ladder ranged from 0 (*I have the worst*
262 *possible life for me at the moment*) to 10 (*I have the best possible life for me at the moment*). A
263 higher score indicated higher levels of life satisfaction.

264 **Health Quality.** At T2, health quality was assessed using a single item scale from 1 (*my*
265 *health is poor*) to 4 (*my health is excellent*) (Benjamins et al., 2004). Higher scores indicated a
266 higher perception of health quality.

267 **Thriving.** The components of thriving (affect, vitality, life satisfaction, and health quality)
268 were positively correlated (i.e., r ranging from 0.24 to 0.58; see Table 1). A CFA demonstrated a
269 good fit to the data: $\chi^2(51) = 60.26$, $p = 0.17$, CFI = 0.95, TLI = 0.94, RMSEA = 0.03, SRMR =
270 0.05. The components significantly loaded on the higher order factor of thriving and this general
271 measure demonstrated good internal reliability (i.e., $\omega_t = 0.90$). Consequently, positive affect,
272 vitality, life satisfaction, and health quality scores were averaged as a new variable, *thriving* ($M =$
273 3.92 , $SD = 0.62$), with higher scores representing higher levels of thriving.

274 **Data analysis.** The full script of analyses, questionnaires used, and comprehensive results
275 are available upon request from the corresponding author. Main analyses consisted of mediations
276 accounting for the full paths of direct and indirect effects (Yzerbyt et al., 2018). The mediation
277 analyses were performed with structural equation modeling (Brown, 2015). Latent variables
278 were estimated with single indicators and fixed reliability ($\alpha = 0.90$). This method controls for
279 measurement errors and helps to maintain acceptable Type-1 error rate without increasing of the
280 variability of the estimates (Brown, 2015; Savalei, 2019). The hypotheses were tested together

281 with one model accounting for participants' perceptions of their mother's responsiveness, and
 282 one model accounting for their perceptions of father's responsiveness.

283 **Results**

284 All bivariate correlations (see Table 1) were in the expected directions. The correlations
 285 (Table 1) indicated that perceived father responsiveness at T1 and T2 were positively correlated
 286 ($r = .78$), and that perceived mother responsiveness at T1 and T2 were positively correlated ($r =$
 287 $.71$). T2 thriving was positively correlated with T1 and T2 self-esteem ($r = .38$, and $r = .58$
 288 respectively). T2 trait cognitive anxiety was negatively correlated with T1 and T2 self-esteem (r
 289 $= -.35$, and $r = -.37$ respectively). Athletes' gender was used as a control variable throughout
 290 analyses.

291 *****Insert Table 1 here *****

292 ***Influence of perceived mother responsiveness.*** The first mediation (see Figure 1) tested
 293 the influence of perceived mother responsiveness (T1 and T2) through self-efficacy (T1) and
 294 self-esteem (T1 and T2) on athletes' goal accomplishment (T2), trait cognitive anxiety (T2), and
 295 thriving (T2). The model demonstrated a good fit to the data: SEM (Satorra-Bentler): $\chi^2 (17) =$
 296 24.766 , $p = 0.100$, CFI = 0.976, TLI = 0.948, RMSEA = 0.055 90% CI = [0.000: 0.101], SRMR
 297 = 0.040. The mediation analysis indicated that perceptions of mother responsiveness at T1 were
 298 positively related to athletes' perceived self-efficacy to reach their goals (T1, $\beta = .264$, $p =$
 299 0.002) and with athletes' self-esteem (T1, $\beta = .234$, $p = 0.005$). Subsequently, athletes' perceived
 300 self-efficacy was positively related to goal accomplishment (T2, $\beta = .348$, $p < 0.001$) and trait
 301 cognitive sport anxiety three months later (T2, $\beta = .217$, $p = 0.016$). Athletes' self-esteem at T1
 302 was positively related with self-esteem at T2 ($\beta = .526$, $p < 0.001$). Athletes' self-esteem at T2
 303 was negatively related to trait cognitive sport anxiety (T2, $\beta = -.408$, $p < 0.001$), but positively

304 associated with thriving (T2, $\beta = .520, p < 0.001$). In line with H1, the results showed that
305 players' perceptions of mother responsiveness at T1 were positively related with their
306 perceptions of mother responsiveness at T2 ($\beta = .732, p < 0.001$). Perceptions of mother
307 responsiveness at T2 were also directly positively related to athletes' thriving at T2 ($\beta = .302, p =$
308 0.001). Athletes' gender (female) was negatively related to their self-esteem at T1 ($\beta = -.672, p =$
309 0.001), but positively associated with goal accomplishment at T2 ($\beta = .459, p = 0.021$).

310 *****Insert Figure 1 here *****

311 As suggested in the H3, indirect effects (see Table 2) showed that athletes perceived self-
312 efficacy at T1 mediated the relationship between perceptions of mother responsiveness at T1 and
313 athletes' goal accomplishment at T2, $r^2 = 0.153$. In line with H3, the results showed that athletes'
314 self-esteem at T1 and T2 mediated the relationship between perceptions of mother
315 responsiveness and athletes' thriving at T2, $r^2 = 0.490$. Eventually, partially supporting H4, the
316 results showed that athletes' perceived self-efficacy at T1 and self-esteem at T1 and T2 also
317 mediated the relationship between perceived mother responsiveness (T1) and trait cognitive
318 anxiety (T2), $r^2 = 0.276$.

319 *****Insert Table 2 here *****

320 ***Influence of perceived father responsiveness.*** The second mediation (see Figure 1) tested
321 the influence of perceived father responsiveness (T1 and T2) through self-efficacy (T1) and self-
322 esteem (T1 and T2) on athletes' goal accomplishment (T2), trait cognitive anxiety (T2), and
323 thriving (T2). The model demonstrated a good fit to the data: SEM (Satorra-Bentler): $\chi^2 (17) =$
324 $23.030, p = 0.148, CFI = 0.984, TLI = 0.967, RMSEA = 0.048$ 90% CI = [0.000: 0.094], SRMR
325 = 0.042. The mediation analysis indicated that perceptions of father responsiveness at T1 were
326 positively related to athletes' perceived self-efficacy to reach their goals (T1, $\beta = .284, p =$

327 0.005) and with athletes' self-esteem (T1, $\beta = .326, p < 0.001$). Subsequently, athletes' perceived
328 self-efficacy was positively related to goal accomplishment (T2, $\beta = .360, p < 0.001$) and trait
329 cognitive sport anxiety three months later (T2, $\beta = .216, p = 0.017$). Athletes' self-esteem at T1
330 was positively related with self-esteem at T2 ($\beta = .452, p < 0.001$). Athletes' self-esteem at T2
331 was negatively related to trait cognitive sport anxiety (T2, $\beta = -.397, p < 0.001$), but positively
332 associated with thriving (T2, $\beta = .452, p < 0.001$). In line with H1, the results showed that
333 players' perceptions of father responsiveness at T1 were positively related with their perceptions
334 of father responsiveness at T2 ($\beta = .828, p < 0.001$). Perceptions of father responsiveness at T2
335 were also directly positively related to athletes' thriving at T2 ($\beta = .422, p < 0.001$). Athletes'
336 gender (female) was negatively related to their self-esteem at T1 ($\beta = -.564, p = 0.006$), but
337 positively associated with goal accomplishment at T2 ($\beta = .447, p = 0.015$).

338 As expected in H2, indirect effects (see Table 3) showed that athletes' perceived self-
339 efficacy at T1 mediated the relationship between perceptions of father responsiveness at T1 and
340 athletes' goal accomplishment at T2, $r^2 = 0.1653$. In line with H3, the results showed that
341 athletes' self-esteem at T1 and T2 mediated the relationship between perceptions of father
342 responsiveness and athletes' thriving at T2, $r^2 = 0.537$. Eventually, partially supporting H4, the
343 results showed that athletes' perceived self-efficacy at T1 and self-esteem at T1 and T2 also
344 mediated the relationship between perceived mother responsiveness (T1) and trait cognitive
345 anxiety (T2), $r^2 = 0.264$.

346 *****Insert Table 3 here *****

347 **Discussion**

348 The purpose of the present study was to examine the distal three-month influence of
349 perceived parental responsiveness on athletes' self-perceptions (i.e., self-efficacy and self-

350 esteem), thriving, trait cognitive sport anxiety, and goal accomplishment. Extending initial
351 research that has demonstrated the proximal influences of parental responsiveness on youth
352 athletes' self-efficacy, thriving, and cognitive trait anxiety (Rouquette, Knight, Lovett, Barrell, et
353 al., 2021; Rouquette, Knight, Lovett, & Heuzé, 2021), the present study demonstrates that
354 athletes' perceptions of their mother's and father's responsiveness can have an influence on
355 athletes' thriving, trait cognitive anxiety, and goal accomplishment, while mediated by athletes'
356 self-efficacy and self-esteem, three months later. As such, this study reinforces the importance of
357 encouraging parents to take time to understand their child's sporting experiences (Harwood &
358 Knight, 2015; Knight & Holt, 2014), address their individual child's support needs (Knight et al.,
359 2010), and demonstrate that they value their child (Clarke et al., 2016).

360 The results of this study supported the first hypothesis as they showed that athletes'
361 perceptions of their mother's and father's responsiveness at T1 of data collection were positively
362 related with their perceptions of mother's and father's responsiveness at T2. Therefore, while the
363 results of the present study are novel in the context of sport participation, they closely align
364 perspectives from attachment theory assuming that athletes who perceived their parents as
365 continuously responsive to their needs gradually build a secure internal working model (i.e., a
366 cognitive model that represent others as trustworthy, and the self and as worthy of respect and
367 attention) leading to a change in their self-perceptions and psychosocial outcomes three months
368 later (Bowlby, 1973; Duchesne & Larose, 2007). This is important because recent research
369 demonstrated that lower variability in perceived responsiveness was associated with more
370 positive psychosocial outcomes among romantic couples, whereas higher variability in perceived
371 responsiveness was associated with higher attachment anxiety (Gunaydin et al., 2020).

372 The results of the present study also supported the second hypothesis, demonstrating a
373 positive relationship between athletes' perceptions of their mother's and father's responsiveness
374 and their self-efficacy to accomplish their goals. Further, and as expected, the results of the
375 present study demonstrated a positive relationship between athletes' perceived self-efficacy to
376 accomplish their goals and their goal accomplishment three months later. The results showed an
377 indirect effect of perceived mother's and father's responsiveness and their goal accomplishments
378 three months later while mediated by athletes' self-efficacy.

379 The positive association between athletes' perceived parental responsiveness and their self-
380 efficacy to accomplish their goals may help to explain findings such as those by Knight et al.
381 (2016) who, in a study of elite canoeists, identified that certain parental behaviours (i.e., valuing
382 their children's engagement in sport, or valuing their child's progress) helped athletes to focus
383 more successfully upon their performances and to build their perceived competence. The link
384 between athletes' perceived responsiveness from their parents and their increased self-efficacy
385 aligns with expectancy-value theory which posits that children's expectations for success (i.e.,
386 perceived self-efficacy) are influenced by their perception of their socializers' beliefs and
387 expectations of completing the task (Eccles & Wigfield, 2002). Based on the expectancy-value
388 theory, the relationship between athletes' perceptions of their parents' responsiveness and their
389 self-efficacy may have occurred because athletes' expectations of success in sport were
390 influenced by their perceptions of their parents valuing their sport involvement and having high
391 expectations for them.

392 The third hypothesis stated that athletes' self-esteem at T1 would be positively related to
393 their self-esteem at T2 and would mediate the relationship between athletes' perceived
394 mother/father responsiveness and thriving three month later. This hypothesis was, again,

395 supported by the results of the present study. Consistency in athletes' general self-esteem aligns
396 with Shavelson et al.'s (1976) conceptualisation of individual's self-concept as multidimensional
397 and organised, with general self-esteem being relatively stable and situated at the apex of the
398 hierarchy (Marsh et al., 2010; Marsh & Perry, 2005). Longitudinal research in sport previously
399 demonstrated consistency in athletes' general self-esteem (Cheval et al., 2017), and that self-
400 esteem mediated the relationship between high quality relationship and optimal wellbeing (Kang
401 et al., 2003; Rouquette, Knight, Lovett, Barrell, et al., 2021). The results of the present study
402 further reinforce such perspectives by demonstrating the distal three-month influence of athletes'
403 perceived mother/father responsiveness on thriving outcomes while mediated by self-esteem.
404 Importantly, the longitudinal design of the present study showed that while perceived mother and
405 father responsiveness at T1 was positively associated with athletes' self-esteem at T1, and that
406 athletes' self-esteem at T1 was positively associated with their self-esteem at T2, self-esteem at
407 T1 was not related to athletes' perceptions of their mother's and father's responsiveness at T2.
408 This reinforces findings from Rouquette, Knight, Lovett, Barell et al. (2021) and suggest a causal
409 ordering from mother's and father's responsiveness toward athletes' self-esteem but not the
410 opposite. These results are important because they demonstrate that when athletes consistently
411 perceive their parents as being responsive to their needs, they gradually build a more positive and
412 stable view of themselves (i.e., self-esteem) leading to optimal wellbeing (i.e., thriving).

413 Finally, we hypothesised that athletes' perceived self-efficacy at T1 and self-esteem at T2
414 would be negatively related to trait cognitive sport anxiety at T2 and mediate the relationship
415 between athletes' perceived mother's/father's responsiveness and trait cognitive sport anxiety.
416 This relationship was predicted because research demonstrates that perceived self-efficacy and
417 self-esteem are related with lower levels of sport anxiety (Fox & Lindwall, 2014; Smith et al.,

418 2006). As expected, athletes' self-esteem at T2 was negatively related to athletes' trait cognitive
419 sport anxiety. However, contrary to the hypothesis, the results showed that athletes' perceived
420 self-efficacy to accomplish their goals at T1 was associated with increased levels of trait
421 cognitive sport anxiety three months later. Although seemingly counterintuitive, the relationship
422 between self-efficacy and increased levels of trait cognitive sport anxiety could be potentially
423 explained by drawing on the control-value theory of achievement emotions (Pekrun, 2006).

424 Pekrun (2006) defines achievement emotions as emotions that relate to achievement
425 activities (e.g., participating in competitions) and/or achievement outcomes (e.g., successes and
426 failures). Pekrun (2006) posits two groups of appraisals for achievement emotions based on
427 subjective value (e.g., importance of success) and subjective control (e.g., perceived causal
428 inferences). When the subjective value is high, and the expectation of success is moderate due to
429 a lack of control, individuals could either feel hope, if the focus is on success, and/or anxiety if
430 the focus is on failure (Pekrun, 2006). Based on this distinction, the positive relationship between
431 athletes' perceived self-efficacy to accomplish their goals and their sport anxiety could be
432 explained as follows: higher levels of perceived self-efficacy to accomplish their goals meant
433 that athletes believed in their own agency to perform the behaviours necessary to produce the
434 desired outcomes (Bandura, 1997). Yet, despite their self-efficacy beliefs, competitive sport is
435 inherently uncertain and can result in success and/or failure (Carr, 2013). Consequently, the
436 uncertainty of sport combined with the probable high value that the participants placed on their
437 sport involvement may have led them to experience higher levels of sport anxiety (Pekrun,
438 2006). Future research is needed to clarify the potential positive association between perceived
439 self-efficacy beliefs and sport anxiety.

440 **Applied implications.** The results of the present study demonstrate that athletes'
441 perceptions of responsive support from their parents resulted in positive outcomes both in terms
442 of perceived self-efficacy and in increasing athletes' self-esteem and thriving. Given such a
443 finding, it is clear that parents actively contribute to their children's sporting and psychosocial
444 development not only through their involvement in sport, but also considering their broader
445 interactions with their child. Therefore, sport organisations could seek to provide parents with
446 strategies and suggestions (e.g., discussion points, scenarios for discussion) to facilitate regular
447 communication with their child to learn about their specific needs and desires, as well as their
448 likes and dislikes both within and beyond sport. Similarly, parents should take time to learn
449 about and subsequently demonstrate their understanding of their child and their sport, and to seek
450 to demonstrate that they value and care for all their children's interests and needs. Specifically,
451 parents may benefit from engaging in regular discussions with their children in order to better
452 understand their children's wishes and needs in sport, particularly leading up to and following
453 key transitions (Knight & Holt, 2014). Moreover, reflecting with their child regarding the
454 support that they provide may be valuable in order to establish whether their provision of support
455 suits their child's needs. These seemingly small acts are of great importance, as responsive
456 support will lead to positive impact over time for young athletes.

457 **Limitations and future directions.** The results should be considered within the limitations
458 of the study. First, the data collection occurred in sport clubs and were carried out in group
459 settings. Despite the researcher providing clear instructions that questionnaires and responses
460 were for individuals to complete, it is possible that other participants might have influenced
461 athletes' responses during the goal setting activity and encouraged socially desirability responses
462 on the self-reported questionnaires. Second, as the data collection occurred within sports clubs, it

463 is possible that the specific culture within each team influenced the results. This means that
464 variations in the results might not only account for differences in individual's perceptions, but
465 also reflect systematic variations at a team level. Further work could utilise multilevel
466 hierarchical analysis to shed light on these potential effects. Third, athletes' gender, gender role,
467 and sex stereotypes were not fully accounted for due to the large gender imbalance in
468 participants. The results of the present study showed that gender did not influence athletes'
469 perceived self-efficacy to accomplish their goals. However, athletes' gender, notably being
470 female, was negatively related with their self-esteem and positively related with their goal
471 accomplishment. Although the negative association between gender (female) and self-esteem is
472 not surprising in the context of sport participation (Marsh et al., 2007; von Rosen et al., 2019),
473 the reason(s) why female athletes experience lower self-esteem compare to male athletes is still
474 unclear. Further, the positive association in the results between gender (female) and higher level
475 of goal accomplishment is both surprising and unexplained. Examination of athletes' gender,
476 gender role, and sex stereotypes would be necessary to fully understand such differences.

477 Finally, this study was carried out within the context of competitive team sports in a
478 single region in France. The results of the present study extend the findings from Rouquette,
479 Knight, Lovett, and Heuzé (2021) carried out in Belgium among a small sample of individual
480 athletes, and from Rouquette, Knight, Lovett, Barell et al. (2021) involving a large number of
481 youth male rugby players in the UK to different sports (i.e., basketball, handball, and rugby) in
482 France. Together, these three studies reinforce the generalizability of the finding in various
483 sports and cultures, and therefore reinforce the value of considering parental responsiveness in
484 sport. Nonetheless, more diverse participants, contexts, and cultures are still required to fully
485 grasp the potential influences of perceived parental responsiveness in youth sport. Future

486 research is also needed to continue the efforts aiming at better understanding the nuances in how
487 significant others such as parents, peers, and coaches could influence and be influenced by a
488 athletes in youth sport (Dorsch et al., 2020).

489 **Conclusion.** The results of this study showed that athletes' perceptions of their
490 mother's/father's responsiveness, mediated by athletes' perceived self-efficacy to accomplish
491 their goals, influenced their goal accomplishment and trait cognitive sport anxiety three months
492 later. The results also showed that athletes' perceptions of their mother's/father's responsiveness,
493 mediated by athletes' self-esteem, influenced athletes' thriving and trait cognitive sport anxiety
494 three months later. Overall, the present study uniquely contributes to our understanding of
495 parent-athlete relationships by showing that athletes' perception of their mother's and father's
496 responsiveness influenced certain long-term outcomes (i.e., goal accomplishment, sports anxiety,
497 and thriving) mediated by self-efficacy and self-esteem. The present study extends the finding
498 from two previous studies and generalize their findings to different sports and European
499 countries.

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712 **Table 1**
 713 **Spearman Correlations Between the Studied Variables at Both Times**

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12	13
1. T1 PFR	4.22	0.79													
2. T1 PMR	4.33	0.62	.67**												
			[.59, .74]												
3. T1 Self-esteem	3.83	0.65	.33**	.23**											
			[.20, .45]	[.09, .35]											
4. T1 Self-efficacy	4.16	0.44	.26**	.30**	.12										
			[.12, .38]	[.16, .42]	[-.02, .26]										
5. T2 PFR	4.07	0.88	.78**	.51**	.28**	.20**									
			[.71, .83]	[.39, .62]	[.14, .42]	[.05, .35]									
6. T2 PMR	4.21	0.75	.54**	.71**	.15*	.15	.68**								
			[.43, .64]	[.63, .78]	[.00, .29]	[-.00, .30]	[.59, .75]								
7. T2 Self-esteem	3.72	0.66	.27**	.17*	.50**	.02	.36**	.25**							
			[.13, .41]	[.02, .32]	[.38, .60]	[-.14, .17]	[.22, .48]	[.10, .39]							
8. T2_Goal accomp.	2.65	0.82	.05	.06	.08	.29**	.07	.09	.04						
			[-.11, .20]	[-.10, .21]	[-.08, .23]	[.14, .42]	[-.09, .22]	[-.06, .24]	[-.11, .20]						
9. T2 Anxiety	3.11	1.19	-.20**	-.18*	-.35**	.12	-.23**	-.20**	-.37**	.15					
			[-.35, -.06]	[-.32, -.03]	[-.47, -.21]	[-.04, .27]	[-.37, -.08]	[-.34, -.05]	[-.49, -.23]	[-.00, .30]					
10. T2 Positive	3.82	0.91	.39**	.28**	.31**	.28**	.48**	.42**	.47**	.07	-.31**				
			[.25, .51]	[.13, .41]	[.17, .44]	[.14, .42]	[.35, .59]	[.29, .54]	[.34, .58]	[-.08, .22]	[-.44, -.17]				
11. T2 Vitality	3.73	0.84	.40**	.29**	.32**	.16*	.53**	.38**	.47**	.07	-.29**	.58**			
			[.27, .52]	[.15, .42]	[.18, .45]	[.01, .31]	[.42, .63]	[.25, .50]	[.34, .58]	[-.09, .22]	[-.42, -.15]	[.47, .67]			
12. T2 Health quality	3.45	0.68	.21**	.20*	.18*	.03	.25**	.11	.31**	-.13	-.20**	.24**	.34**		
			[.06, .35]	[.05, .34]	[.03, .32]	[-.13, .18]	[.10, .39]	[-.05, .25]	[.16, .44]	[-.28, .03]	[-.34, -.05]	[.09, .38]	[.20, .46]		
13. T2 Life satisfaction	7.62	1.48	.36**	.26**	.34**	.07	.45**	.37**	.50**	-.07	-.43**	.54**	.41**	.28**	
			[.22, .48]	[.12, .40]	[.20, .47]	[-.08, .22]	[.32, .57]	[.23, .49]	[.38, .61]	[-.22, .08]	[-.55, -.30]	[.42, .63]	[.28, .53]	[.13, .41]	
14. T2 Thriving	3.92	0.62	.46**	.34**	.38**	.19*	.57**	.43**	.58**	-.03	-.41**	.81**	.79**	.63**	.73**
			[.33, .57]	[.20, .47]	[.24, .50]	[.03, .33]	[.46, .67]	[.29, .54]	[.48, .68]	[-.18, .13]	[-.53, -.27]	[.75, .85]	[.73, .84]	[.53, .71]	[.65, .79]

714 *Note.* T1 = time one of data collection; T2 = time two of data collection (three months later); PFR = Perceived Father Responsiveness; PMR =
 715 Perceived Mother Responsiveness. Goal accomp. = goal accomplishment, Anxiety = Trait cognitive sport anxiety. Positive = Positive affect
 716 dimension. Thriving is a higher order factor gathering positive affect, vitality, health quality, and life satisfaction.
 717 * $p < .05$; ** $p < .001$

718 **Table 2**719 *Indirect Effects of Athletes' Perception of their Mother Responsiveness*

Indirect effect	β	p-value
T1 PMR \rightarrow T1 Self-esteem \rightarrow T2 Self-esteem \rightarrow T2 Thriving	0.064	0.015
T1 PMR \rightarrow T1 Self-esteem \rightarrow T2 Self-esteem \rightarrow T2 Anxiety	-0.050	0.027
T1 PMR \rightarrow T2 PMR \rightarrow T2 Self-esteem \rightarrow T2 Thriving	0.081	0.008
T1 PMR \rightarrow T2 PMR \rightarrow T2 Self-esteem \rightarrow T2 Anxiety	-0.064	0.024
T1 PMR \rightarrow T2 PMR \rightarrow T2 Thriving	0.221	0.001
T1 PMR \rightarrow T2 PMR \rightarrow T2 Anxiety	-0.091	0.168
T1 PMR \rightarrow T1 Self-efficacy \rightarrow T2 Goal accomplishment	0.092	0.008
T1 PMR \rightarrow T1 Self-efficacy \rightarrow T2 Anxiety	0.057	0.055

720 *Note.* T1 = time one of data collection; T2 = time two of data collection (three months later); PMR =

721 Perceived Mother Responsiveness; Anxiety = Trait cognitive sport anxiety.

722

723

724 **Table 3**725 *Indirect Effects of Athletes' Perception of their Father Responsiveness*

Indirect effect	β	p-value
T1 PFR \rightarrow T1 Self-esteem \rightarrow T2 Self-esteem \rightarrow T2 Thriving	0.067	0.011
T1 PFR \rightarrow T1 Self-esteem \rightarrow T2 Self-esteem \rightarrow T2 Anxiety	-0.059	0.019
T1 PFR \rightarrow T2 PFR \rightarrow T2 Self-esteem \rightarrow T2 Thriving	0.090	0.006
T1 PFR \rightarrow T2 PFR \rightarrow T2 Self-esteem \rightarrow T2 Anxiety	-0.079	0.017
T1 PFR \rightarrow T2 PFR \rightarrow T2 Thriving	0.350	0.001
T1 PFR \rightarrow T2 PFR \rightarrow T2 Anxiety	-0.118	0.094
T1 PFR \rightarrow T1 Self-efficacy \rightarrow T2 Goal accomplishment	0.102	0.011
T1 PFR \rightarrow T1 Self-efficacy \rightarrow T2 Anxiety	0.031	0.063

726 *Note.* T1 = time one of data collection; T2 = time two of data collection (three months later); PFR =

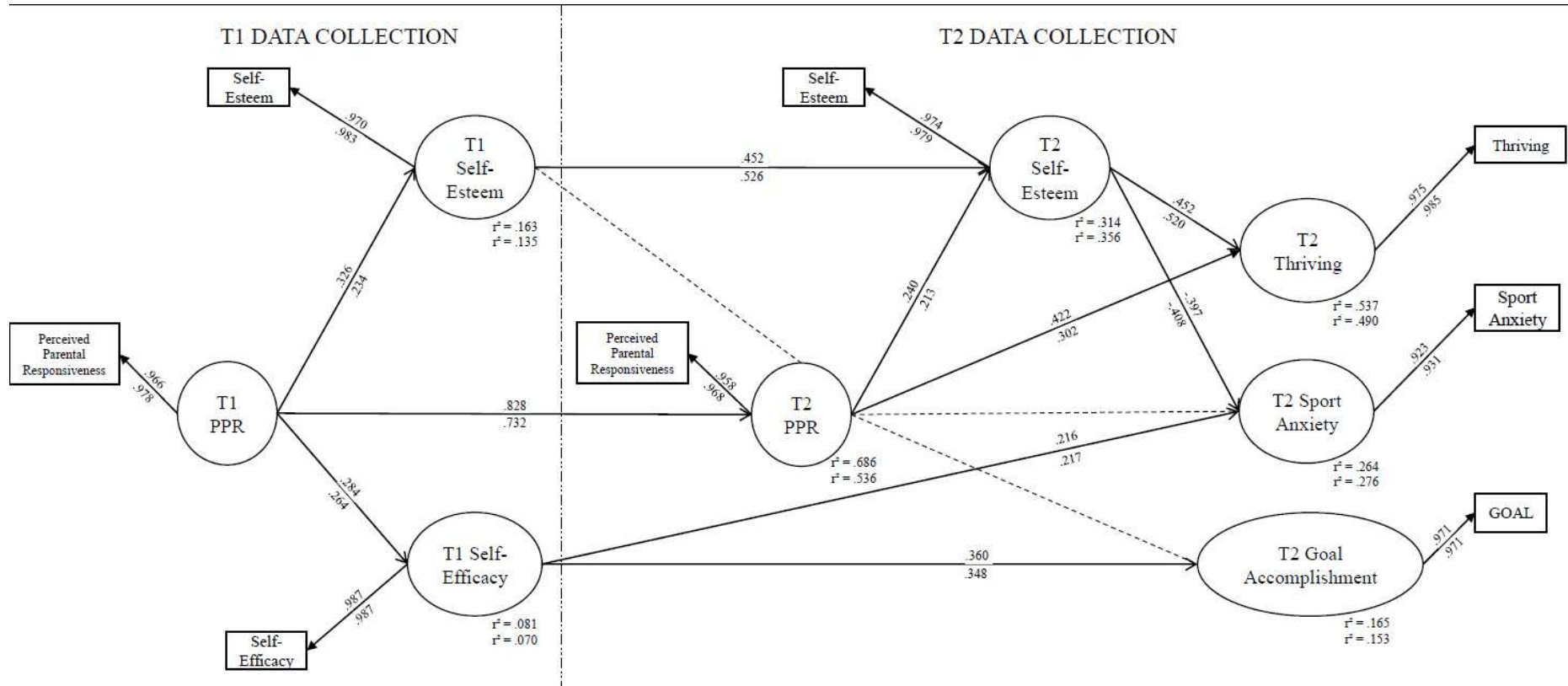
727 Perceived Father Responsiveness, Anxiety = Trait cognitive sport anxiety.

728

729 **Figure 1**

730 Summary of the significant effects ($p < 0.05$) of perceived parental responsiveness at T1 through self-efficacy and self-esteem at on athletes' goal accomplishment, trait cognitive sport anxiety, and thriving three months later.

731



732

733

734 *Note.* Score above the lines represent athletes' perception of their father's responsiveness. Scores below the lines represent athletes' perception
 735 of their mother's responsiveness. These values represent standardized path coefficient. T1 = time one of data collection; T2 = time two of data
 736 collection, three months after T1. PPR = Perceived Parental Responsiveness