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Running Head: SELF-ESTEEM AND CAREER ADAPTABILITY

**Associations Between Student-Athletes' Self-Esteem and Career Adaptability Across the High School Years**

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## Abstract

The key challenges in sustainable elite sports concern young athletes' holistic development. Consequently, preparation for dual careers has been recommended to enhance athletes' well-being and equip them for life after sports. The aim of this study was to examine the developmental associations between self-esteem and career adaptability among adolescent athletes across the high school years and investigate the role of gender in these developmental trajectories. A total of 391 student-athletes were followed up four times from the beginning of high school (T1) to its end (T4) using the Dual Career Form of the Career Adapt-Abilities Scale and the Self-Esteem Questionnaire. The results indicated that individual differences in student-athletes' self-esteem and career adaptability were relatively stable across the high school years and were thus modeled via the between-persons factors capturing differences between individuals across time. The results further showed that the overall levels of self-esteem and career adaptability were positively associated. Males showed higher overall levels of career adaptability and self-esteem than females. This study suggests that it is important to facilitate youth athletes' self-regulation resources by involving them in vocational developmental tasks. Further, gender differences should be considered when supporting student-athletes' development.

**Keywords:** *dual career, career adaptability, gender, self-esteem, well-being, adolescence*

## 1 1 INTRODUCTION

2 The demands of different life domains (school, sporting, and private life) may lead to  
3 increased pressure on student-athletes and pose potential threats to their psychosocial development  
4 and well-being. According to the European Commission,<sup>1</sup> the main challenge related to elite sports  
5 is how to safeguard and guide young athletes' talent development simultaneously in their  
6 educational, athletic, and private lives. Special arrangements in the form of dual careers (DC)—a  
7 combination of sports and education or work—have been recommended to enhance young athletes'  
8 well-being and prepare them for life after sports.<sup>1,2</sup> Although student-athletes report less stress and  
9 fewer symptoms of depression and anxiety than non-athletes,<sup>3</sup> they still face a unique range of  
10 stressors that include, for example, role strain and transitions (e.g., starting sports high school or  
11 university).<sup>2</sup> Sorkkila and Ryba and colleagues<sup>4,5</sup> emphasized that research is needed to understand,  
12 not only the risks, but also the protective factors affecting student-athletes' well-being (e.g., self-  
13 esteem) in their DC pathways. For adolescent student-athletes to manage transitions, achieve  
14 vocational goals, and solve a range of challenges in the course of their life trajectories, support  
15 provided for them should target a broad range of skills, including career adaptability.<sup>6,7</sup> The  
16 present study examined the developmental associations between career adaptability and self-  
17 esteem among student-athletes, and the role of gender in the development of both.

### 18 1.1 Career Adaptability

19 Career adaptability refers to an individual's readiness to and resources for achieving  
20 vocational development and overcoming the complex challenges that arise during occupational  
21 transitions.<sup>8</sup> It is conceptualized as psychological resources that enable adolescents to regulate  
22 their strategies along the four dimensions:<sup>8</sup> *career concern* (i.e., the extent to which the individual  
23 is conscious of and prepares for vocational development tasks and transitions in the near and  
24 distant future), *career control* (i.e., the extent to which a person takes responsibility for  
25 constructing their own career and choosing their approach to vocational development tasks),  
26 *career curiosity* (i.e., information-seeking behaviors, openness to new experiences, exploration,  
27 and reflection on the match between the individual's abilities and the demands of a particular  
28 career), and *career confidence* (i.e., self-efficacy in pursuing a self-determined occupation and  
29 successfully coping with career stressors).

30 Career adaptability and thoughts concerning adaptability become evident early in  
31 secondary education.<sup>9</sup> As an individual considers future transitions and developmental tasks, the



32 pressure to deal with goals relevant to those transitions increases.<sup>10</sup> Career adaptability contributes  
33 to positive transitions and personal functioning in adolescents,<sup>11</sup> predicting an increased sense of  
34 control and life satisfaction.<sup>11</sup> However, individuals differ in their competencies (adaptability) and  
35 career-related behaviors.<sup>12</sup> Rudolph and colleagues<sup>12</sup> found that personality traits contribute to the  
36 prediction of career adaptability, suggesting that personality-related factors play a role in  
37 adaptability. Further, Hirschi<sup>13</sup> found that boys demonstrated higher career adaptability than girls.  
38 Gender did not, however, affect the development of career adaptability among young students.<sup>13</sup>  
39 Investigating adolescent athletes' career adaptability and the factors that promote it is important  
40 because student-athletes tend to have difficulty envisioning their lives after sports and engaging in  
41 self-exploration during their sporting careers.<sup>14</sup> Park and colleagues<sup>15</sup> found that athletes who had  
42 not planned their post-sporting lives had an elevated risk of experiencing psychological distress,  
43 especially following involuntary athletic career termination.

## 44 **1.2 Self-esteem**

45 Self-esteem—one's overall attitude towards oneself, which involves self-evaluation of  
46 one's own worth and value<sup>16</sup>—plays a role in developing career adaptability.<sup>16,17</sup> Self-esteem has  
47 been shown to be positively associated with perceived competence in sports,<sup>18</sup> enhanced  
48 initiative<sup>19</sup>, career adaptability,<sup>7,20</sup> and career success;<sup>21</sup> for example, Erol and Orth<sup>22</sup> showed that  
49 increased self-esteem is related to a sense of career control, which is likely to translate into better  
50 career opportunities. Moreover, Choi and colleagues<sup>23</sup> demonstrated that self-esteem is among the  
51 strongest predictors of career decision efficacy. Although self-esteem appears to be rather stable  
52 throughout adolescence,<sup>24,25</sup> it can be influenced by life events, individual experiences, and  
53 environmental factors.<sup>24</sup> A crucial question is, therefore, to what extent is self-esteem development  
54 associated with the development of career adaptability during the critical adolescent years? Gender  
55 may also play a role. In a previous study, Baldwin and Hoffman<sup>26</sup> showed that boys have higher  
56 levels of self-esteem than girls, and girls exhibited a greater mean-level fluctuation in self-esteem,  
57 suggesting gender differences in the development of self-esteem during early adolescence.  
58 However, Birkeland et al.<sup>24</sup> did not find gender differences in self-esteem development. Overall,  
59 the previous results suggest that boys, on average, may have higher levels of self-esteem than  
60 girls.<sup>26</sup> However, owing to inconsistent findings concerning the development of self-esteem,<sup>24, 26</sup>  
61 future studies on this topic are needed before conclusions can be made concerning gender  
62 differences in the development of self-esteem across the high school years.

### 63 1.3 The Present Study

64 To support student-athletes in integrating combined sport and education into their lives, it  
65 is necessary to gain an understanding of the individual factors that affect their life paths. Therefore,  
66 in the present study, we investigated the developmental associations between the relatively new  
67 concept of career adaptability and self-esteem among student-athletes in the crucial phase of their  
68 development. More specifically, this study aimed to investigate the following research questions:

69 (1) To what extent do individual differences in a) career adaptability (both in terms of the  
70 five dimensions and regarding the overall common level of career adaptability) and b) self-esteem  
71 remain stable across the high school years, and to what extent there is rather time specific  
72 fluctuation in these at different phases of high school? It was expected that student-athletes would  
73 differ from each other in terms of the level of career adaptability. That is, some individuals would  
74 demonstrate higher adaptabilities than others, and these individual differences in the level of  
75 career adaptability would remain stable across high school<sup>12</sup> (Hypothesis 1). In line with the  
76 previous research,<sup>7,20</sup> we hypothesized that self-esteem would show stability across high school<sup>7,20</sup>  
77 (Hypothesis 2).

78 (2) To what extent are career adaptability and self-esteem associated across high school  
79 years? It was hypothesized that self-esteem is positively associated with career adaptability across  
80 high school<sup>5,7,12,20</sup> (Hypothesis 3) and that self-esteem would positively predict subsequent career  
81 adaptabilities<sup>8,12</sup> (Hypothesis 4).

82 (3) What is the role of gender in the development of career adaptability and self-esteem?  
83 Based on previous research, we expected to find that gender does not affect the development of  
84 career adaptability<sup>13</sup> (Hypothesis 5), but we predicted that males would show higher levels of self-  
85 esteem than females<sup>26</sup> (Hypothesis 6).

## 86 2 METHODS

### 87 2.1 Participants and Procedures

88 The present study contributed to the Finnish Longitudinal Dual Career Study,<sup>5</sup> which  
89 followed student-athletes across their high school years. The sample consisted of 391 athletes  
90 (51 % female;  $M_{\text{age}} = 16$ ,  $SD = 0.17$  at the beginning of the study) from six sports high schools. In  
91 Finland, sports high schools are one of the identified DC pathways<sup>27</sup> that provide structural  
92 support for talented athletes to combine upper secondary education with sports.

93 The study was approved by the ethics board of the University of Jyväskylä before data  
94 collection commenced. The participants signed an informed consent form before participating in  
95 the study. The data were collected using an online questionnaire or via completion of an identical  
96 paper questionnaire. The data applied in the current study were collected at the baseline, that is, at  
97 the beginning of the first grade (T1; September), and after that, once at the end of each grade  
98 (March), that is, at the end of the first grade (T2), at the end of the second grade (T3), and at the  
99 end of the third grade (T4). Career adaptability and self-esteem were assessed using self-rated  
100 scales at each measurement point (T1–T4).

## 101 2.2 Measurements

102 **2.2.1 Dual career adaptability.** Career adaptability was measured at time points T1–T4  
103 using the Career Adapt-Abilities Scale–Dual Career Form (CAAS-DC).<sup>7</sup> The Dual Career Form  
104 was developed by adding a subscale (Dual Career Concern) to the original CAAS.<sup>8</sup> The CAAS-DC  
105 contains a total of 27 items that measure five dimensions of career adaptability: concern (four  
106 items; e.g., *thinking about what my future will be like*), control (six items; e.g., *making decisions*  
107 *by myself*), curiosity (six items; e.g., *observing different ways of doing things*), confidence (six  
108 items; e.g., *learning new skills*), and dual career concern (five items; e.g., *concerned about my*  
109 *athletic career*). All items were rated on a 5-point Likert scale (1 = *not my strongest ability* to 5 =  
110 *one of my strongest abilities*). For each subscale, a mean score was obtained, indicating  
111 competence in that domain. The CAAS-DC score was shown to demonstrate factorial and  
112 concurrent validity in a Finnish high school sample.<sup>7</sup> Cronbach's alpha values were used in the  
113 present study for the scores of different subscales and time points (T1, T2, T3, and T4); values  
114 varied between 0.82 and 0.91.

115 **2.2.2 Self-esteem.** Self-esteem was measured at time points T1–T4 using five items (e.g., *I*  
116 *feel like a person who has a number of good qualities*) taken from the Rosenberg Self-Esteem  
117 Scale (RSES).<sup>16</sup> All items were rated on a 5-point Likert scale (1 = *strongly disagree* to 5 =  
118 *strongly agree*). The measure has been used in previous studies involving adolescents in Finland,  
119 and the test scores have demonstrated good validity.<sup>7</sup> Cronbach's alphas in the current sample at  
120 different time points ranged between 0.77 and 0.82.

## 121 2.3 Analysis Strategy

122 To investigate the developmental stability and within-person fluctuation of career  
123 adaptability and self-esteem during the high school years, as well as these constructs'

124 developmental associations, we employed random intercept cross-lagged path analysis<sup>28</sup> in the  
125 structural equation modeling framework. The selected strategy was found to be the most  
126 appropriate strategy to test the stated hypotheses because it considered both the between- (i.e.,  
127 individual variation in the overall levels of the studied constructs across time) and within-person  
128 (i.e., time-specific variation in the studied constructs) effects and thus produces more valid  
129 (unbiased) results reflecting the developmental phenomena than autoregressive cross-lagged panel  
130 models.<sup>28</sup>

131 First, to explore between individual variation in the overall levels of the five career  
132 adaptability dimensions and self-esteem across four measurement points, six first-order factors  
133 describing these overall levels were specified. Additionally, a second-order factor for the five first-  
134 order level factors of career adaptability was specified to model the overall level of career  
135 adaptability across time. Correlation between the overall levels of career adaptability across time  
136 and overall level of self-esteem across time was allowed. Second, time-specific factors capturing  
137 common variation between career adaptability dimensions at a particular time point were specified  
138 separately for each time point T1–T4. Similarly, time-specific factors were estimated for self-  
139 esteem at each time point T1–T4. These specific factors were not allowed to correlate with the  
140 first-order factors of career adaptability and self-esteem or the second-order factor of career  
141 adaptability. Third, regression paths between time-specific factors capturing the lagged effects of  
142 career adaptability and self-esteem were allowed for successive measurement points. These  
143 regression coefficients captured the cross-lagged effects between adaptability and self-esteem after  
144 controlling for the possible stability of each construct. In addition to the regression coefficients,  
145 the residual correlations between the time-specific factors of adaptability and self-esteem at each  
146 measurement point were allowed. Finally, a gender variable was added to the model to predict the  
147 overall levels of career adaptability and self-esteem across time, and the mean differences between  
148 genders in other specified factors were examined and estimated with the help of modification  
149 indices (i.e., the associations between gender and the first-order factors in the model were fixed to  
150 zero; therefore, poor model fit and the model modification indices indicated whether any of these  
151 associations needed to be estimated). The Mplus syntax for the constructed model is provided in  
152 Supplemental Material S1.

153 The model was estimated using the Mplus statistical program (version 7.3.; Muthén &  
154 Muthén, 1998–2019). Initial analyses revealed the invariance of the study constructs across time

155 and gender groups.<sup>1</sup> The results of the invariance tests are given in Supplemental Material S2. The  
156 covariance coverage of the data varied from 0.69 to 1.00. The missing values were supposed to be  
157 missing at random (MAR), and estimation was performed using the full information maximum  
158 likelihood estimator (MLR), which produces robust standard error and scale corrected chi-square  
159 test values. In addition to the chi-square test, the model fit was evaluated using the comparative fit  
160 index (CFI), the Tucker-Lewis index (TLI), the root mean square error of approximation  
161 (RMSEA), and the standardized root mean square error (SRMR). Good model fit was indicated if  
162 the chi-square test result was non-significant, CFI and TLI were at least .95, RMSEA was lower  
163 than .06, and SRMR was lower than .08.

### 164 **3 RESULTS**

165 The descriptive statistics (Table 1) demonstrated that participants showed relatively high  
166 self-esteem and career adaptabilities across high school. Among the five dimensions of  
167 adaptability, confidence, control, and DC concern had the highest mean scores across high school,  
168 while concern and curiosity had the lowest. Based on the correlations, self-esteem and the career  
169 adaptability dimensions were positively correlated at each measurement point. The correlations  
170 were particularly strong in the case of the control adaptability dimension.

#### 171 **3.1 Development of Career Adaptability**

172 The results of the tested model are shown in Figure 1 (only statistically significant paths  
173 are shown). The final model (model modifications are presented in detail in S1) demonstrated a  
174 good fit to the data:  $\chi^2(240) = 331.014, p < .05$ , RMSEA = 0.031, SRMR = 0.037, CFI = 0.983,  
175 TLI = 0.978. The results showed that adaptability was relatively stable across high school and that  
176 most of the variation in the adaptability dimensions was caused by the individual differences in the  
177 overall level of career adaptability ( $R^2_{concern} = .65, p < .001$ ;  $R^2_{DCconcern} = .85, p < .001$ ;  $R^2_{control}$   
178  $= .67, p < .001$ ;  $R^2_{curiosity} = .77, p < .001$ ;  $R^2_{confidence} = .86, p < .001$ ). In addition, the levels of the  
179 different adaptability dimensions were relatively stable across high school; approximately half of

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<sup>1</sup> When testing invariance, we applied change in RMSEA (as RMSEA is a generally stricter indicator of invariance than CFI and is suitable in the case of large sample sizes and complex models; see, Chen, 2007).<sup>29</sup> The results of these analyses showed that in the cases of all constructs, factor loadings, intercepts, and residual variances of the observed variables were invariant across time and gender groups (as indicated by a change of RMSEA lower than .015; change of RMSEA values varied between -.007 and .011 depending on the construct and the model) between the tested nested models.

180 the variation in different dimensions at different measurement points (T1–T4) was caused by the  
181 overall individual level of particular adaptability dimensions ( $R^2_{concern} = .45-.47, p < .001$ ;  
182  $R^2_{Deconcern} = .35-.47, p < .001$ ;  $R^2_{control} = .48-.56, p < .001$ ;  $R^2_{curiosity} = .36-.38, p < .001$ ;  $R^2_{confidence}$   
183  $= .43-.51, p < .001$ ).

184 In addition to the overall level of adaptability, time-specific variation was found. The time-  
185 specific variation of career adaptability at T3 predicted subsequent career adaptability at T4 ( $R^2$   
186  $= .17$ ): The higher the adaptability at the end of the second grade, the higher the adaptability at the  
187 end of high school.

### 188 3.2. Development of Self-Esteem

189 Similar results were found for self-esteem, which was relatively stable across the high  
190 school years. Most of the variation in self-esteem at different measurement points was caused by  
191 the individual differences in the overall level of self-esteem across time ( $R^2_{T1} = .61, p < .001$ ;  
192  $R^2_{T2} = .59, p < .001$ ;  $R^2_{T3} = .53, p < .001$ ;  $R^2_{T4} = .41, p < .001$ ). However, this effect decreased  
193 at the end of the high school, and measurement point-related variation increased ( $R^2_{T4} = .59, p$   
194  $< .001$ ). The time-specific variation of self-esteem at the T3 predicted subsequent self-esteem at  
195 the T4 ( $R^2 = .15, p < .01$ ): The higher the self-esteem at the end of the second grade, the higher  
196 subsequent self-esteem at the end of high school.

### 197 3.3 Developmental Association Between Career Adaptability and Self-esteem

198 The model revealed that the individual differences in the overall level of career adaptability across  
199 the high school years were positively and statistically significantly associated with individual  
200 differences in the overall level of self-esteem ( $r = .50, p < .001$ ). Further, one specific association  
201 was found indicating that the individual overall level of control was positively associated with the  
202 individual overall level of self-esteem ( $r = .47, p < .001$ ). In addition to these associations between  
203 the overall levels of adaptability and self-esteem, time-specific positive associations between the  
204 constructs were found at each measurement point, and the correlations became stronger towards  
205 the end of the high school ( $r^{T1} = .29, p < .01$ ;  $r^{T2} = .29, p < .001$ ;  $r^{T3} = .56, p < .001$ ;  $r^{T4} = .46, p <$   
206  $.001$ ). The cross-lagged associations between career adaptability and self-esteem were not  
207 significant. Finally, the results concerning the role of gender showed that gender predicted  
208 individual levels of career adaptability ( $R^2 = .03$ ) and self-esteem ( $R^2 = .07$ ), with females  
209 demonstrating lower levels of both compared to males.

## 210 4 DISCUSSION

211 This study aimed to add to our understanding of the development of and developmental  
212 associations between self-esteem and career adaptability among adolescent student-athletes across  
213 high school, as well as the role gender plays in student-athletes' career adaptability and self-  
214 esteem. First, the results showed that career adaptability and self-esteem were relatively stable  
215 across individual differences in high schoolers' overall levels of each construct over time, which  
216 explained most of the variation. Second, during the high school years, career adaptability and self-  
217 esteem were positively associated with each other, showing mutual variation. Third, gender was  
218 associated with the overall levels of career adaptability and self-esteem, with males showing  
219 higher levels of both compared to females.

220 The present study's first objective was to examine the extent to which individual  
221 differences in career adaptability and self-esteem are stable across the high school years and to  
222 what extent time-specific fluctuation occurs at different phases of high school. In this study, career  
223 adaptability was found to be relatively stable, with an individual-level explanation available for  
224 over half of the variation across high school. It was expected (Hypothesis 1) that there would be  
225 stable individual differences between student-athletes across high school.<sup>8,12</sup> One explanation for  
226 adaptability's high degree of stability could be, as previous studies<sup>14</sup> have shown, that athletes tend  
227 to postpone their career-related activities;<sup>14</sup> consequently, stable personality-related factors<sup>12</sup> play a  
228 larger role in their adaptability at this stage than more time-specific contextual and environmental  
229 factors. Overall, it seems that individual involvement in vocational developmental tasks  
230 determines the extent of student-athletes' career aspiration development. Similarly, as expected  
231 (Hypothesis 2), self-esteem was found to be relatively stable across high school, with an  
232 individual-level explanation available for around half of the variation. However, an interesting  
233 finding was that individuality's influence decreased at the end of high school. This may indicate  
234 that the life events concerning the upcoming transition can affect self-esteem at the individual  
235 level.<sup>24,26</sup>

236 In addition to overall high stable individual-level career adaptability and self-esteem, our  
237 stability hypothesis was further supported by the findings concerning time-specific variation  
238 predictions: Career adaptability in the middle of high school predicted career adaptability at the  
239 end of high school. Timonen et al.<sup>9</sup> suggested that starting high school and subsequent transitions  
240 may trigger thoughts about adaptability. Those youths who self-assess as having the resources to  
241 construct a career and being prepared for transitions will show high career adaptability later in life.

242 Individuals who focus on goals related to career transitions and developmental tasks may also  
243 reflect more on their future endeavours.<sup>10</sup>

244 The present study's second aim was to examine the developmental association between  
245 self-esteem and career adaptability across time among student-athletes. As we expected  
246 (Hypothesis 3), and in line with previous research,<sup>5,7,12,20</sup> career adaptability was positively  
247 associated with self-esteem at each measurement point and at the individual level across high  
248 school. However, self-esteem at the previous time point did not predict subsequent career  
249 adaptabilities at the following time point, as expected (Hypothesis 4). This may be because both  
250 career adaptabilities and self-esteem showed high stability. It may also be related to trait-like  
251 factors.<sup>12</sup> No change was observed. The findings further suggested that towards the end of high  
252 school, mutual variation between adaptability and self-esteem increases, which may indicate that  
253 there are some common factors behind these constructs that explain the association. Regarding the  
254 adaptability dimensions, a positive association was found between level of control and self-esteem.  
255 Erol and Orth<sup>22</sup> suggested that increased self-esteem is related to a sense of control and better  
256 career opportunities. Additionally, in line with Rudolph and colleagues'<sup>12</sup> finding that a proactive  
257 personality predicts career adaptability, student-athletes who self-assess as having a plan, assume  
258 an active role in their career development, and feel that they are in control of their future may  
259 develop not only career adaptability, but also high self-esteem.

260 The present study's third objective was to examine the role of gender in the development  
261 of career adaptability and self-esteem. The results showed that gender was positively associated  
262 with both the student-athletes' overall level of career adaptability (contradictory to Hypothesis 5)  
263 as well as with their overall level of self-esteem (Hypothesis 6), with males reporting higher  
264 overall career adaptability and self-esteem levels than females. Concerning self-esteem, our  
265 findings are in line with previous studies.<sup>24, 26</sup> It can be speculated that as males have been shown  
266 to perceive their self-esteem more positively than females during adolescence<sup>26</sup> and as career  
267 adaptability is related to trait-like optimism,<sup>12</sup> male student-athletes may, at least in part, derive  
268 their higher perception of adaptability from their optimism about the future.<sup>14,30</sup> Overall, our  
269 findings highlight that gender differences in career adaptability and self-esteem levels should be  
270 considered when providing support for youth athletes.

271 To conclude, given that the individual-level explained most of the variation in career  
272 adaptability, it is important to recognize individuals with low levels of career adaptability (and  
273 identify the reasons for that) and support the development of adaptabilities starting at the



274 beginning of high school (or even earlier). Such interventions can be achieved by facilitating  
275 individual planning and the exploration of possible future paths, engaging in meaningful  
276 conversations, and increasing these individuals' sense of control. The association between career  
277 adaptability and self-esteem across high school suggests that both are complementary resources  
278 for positive development. Student-athletes with high self-esteem and career adaptability might  
279 have more resources to explore other plans and pursue endeavours outside of sports in the future.

280 The present study has some limitations that should be considered before generalizing the  
281 results. First, the sample comprised high school students; the results might be different for  
282 vocational school students. Second, the present study examined the effect of gender on career  
283 adaptability and self-esteem. However, other factors may play a role in the development of the  
284 studied constructs. In further studies, the role of different individual, school- and sport-related  
285 factors as well as sources of social support or pressure, such as coaches and teachers, in student-  
286 athletes' career adaptability and self-esteem development should be investigated alongside the  
287 associations between these factors to gain a deeper understanding of the possible confounding  
288 affecting the phenomena.

## 289 **5 PERSPECTIVES**

290 The present study contributes to the existing literature in three ways. First, we showed that  
291 self-esteem and career adaptability are relatively stable across high school among student-athletes,  
292 indicating that support for career-related activities should be individually targeted early on during  
293 a dual career. Second, as the individual overall level of control was positively associated with the  
294 individual overall level of self-esteem, student-athletes who feel that they are in control of their  
295 future may develop not only career adaptability, but also high self-esteem. Third, gender  
296 differences should be considered when providing support for student-athletes' dual career  
297 construction development and well-being.

### 298 **Declaration of Conflicts of Interest**

299 The author(s) declare no potential conflicts of interest with respect to the research, authorship  
300 and/or publication of this article.

301

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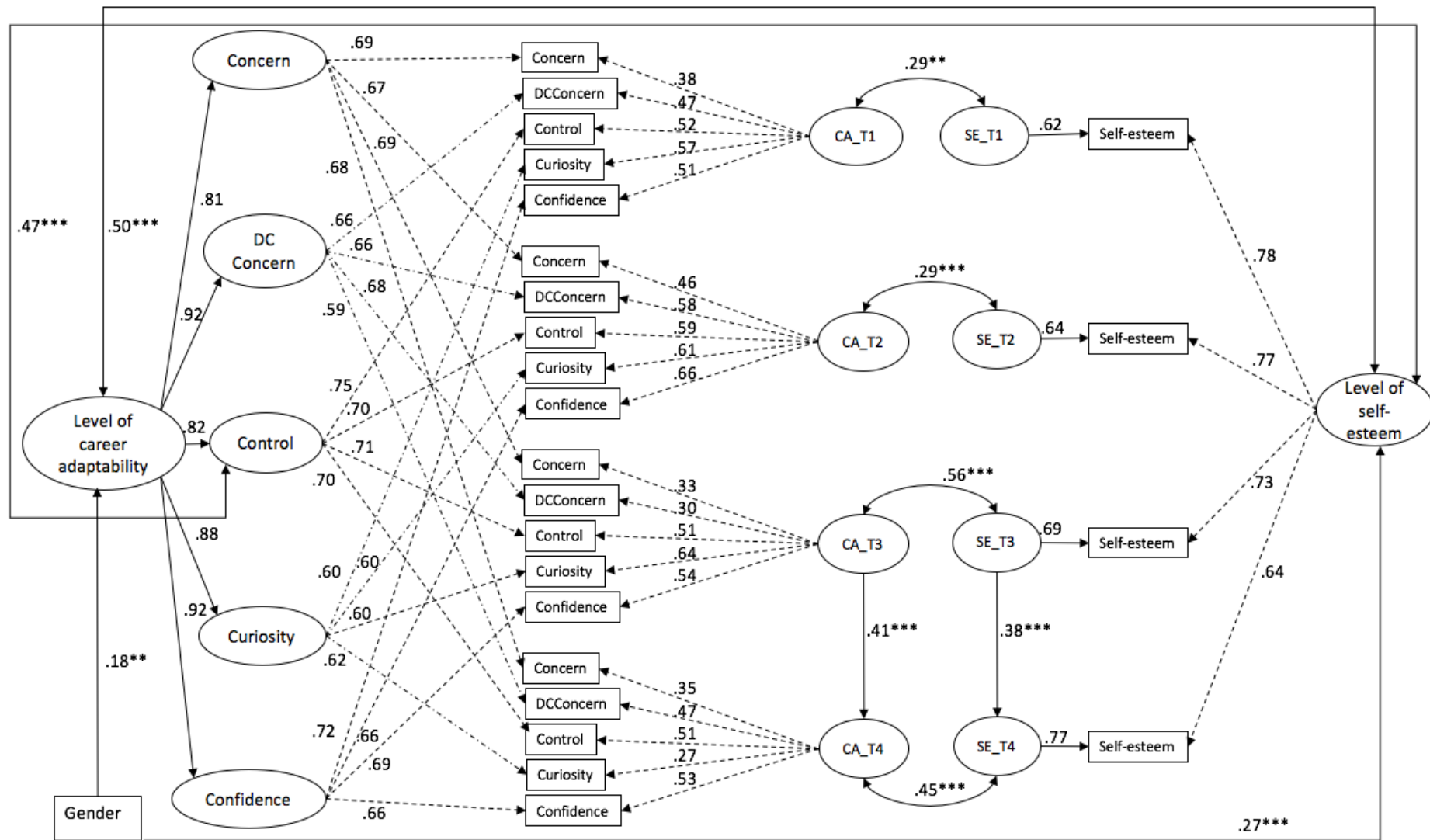
Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1 SelfesT1	.77	.65 <sup>c</sup>	.55 <sup>c</sup>	.48 <sup>c</sup>	.27 <sup>c</sup>	.21 <sup>c</sup>	.16 <sup>b</sup>	.24 <sup>c</sup>	.34 <sup>c</sup>	.23 <sup>c</sup>	.22 <sup>c</sup>	.24 <sup>c</sup>	.32 <sup>c</sup>	.24 <sup>c</sup>	.12 <sup>b</sup>	.20 <sup>b</sup>	.50 <sup>c</sup>	.39 <sup>c</sup>	.35 <sup>c</sup>	.34 <sup>c</sup>	.31 <sup>c</sup>	.28 <sup>c</sup>	.23 <sup>c</sup>	.23 <sup>c</sup>
2 SelfesT2		.77	.59 <sup>c</sup>	.59 <sup>c</sup>	.18 <sup>b</sup>	.26 <sup>c</sup>	.18 <sup>b</sup>	.24 <sup>c</sup>	.23 <sup>c</sup>	.36 <sup>c</sup>	.31 <sup>c</sup>	.28 <sup>c</sup>	.18 <sup>c</sup>	.25 <sup>c</sup>	.17 <sup>b</sup>	.24 <sup>b</sup>	.35 <sup>c</sup>	.48 <sup>c</sup>	.42 <sup>c</sup>	.38 <sup>c</sup>	.22 <sup>c</sup>	.38 <sup>c</sup>	.29 <sup>c</sup>	.28 <sup>c</sup>
3 SelfesT3			.77	.68 <sup>c</sup>	.17 <sup>b</sup>	.23 <sup>c</sup>	.28 <sup>c</sup>	.27 <sup>c</sup>	.24 <sup>c</sup>	.27 <sup>c</sup>	.45 <sup>c</sup>	.35 <sup>c</sup>	.22 <sup>c</sup>	.23 <sup>c</sup>	.33 <sup>c</sup>	.32 <sup>c</sup>	.39 <sup>c</sup>	.38 <sup>c</sup>	.57 <sup>c</sup>	.43	.24 <sup>c</sup>	.31 <sup>c</sup>	.34 <sup>c</sup>	.29 <sup>c</sup>
4 SelfesT4				.82	.13 <sup>a</sup>	.22 <sup>c</sup>	.20 <sup>b</sup>	.31 <sup>c</sup>	.18 <sup>c</sup>	.26 <sup>c</sup>	.35 <sup>c</sup>	.39 <sup>c</sup>	.14 <sup>b</sup>	.18 <sup>b</sup>	.24 <sup>c</sup>	.32 <sup>c</sup>	.31 <sup>c</sup>	.28 <sup>c</sup>	.40 <sup>c</sup>	.51 <sup>c</sup>	.20 <sup>c</sup>	.28 <sup>c</sup>	.23 <sup>c</sup>	.34 <sup>c</sup>
5 ConcT1					.85	.55 <sup>c</sup>	.45 <sup>c</sup>	.39 <sup>c</sup>	.54 <sup>c</sup>	.38 <sup>c</sup>	.24 <sup>c</sup>	.29 <sup>c</sup>	.60 <sup>c</sup>	.39 <sup>c</sup>	.25 <sup>c</sup>	.29 <sup>c</sup>	.53 <sup>c</sup>	.34 <sup>c</sup>	.30 <sup>c</sup>	.31 <sup>c</sup>	.65 <sup>c</sup>	.43 <sup>c</sup>	.33 <sup>c</sup>	.26 <sup>c</sup>
6 ConcT2						.86	.52 <sup>c</sup>	.39 <sup>c</sup>	.36 <sup>c</sup>	.62 <sup>c</sup>	.36 <sup>c</sup>	.36 <sup>c</sup>	.37 <sup>c</sup>	.59 <sup>c</sup>	.34 <sup>c</sup>	.36 <sup>c</sup>	.33 <sup>c</sup>	.53 <sup>c</sup>	.32 <sup>c</sup>	.28 <sup>c</sup>	.43 <sup>c</sup>	.72 <sup>c</sup>	.36 <sup>c</sup>	.29 <sup>c</sup>
7 ConcT3							.84	.59 <sup>c</sup>	.36 <sup>c</sup>	.33 <sup>c</sup>	.50 <sup>c</sup>	.39 <sup>c</sup>	.34 <sup>c</sup>	.32 <sup>c</sup>	.52 <sup>c</sup>	.42 <sup>c</sup>	.36 <sup>c</sup>	.28 <sup>c</sup>	.47 <sup>c</sup>	.32 <sup>c</sup>	.37 <sup>c</sup>	.36 <sup>c</sup>	.54 <sup>c</sup>	.39 <sup>c</sup>
8 ConcT4								.84	.38 <sup>c</sup>	.33 <sup>c</sup>	.44 <sup>c</sup>	.58 <sup>c</sup>	.24 <sup>c</sup>	.28 <sup>c</sup>	.35 <sup>c</sup>	.32 <sup>c</sup>	.33 <sup>c</sup>	.28 <sup>c</sup>	.38 <sup>c</sup>	.44 <sup>c</sup>	.35 <sup>c</sup>	.31 <sup>c</sup>	.45 <sup>c</sup>	.61 <sup>c</sup>
9 ConfiT1									.89	.52 <sup>c</sup>	.45 <sup>c</sup>	.36 <sup>c</sup>	.62 <sup>c</sup>	.40 <sup>c</sup>	.33 <sup>c</sup>	.39 <sup>c</sup>	.67 <sup>c</sup>	.44 <sup>c</sup>	.40 <sup>c</sup>	.37 <sup>c</sup>	.64 <sup>c</sup>	.44 <sup>c</sup>	.46 <sup>c</sup>	.31 <sup>c</sup>
10 ConfiT2										.91	.49 <sup>c</sup>	.44 <sup>c</sup>	.38 <sup>c</sup>	.71 <sup>c</sup>	.39 <sup>c</sup>	.42 <sup>c</sup>	.41 <sup>c</sup>	.75 <sup>c</sup>	.44 <sup>c</sup>	.40 <sup>c</sup>	.44 <sup>c</sup>	.76 <sup>c</sup>	.45 <sup>c</sup>	.29 <sup>c</sup>
11 ConfiT3											.85	.60 <sup>c</sup>	.25 <sup>c</sup>	.34 <sup>c</sup>	.68 <sup>c</sup>	.45 <sup>c</sup>	.37 <sup>c</sup>	.39 <sup>c</sup>	.64 <sup>c</sup>	.46 <sup>c</sup>	.64 <sup>c</sup>	.41 <sup>c</sup>	.58 <sup>c</sup>	.40 <sup>c</sup>
12 ConfiT4												.87	.31 <sup>c</sup>	.31 <sup>c</sup>	.45 <sup>c</sup>	.47 <sup>c</sup>	.38 <sup>c</sup>	.36 <sup>c</sup>	.46 <sup>c</sup>	.61 <sup>c</sup>	.36 <sup>c</sup>	.38 <sup>c</sup>	.47 <sup>c</sup>	.60 <sup>c</sup>
13 CurioT1													.90	.48 <sup>c</sup>	.33 <sup>c</sup>	.35 <sup>c</sup>	.64 <sup>c</sup>	.39 <sup>c</sup>	.34 <sup>c</sup>	.31 <sup>c</sup>	.57 <sup>c</sup>	.40 <sup>c</sup>	.32 <sup>c</sup>	.29 <sup>c</sup>
14 CurioT2														.87	.39 <sup>c</sup>	.37 <sup>c</sup>	.40 <sup>c</sup>	.70 <sup>c</sup>	.40 <sup>c</sup>	.39 <sup>c</sup>	.39 <sup>c</sup>	.67 <sup>c</sup>	.33 <sup>c</sup>	.25 <sup>c</sup>
15 CurioT3															.85	.54 <sup>c</sup>	.33 <sup>c</sup>	.35 <sup>c</sup>	.63 <sup>c</sup>	.42 <sup>c</sup>	.27 <sup>c</sup>	.33 <sup>c</sup>	.50 <sup>c</sup>	.34 <sup>c</sup>
16 CurioT4																.85	.33 <sup>c</sup>	.34 <sup>c</sup>	.41 <sup>c</sup>	.45 <sup>c</sup>	.35 <sup>c</sup>	.33 <sup>c</sup>	.41 <sup>c</sup>	.38 <sup>c</sup>
17 ContT1																	.85	.56 <sup>c</sup>	.54 <sup>c</sup>	.53 <sup>c</sup>	.61 <sup>c</sup>	.39 <sup>c</sup>	.37 <sup>c</sup>	.31 <sup>c</sup>
18 ContT2																		.88	.58 <sup>c</sup>	.48 <sup>c</sup>	.43 <sup>c</sup>	.68 <sup>c</sup>	.39 <sup>c</sup>	.26 <sup>c</sup>
19 ContT3																			.85	.63 <sup>c</sup>	.30 <sup>c</sup>	.38 <sup>c</sup>	.50 <sup>c</sup>	.34 <sup>c</sup>
20 ContT4																				.83	.35 <sup>c</sup>	.34 <sup>c</sup>	.40 <sup>c</sup>	.53 <sup>c</sup>
21 DCT1																					.85	.52 <sup>c</sup>	.47 <sup>c</sup>	.38 <sup>c</sup>
22 DCT2																						.84	.45 <sup>c</sup>	.35 <sup>c</sup>
23 DCT3																							.82	.56 <sup>c</sup>
24 DCT4																								.84
<i>M</i>	3.76	3.72	3.72	3.61	2.86	2.98	2.87	2.98	3.44	3.47	3.36	3.29	3.05	3.17	3.14	2.99	3.45	3.47	3.36	3.29	3.37	3.33	3.15	3.10
<i>Males</i>	3.91	3.85	3.88	3.77	2.99	3.09	2.92	3.10	3.43	3.52	3.42	3.46	3.10	3.28	3.18	3.09	3.52	3.53	3.48	3.44	3.46	3.41	3.26	3.21

Females	3.62	3.60	3.57	3.45	2.73	2.87	2.82	2.87	3.45	3.42	3.30	3.12	2.99	3.06	3.09	2.93	3.31	3.37	3.24	3.14	3.28	3.26	3.05	3.00
SD	.62	.65	.68	.76	.80	.83	.81	.84	.69	.75	.71	.77	.73	.72	.72	.70	.73	.78	.79	.80	.76	.73	.75	.84
Males	.57	.63	.63	.73	.81	.84	.84	.81	.67	.77	.72	.73	.74	.75	.75	.75	.71	.77	.80	.79	.72	.74	.70	.77
Females	.63	.65	.68	.78	.78	.83	.84	.85	.70	.73	.70	.78	.72	.70	.68	.67	.74	.80	.76	.74	.78	.74	.77	.87

377 **Table 1.** Means (*M*), Standard Deviations (*SD*), and Bivariate Correlations between the Study Variables. Cronbach's alphas are presented in the  
378 diagonal.

379 Note 1.  $c = p < .001$ ,  $b = p < .01$ ,  $a = p < .05$  Selfes = Self-esteem, Conc = Concern, Confi = Confidence, Curio = Curiosity, Cont= Control, DC = Dual  
380 career concern, , T1 = measurement point 1, T2 = measurement point 2, T3 = measurement point 3, T4 = measurement point 4.

381



383 *Figure 1.* Factor model of career adaptability, self-esteem, and gender (Standardized coefficients; Only statistically significant paths reported). SE\_T1  
384 = specific factor of self-esteem at time point 1, SE\_T2 = specific factor of self-esteem at time point 2, SE\_T3 = specific factor at time point 3, SE\_T4  
385 = specific factor of self-esteem at time point 4, CA\_T1 = specific factor for adaptability at time point 1, CA\_T2 = specific factor for adaptability at  
386 time point 2, CA\_T3 = specific factor for adaptability at time point 3, CA\_T4 = specific factor for adaptability at time point 4.