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1   **Body image concerns among individuals with different levels of sporting engagement**

2   **and exercise: A longitudinal study**

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39 **Body image concerns among individuals with different levels of sporting engagement**

40 **and exercise: A longitudinal study**

41

42 **Abstract**

43 This longitudinal study examined whether body image concerns (general; sporting)

44 predicted eating disorder psychopathology, and whether the link differed according to nature

45 of sport engagement. Participants were competitive sports engagers, non-competitive sports

46 engagers, or sports non-engagers. At baseline, 510 adults completed online measures of

47 sports demographics, eating psychopathology and body image. Eating psychopathology and

48 body image measures were taken at follow-up (6 months later). Competitive sports engagers

49 had better body image than the other two groups. Poorer body appreciation and better

50 appearance-related body image predicted higher eating disorder psychopathology. Engaging

51 in sports competitively may be beneficial for body image. However, positive appearance-

52 related sporting body image may pose a risk for later eating psychopathology.

53

54 Word count: 113

55

56 Key words: body image; eating disorder; sport

57

58   **Introduction**

59   In sport and exercise research, body image has received increasing attention

60   (Sabiston et al., 2019). The term 'body image' encompasses a variety of constructs, ranging

61   from 'negative body image' (e.g., body dissatisfaction) to 'neutral body image' to 'positive body

62   image' (e.g., body appreciation). The experience of body image is largely explained by

63   appearance-related pressures from society (e.g., parents, peers, media) for certain body

64   ideals (Frederick & Reynolds, 2021). Such body ideals vary with context, such as an ideal for

65   thinness, muscularity, and/or a specific body shape (Culbert et al., 2015).

66   Overall, engaging in sports can protect individuals from body image concerns (Burgon

67   et al., 2023). However, the concept of body image in sporting populations is complex, and

68   numerous factors can increase the risk of body image concerns in such individuals. Such

69   factors can include gender, pressures from coaches, performance-related pressures, sports

70   uniforms, and regular anthropometric measurements (e.g., Burgon et al., 2023; Cordes et al.,

71   2016). Those engaging in sports where a thin physique is believed to maximise performance

72   (e.g., distance running) can also report more body image concerns than those engaging in

73   sports that are not reliant on thin physique for success (e.g., American football), due to

74   increased pressure toward low body weight in the former group (Burgon et al., 2023). Higher

75   competition levels might also explain differences in body image across sports populations, but

76   the relationship is complex (Beckner & Record, 2016). Some reviews have found less body

77   dissatisfaction in competitive athletes versus sports non-engagers (Burgon et al., 2023; Karrer

78   et al., 2020). However, others have highlighted higher sporting competition levels as a risk

79   factor for body image concerns (DiBartolo & Shaffer, 2002; Hoag, 2012; Kato et al., 2011;

80   Robinson & Ferraro, 2004).

81   When considering positive body image terms, body appreciation is defined as holding

82   a favourable attitude and respect towards one's body (Linardon et al., 2022). Engaging in

83   sports can increase body appreciation since individuals are more likely to value their bodies

84   for how they function, rather than how they look (Souilliard et al., 2019). However, body image

85   in sports is complex, as demonstrated by the observation that sports engagers have multiple

86   body images (de Bruin et al., 2011). Thus, the context in which sporting individuals evaluate

87   their body might impact body appreciation. General body appreciation refers to body

88   evaluation in the context of daily life, whilst 'sporting body image' refers to an individual's

89   evaluation of body image in a sporting environment (de Bruin et al., 2011). For example,

90   Russell (2004) found that women rugby players positively interpret their body shape as a tool

91   for successful performance (sporting body image), while also feeling that their bodies failed to

92   meet westernised ideals outside of that context (general body appreciation).

93   The importance of understanding body image in sport engagers is emphasised by the

94   fact that such body image concerns are a potential risk factor for an eating disorder (Petrie &

95   Greenleaf, 2007; 2012). Athletes who do not fit the ideal body type for their sport can feel

96   pressured to use unhealthy methods to achieve this (e.g., restricting their nutritional intake),

97   which can result in disturbed eating attitudes/behaviours and development of an eating

98   disorder (Sundgot-Borgen & Torstveit, 2010). However, there are mixed findings on the link

99   between body image and eating psychopathology, as not all research findings support it in

100   sporting groups (Krentz & Warschburger, 2013; Neves et al., 2017).

101   To summarise, sporting individuals can have multiple body images (general; sporting),

102   but the link between their body image and eating psychopathology is not understood fully.

103   Competition level might explain different findings regarding body image and eating concerns

104   in sports populations. This study used a longitudinal design to examine whether a link between

105   body image and eating psychopathology is found in sporting (competitive; non-competitive)

106   and non-sporting populations. It will also consider whether body image concerns (general;

107   sporting) predict eating psychopathology six months later. We hypothesise that greater levels

108   of body image concerns (general, sporting) will predict eating disorder psychopathology six

109   months later, over and above any impact of initial eating disorder psychopathology at time 1.

110   **Method**

111   **Ethical issues and pre-registration**

112   Ethical approval was granted by the University of Sheffield Research Ethics

113   Committee.   The   study   was   pre-registered   on   Open   Science   Framework

114   (https://osf.io/shpcn/?view_only=af5b6019e53b4438a7c98eee016f2991).

115   **Design**

116   This study used a quantitative longitudinal design over six months. We collected

117   measures of eating disorder psychopathology, body appreciation and body image (general

118   and sporting body image), at time 1 (between March 2022-September 2022). At time 2 (six

119   months after participants completed time 1), the eating psychopathology and body image

120   measures (including body appreciation) were readministered.

121   **Participants**

122   An a priori sample size calculation was undertaken using Cohen's (1992) table. For

123   the most complex analysis (hypothesis 2 - a hierarchical linear regression with six predictors,

124   and assuming a medium effect size, 80% power, and p = .05), the required sample size was

125   97 participants per group ('competitive sports engagers', 'non-competitive sport engagers',

126   'sports non-engagers), resulting in a total sample of 291. We hypothesised an attrition rate of

127   35%, though we were not able to identify longitudinal studies that would have supported this

128   level of attrition. Therefore, the current study aimed to recruit 150 participants per group and

129   a total of 448 participants. [We note that Messer et al. (2022) published such a paper that

130   suggested higher a higher rate of participant loss (55%) over a similar time period, but we had

131   already undertaken our initial data collection at the time that the Messer et al. paper was

132   available].

133   A non-clinical sample was obtained via social media and in local gyms and sports

134   clubs. The advertisement stated that the study required participants to complete a set of

135   questionnaires relating to body image and eating behaviors at different timepoints. It also

136   detailed that participants could enter a draw for one of three £50 Amazon vouchers. Inclusion

137   criteria were adults aged 18+ who were fluent in English. Exclusion criteria included people

138   who self-reported any eating disorder or current or recent eating disorder treatment (<12

139   months). Participants were sorted into sports category (competitive sports, non-competitive

140   sports and sports non-engagers) based on their answers to the sports demographic

141   questionnaire (detailed below). Five hundred and ten participants consented and took part,

142 though the numbers varied across groups (Sports non-engagers = 117; Non-competitive

143 sports engagers = 276; Competitive sports engagers = 117). The attrition rate was 54.9%,

144 which was higher than the 35% anticipated. There were 230 participants who completed

145 measures at six months and similar group attrition rates (Sports non-engagers = 52; Non-

146 competitive sports engagers = 130; Competitive sports engagers = 48).

147 **Procedure**

148   The measures were delivered via the Qualtrics platform. At Time 1, the study was

149 advertised online through social media streams (Facebook, Instagram), as well as via leaflets

150 at sporting clubs. Participants were required to follow a link to the information sheet and

151 consent form. If eligible for inclusion, they were directed to the online questionnaire battery. A

152 further email link was sent six months later, for completion within two weeks. Following

153 completion, participants received a debrief sheet, which detailed the research aims and

154 summarised how the participant had contributed to them. It also included helpline services for

155 eating disorder/mental health support for individuals to access if the study had raised concerns

156 for them.

157 **Measures**

158   Participants completed the following measures at baseline (Sports Demographic

159 Measure; Eating Disorder Examination-Questionnaire; Body Appreciation Scale; Contextual

160 Body Image Questionnaire for Athletes), and the six month follow-up (Eating Disorder

161 Examination-Questionnaire; Body Appreciation Scale; Contextual Body Image Questionnaire

162 for Athletes).

163 ***Sports demographic questionnaire***

164   The sports demographic questionnaire was designed by the researchers (available

165 from the lead author, on request). It addressed demographic information (age, gender, height,

166 weight), and questions relating to participation in sport and competition level (type of sport,

167 hours per week of training, competition level). Answers were used to split the sample

168 according to sporting category. Details of sports undertaken are given in Appendix 1.

169   Sports non-engagers were those who participated in exercise for < 2.5 hours per week

170   and/or those who scored 0 ('I never prioritise training') or 1 ('I rarely prioritise training') on

171   '*Where would you rate your training in relation to other priorities (e.g.,*

172   *socialising/work/family)?'.* This level of exercise (2.5 hours) was selected in accordance with

173   National Health Service (2019) guidelines for physical activity. The remainder of the

174   participants were categorised as 'sporting individuals'. In answer to 'what is your competition

175   level?', non-competitive sports engagers scored 0 ('I don't compete') or 1 ('I compete

176   recreationally), whilst competitive sports engagers scored 2-5 (compete locally, nationally,

177   internationally or professional level).

178   ***Contextual Body Image Questionnaire for Athletes (CBIQA)***

179   The CBIQA (de Bruin et al., 2011) assesses differences in body image for athletes

180   when in sport vs outside of sport, and has been validated for use in athletes (de Bruin 2011;

181   Stewart et al. 2021). It considers two contexts (sport; daily life) and four dimensions within

182   each: Appearance, Muscularity, Thin-Fat Self (self-evaluation of shape/weight/fat), and Thin-

183   Fat Others (perceived opinion of others on shape/weight/fat). The current study only used the

184   measures of the sporting context, rather than the daily life dimensions, since broader body

185   appreciation was our selected measure for general body image. Each question is scored on

186   a Likert scale from 1-7. Scale scores are given by dividing the sum scores by the total number

187   of items of the scale. It has good psychometric validity, capturing variance discrete from thin-

188   ideal internalisation (Stewart et al., 2021). In this study, the internal consistency (Cronbach's

189   *alpha*) for each scale was good to strong at both time points (Time 1 - Appearance = 0.860;

190   Muscularity = 0.851; Thin-Fat Self = 0.944; and Thin-Fat others = 0.906: Time 2 - Appearance

191   = 0.907 Muscularity = 0.893; Thin-Fat Self = 0.894; and Thin-Fat others = 0.941).

192   ***Body Appreciation Scale 2 (BAS-2)***

193   The BAS-2 (Tylka & Wood-Barcalow, 2015) was used to measure body appreciation

194   in general, (rather than in a sporting context). It consists of statements relating to body

195   appreciation, such as 'I respect my body'. Answers for each statement were measured on a

196   Likert scale ranging from 1 (never) -5 (always). Item mean scores are used (ranging = 1-5),

197   where higher scores indicated greater body appreciation. The BAS-2 has good internal

198 consistency, test-retest reliability and construct validity (Tylka & Wood-Barcalow, 2015).

199 Internal consistency was strong in this study at both time points (Time 1 - *alpha* = 0.941; Time

200 2 – alpha = 0.948).

201 ***Eating Disorder Examination-Questionnaire (EDEQ)***

202 The EDEQ (Fairburn & Beglin, 2008) is a 28-item self-report questionnaire assessing

203 eating disorder psychopathology consisting of four subscales. Higher scores reflect more

204 severe eating concerns. The global score (EDEQ-G) was used here, as it has good validity

205 and psychometric properties (Mond et al. 2004) for both clinical and general populations (Berg

206 et al., 2012; Luce & Crowther, 1999; Peterson et al., 2007). The EDEQ items are scored using

207 a 7-point Likert scale. Questions 1-12 and 19-21 were scored based on the frequency of the

208 behaviour listed (e.g. 0 = no days, 6 = every day). Questions 22-28 were rated from 0 (not at

209 all) to 6 (markedly). The global score is the sum of the four subscale scores divided by the

210 number of subscales, and had strong internal consistency at both timepoints in this study

211 (Time 1 *alpha* = 0.880; Time 2 – alpha = 0.935).

212 **Data analysis**

213 Statistical analyses were conducted using IBM SPSS Statistics Software, Version 27.

214 One-way ANOVAs were conducted to determine any baseline differences at time 1 between

215 competitive sports engagers, non-competitive sports engagers and sports non-engagers.

216 Internal consistency of each scale used in this study was also reported, as Cronbach's *alpha*.

217 A hierarchical linear multiple regression examined whether baseline body appreciation

218 (BAS-2) and sporting body image (the four CBIQA sporting subscales) predicted ED

219 psychopathology at time 2 (EDEQ-G), above and beyond the effect of eating disorder

220 psychopathology at time 1 (EDEQ-G). The predictors were entered in two blocks: i) EDEQ-G

221 time 1 scores and ii) BAS-2 and the four CBIQA sporting subscale scores (Appearance,

222 Muscularity, Thin-Fat self, Thin-fat other). Except for the CBIQA sporting appearance

223 subscale, the remaining three CBIQA sporting subscale scores (muscularity; thin-fat self; thin-

224 fat other) were converted for the regression analyses, since their scoring differs substantially

225 (Myers et al., 2012). For the CBIQA sporting appearance subscale, the higher the score, the

226 more beautiful a person perceives themselves. The remaining subscale scores use a score of

227 4 on a Likert scale for the most positive rating, with higher and lower scores each indicating

228 different patterns of poor body appearance. Thus, the converted subscale scores used in the

229 regression were calculated by subtracting 4 from the raw score and taking the absolute score

230 (any negative scores were converted to positive numbers by omitting the negative sign),

231 meaning that a higher score indicated more negative body image.

Results

Sample characteristics

234 The 510 participants (400 female, 108 male, one non-binary, one declined to say)

235 completed all Time 1 questionnaires. Their mean age was 34.05 years (SD = 10.65; range =

236 18-71), and their mean BMI was 24.28 (SD = 5.03). Of the 510, 117 met criteria for competitive

237 sports engager (41 male, 74 female, 1 non-binary, 1 did not disclose; mean age = 31.97 years,

238 SD = 10.54; mean BMI = 22.59, SD = 3.00), 276 for non-competitive sports engager (44 male,

239 232 female; mean age = 34.59 years, SD = 9.68; mean BMI = 23.90, SD = 3.68), and 117

240 sports non-engagers (23 male, 94 female; mean age = 34.87 years, SD = 12.68; mean BMI =

241 26.86, SD = 7.74). The most popular sports that participants engaged in were running (n =

242 344), hiking (n = 210) and gym-going (weights) (n = 192).

Differences between competitive sports engagers, non-competitive sports engagers and sports non-engagers

245 Table 1 shows Time 1 scores on EDEQ, BAS-2 and CBIQA for the three groups.

246 Scores were comparable to other non-clinical populations. Cronbach's alpha demonstrates

247 strong to excellent internal consistency for each of the baseline measures.

248 _____

249 Insert Table 1 about here

250 _____

251

252 One-way ANOVAs were used to determine differences between sports engagers and

253 non-engagers. Competitive sports engagers had generally more positive body image (general

254   and sporting) than the other groups. There were very few differences between the non-

255   competitive sports engagers and sports non-engagers. However, there were no differences

256   across the three groups in eating psychopathology. As the dependent variable in the

257   subsequent analyses was eating psychopathology (EDEQ-G scores), the groups were

258   combined to test the longitudinal element of the study.

259   **Association of body image with subsequent eating pathology**

260   For the longitudinal analyses, missing data (due to participant drop-out/participants

261   missing the deadline for response) were excluded (54.9% attrition rate) and the analysis was

262   conducted on participants who completed all time 1 and time 2 measures (n = 230). A

263   hierarchical linear regression was conducted to determine the most parsimonious set of

264   predictors of eating psychopathology, with EDEQ-G scores at time 2 as the dependent

265   variable. EDEQ-G scores at Time 1 were entered first, to ensure that any effects of body image

266   measures were over and above the impact of eating disorder psychopathology. BAS-2 and

267   the four CBIQA sporting subscales were entered in the second block of the regression.

268   Table 2 shows that, as expected, EDEQ-G scores at Time 1 predicted EDEQ-G scores

269   at Time 2. Adding the body image variables (BAS-2; CBIQA sporting subscales) in block 2

270   explained a small but significant additional 3% of the variance in ED psychopathology at time

271   3. This was due to significant effects of BAS-2 and CBIQA Sporting Appearance scores. To

272   summarise, there was continuity of eating pathology across the six months. This impact on

273   EDE-Q scores was reduced by greater body appreciation, but enhanced by more negative

274   sporting appearance perception.

275   _____

276   Insert Table 2 about here

277   _____

278

279   **Discussion**

280   The primary aim was to determine whether body image concerns (general; sporting)

281   at time 1 would predict ED psychopathology six months later for competitive sports engagers,

282   non-competitive sports engagers, and sports non-engagers. As these three groups did not

283   differ in eating concerns from the outset (though they did differ in body image), the three

284   groups were combined (ensuring adequate power in the regression analysis). The regression

285   analysis confirmed that body appreciation and appearance-related sporting body image

286   predicted eating psychopathology six months later, over and above the continuity of eating

287   concerns. However, three of the sporting body image subscales did not predict eating

288   psychopathology.

289   Competitive sports engagers had more positive body image compared with sports non-

290   engagers, mirroring previous findings (Burgon et al., 2023; Karrer et al., 2020). The

291   relationship between higher competition levels and differences in body image is complex and

292   has produced mixed findings in the past (Beckner & Record, 2016). The current study provides

293   support for competitive sports engagers having better body image (both sporting and general)

294   than non-competitive sports engagers. The finding that competitive sports engagers had better

295   general and sporting body image might be due to their body image better matching

296   Westernised body image ideals (e.g., runners, who were the largest sporting group here)

297   (Torstveit et al., 2008). Competitive athletes might judge their body based on its functionality.

298   Sports participation has been associated with better body functionality due to promoting

299   appreciation of the body and its functional abilities (Soulliard et al., 2019). Competing and

300   setting personal goals (e.g., a personal best) might encourage people to think more

301   functionally about their bodies, rather than purely aesthetically.

302   Poor body appreciation predicted higher eating psychopathology across the whole

303   sample. This outcome mirrors extensive findings that body image is a risk factor for eating

304   psychopathology (Askew et al., 2020; Petrie & Greenleaf, 2007; 2012). *Lower* appearance-

305   related body image concerns (i.e., individuals rating themselves as more beautiful) predicted

306   higher eating psychopathology. This result appears to contrast with previous findings (Petrie

307   & Greenleaf, 2007; 2012), those authors did not consider sporting body image, which may

308   explain the contrasting finding. Since body appreciation (i.e., body image in a general context)

309   and sporting body image separately predicted ED psychopathology here, there is support for

310   the notion that two separate body images exist (general; sporting) (de Bruin et al., 2011),

311   among adults as well as adolescent populations.

312   Whilst increasing body functionality can reduce eating disorder risk (Linardon, 2021),

313   findings might not generalise when considering sporting body image specifically. In this study,

314   higher self-ratings of appearance in a sporting context were linked to greater eating

315   psychopathology. In a sporting context, people may experience a polarisation over time

316   towards thinner ideals by comparing themselves to more 'athletic' bodies rather than the

317   general westernised ideals (Stoyel et al., 2021). Moreover, maintaining an 'athletic' body

318   image might become increasingly hard with age, leaving individuals to engage in eating

319   behaviours (e.g., restrictive eating) as a means of achieving the harder ideal. Thus, within

320   sporting contexts, the short-term benefit of positive body image related to exercise might have

321   negative consequences over time (increased ED psychopathology risk).

322   This study had a number of limitations that should be considered. The researchers

323   were unable to collect the full data set needed, due to constraints of completing the first

324   author's doctoral thesis. The longitudinal analysis was under-powered and could not be

325   conducted separately for each group, given that only 230 of the necessary 291 participants

326   completed all measures, though the combination of the groups into a single sample went some

327   way to addressing this limitation. Future research needs to address this limitation by working

328   to recruit disproportionately into sports engager groups. The attrition rate (54.9%) was higher

329   than expected, which might be a product of the research being conducted completely online

330   and point to a need to assume a high attrition rate in similar longitudinal work, or which might

331   suggest a need for more substantial incentives for individuals to maintain participation.

332   However, it is noteworthy that this attrition rate is similar to that found by other authors

333   examining body image over such a long period (e.g., Messer et al., 2022), and therefore this

334   might be the rate of attrition that can be expected in future research. Furthermore, the sample

335   had a substantial majority of females, meaning that any gender-specific regression analysis

336   would have been underpowered for males. Finally, the age range was wider than in other

337   studies and individuals engaged in a range of different sports (e.g., gym-going and running),

338   which might have impacted findings.

339   Furthermore, the measures might not have been the optimum set. In particular, the

340   sporting body image measure (CBIQA) required participants to evaluate their body image in a

341   sporting context, which might have been less relevant to sports non-engagers, who partake in

342   limited physical activity. The sport demographic questionnaire was designed by the

343   researchers, which may have limited how the groups were categorised.

344   The nature of sporting activity might also need further consideration. The

345   categorisation of sports could have led to heterogeneity within the groups (e.g., competitive

346   sports engagers could have included athletes ranging from local competitions to elite status).

347   Similarly, the aim and level of sport engagement might be important, since those motivated by

348   appearance-related factors to engage in sports might be more prone to body image

349   dissatisfaction and/or eating disorder psychopathology (Panão & Carraça, 2020). Future

350   research should consider recruiting across competition levels and explore differences in body

351   image/ED psychopathology according to aim of sports engagement.

352   Future studies could recruit different samples to explain the body image-eating

353   psychopathology link, such as all genders and gender identities and other sports types (e.g.,

354   gymnastics). Ethnicity should also be considered, given the fact that the thin-ideal is differently

355   experienced in different groups. Finally, future research should consider whether these

356   findings are generalisable to those with eating disorders who engage in different exercise

357   patterns.

358   This study also offers clinical guidance relating to sporting activity and athletes. Healthy

359   individuals might be recommended to partake in sports, particularly competitive sports, due to

360   their association with more positive body image and reduced social anxiety. However, this

361   cannot be an unequivocal recommendation, given that this study has shown that better

362   appearance-related sporting body image can increase risk of eating psychopathology six

363   months later. Competitive sporting individuals (and their support network of coaches, family

364   and peers) might be encouraged to celebrate the athlete's body's functional capabilities rather

365   than aesthetics (e.g., that they have strong legs for running rather than 'chunky legs').

366   To conclude, this longitudinal study contributes to understanding of the relationship

367   between poor body image and eating psychopathology over time, and across sporting sub-

368   samples (competitive, non-competitive and sports non-engagers). Poor body appreciation and

369   better appearance-related sporting body image predicted eating psychopathology for the

370   whole sample. However, the psychological mechanisms that explain that link remain unclear,

371   suggesting a need for further consideration of how body image has its impact on eating

372   psychopathology over time.

373

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478

479 **Table 1**

480 *Mean baseline scores (Time 1 measures) and standard deviations for participants across the*

481 *conditions, with one-way ANOVA statistics.*

	Group			ANOVA		
Baseline Measure	Competitive Sports Engager (*n* = 117) M (SD)	Non-competitive Sports Engager (*n* = 276) M (SD)	Sports non-engager (*n* = 117) M (SD)	*F*	*p*	*Partial eta^2 (np^2)*
EDEQ Global Score	1.79 (1.37)	2.00 (1.25)	1.97 (1.24)	1.076	.342	0.004
BAS-2	3.40 (0.83)[a*; b***]	3.17 (0.74)[a*]	2.99 (0.90)[b***]	7.608	<.001	0.029
CBIQA sporting appearance	4.20 (1.02)[a***; b*]	3.83 (0.78)[a***]	3.82 (1.10)[b*]	7.430	<.001	0.028
CBIQA sporting muscularity	3.77 (0.85)[a***; b***]	3.38 (0.83)[a***]	3.19 (1.05)[b***]	13.471	<.001	0.050
CBIQA sporting thin-fat self	4.69 (0.88)[b*]	4.85 (0.79)	4.97 (1.05)[b*]	3.047	.048	0.012
CBIQA sporting thin-fat other	4.17 (0.79)[b***]	4.27 (0.72)[c*]	4.58 (1.02)[b***; c*]	8.512	<.001	0.032

482 *Note.* M = Mean; SD = Standard Deviation; ns = not significant

483 EDEQ = Eating Disorder Examination Questionnaire; CBIQA = Contextual Body Image Questionnaire for

484 athletes; BAS-2 = Body Appreciation Scale 2

485 Same superscripts represent significant differences: [a] competitive vs non-competitive sports

486 engagers; [b] competitive sports vs sports non-engager; [c] non-competitive sports vs non-engager (***

487 significant at *p* <.001 level; * significant at *p* <.05 level).

488

489   **Table 2**

490   *Hierarchical regression model of EDEQ-G scores at time 2 (n = 230)*

	R	R^2	R^2 Change	B	SE	β	t
Step 1	0.79	0.63***	0.63				
EDEQ-G (T1)				0.77	0.04	0.79	19.67***
Step 2	0.81	0.66**	0.03**				
EDEQ-G (T1)				0.65	0.05	0.68	12.21***
BAS-2				-0.31	0.09	-0.21	-3.58***
CBIQA sporting appearance				0.18	0.07	0.13	2.50*
CBIQA sporting muscularity$				-0.07	0.08	-0.04	-0.94
CBIQA Sporting thin-fat self$				0.12	0.09	0.08	1.26
CBIQA sporting thin-fat other$				0.08	0.10	0.04	0.80

491   *Note.* Statistical significance: *p* <.05; **p* <.01; ***p* <.001. $ indicates subscales using the
492   converted scores (as described above). T1 = time 1. EDEQ-G = Eating Disorder Examination
493   Questionnaire Global Subscale; CBIQA = Contextual Body Image Questionnaire for athletes;
494   BAS-2 = Body Appreciation Scale 2.
495
496

Appendix 1: *Number of participants engaging in the different activities. Note that participants could record more than one activity. Sports non-engagers may have listed sports, but did not fulfil the criteria for 'sports engagers'.*

Group	Running	Cycling	Swimming	Hiking	Team sports	Other endurance	Gymgoer HIIT	Gymgoer Weights	Weight category sport	Posture/ balance	Combat sport	Racket sport	Gymnatics	Dance	Crossfit	Other sport	No Sport
Competitive sports	87	40	19	33	25	6	13	45	5	29	5	5	4	5	5	7	0
Non-competitive sports	214	66	43	127	13	5	80	124	15	102	8	4	2	5	22	18	0
Non sports engager	43	18	13	50	13	3	14	23	5	26	7	8	1	4	3	9	24
Total	344	124	75	210	51	14	107	192	25	157	20	17	7	14	30	34	24