

Testing the effects of a preceding self-control task on decision making in soccer refereeing

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9 1 Abstract

10 The present study tested the assumption that the momentary level of self-control strength affects the
11 accuracy rates in a sports-related judgement and decision-making task. A total of $N = 27$ participants
12 rated the veracity of 28 video-taped statements of soccer players who were interviewed by a non-
13 visible referee after a critical game-related situation. In half of the videos, the players were lying and
14 in the other half they were telling the truth. Participants were tested twice: once with temporarily
15 depleted self-control strength and once with temporarily available self-control strength (order
16 counterbalanced; measurements separated by exactly seven days). Self-control strength was
17 experimentally manipulated with the Stroop task. In line with two-process models of information
18 processing, we hypothesized that under ego depletion, information is processed in a rather heuristic
19 manner, leading to lower accuracy rates. Contrary to our expectations, the level of temporarily
20 available self-control strength did not have an effect on accuracy rates. Limitations and implications
21 for future research endeavors are discussed.

22 Keywords: decision making, ego depletion, cognitive fatigue, sports, refereeing, Stroop, effort

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31 **2 Introduction**

32 Deception in sports is a critical issue as it might decisively change the outcome of a match
33 (Güldenpenning, et al., 2017). According to Hsu (1997), deception means “making someone believe
34 something that is not true in order to get what you want” (p. 167). For instance, a wrongfully granted
35 penalty kick during overtime in a tied soccer match will likely determine which team wins the game
36 (Sabag et al., 2018). In sports, lying to the referee can be considered a special form of deception.
37 While research on deception has a long tradition in sports (for an overview see Güldenpenning et al.,
38 2017), and the ability to detect deceit and, especially, lies has been center stage in the criminal justice
39 system (e.g., Akehurst et al., 1996) as well as in educational settings (e.g., Marksteiner et al., 2013)
40 for many years, but only recently has the topic of lie detection been addressed in sports-related
41 contexts. This seems rather surprising, given the high potential impact of “successfully” lying to a
42 referee.

43 Given the impending influence of deceit on the results of a sporting competition, it seems highly
44 important that a referee’s judgement and decision making take place as accurately as possible.
45 However, as far as we know, there have been very few systematic, experimental studies on referee
46 accuracy rates regarding deception (e.g., Aragão e Pina et al., 2018; Morris & Lewis, 2010; Renden
47 et al., 2014), as most studies on deception in sports have been correlational and, for instance, asked
48 their participants how they would possibly behave in a certain hypothetical situation (e.g., Kavussanu
49 & Ntoumanis, 2003). A notable exception is a study series by Morris and Lewis (2010), in which
50 they first generated a sequence of video clips in which soccer players were instructed to overstate the
51 effects of a tackle by an opposing player. In a subsequent study, neutral observers rated each video
52 clip whether the respective video-taped player had actually been fouled or not. The results revealed
53 that the neutral observers judged the video-clips very accurately. Another experimental study on lie
54 detection was conducted by Englert and Schweizer (2020). Taking a similar approach, the authors
55 first created 28 video clips in which soccer players were either telling the truth or lying regarding two
56 simulated critical game situations. The veracity of each of the 28 video clips was later rated by
57 neutral observers in a series of three studies. The results were rather mixed, as the statements of some
58 of the interviewed players were rather easy to classify, while other players were fairly good at lying.
59 When looking at the accuracy rates of correctly classifying truths and lies in other domains (e.g., the
60 criminal justice system), recent meta-analyses indicate that, overall, individuals are not very accurate
61 at detecting lies, or more precisely, they are only slightly better than the chance level (i.e., accuracy
62 rate of 54%) (e.g., Bond & DePaulo, 2006).

63 It remains largely unknown which factors influence the accuracy rates of referees. Previous meta-
64 analyses found no empirical evidence that gender, age, expertise, or certain personality traits
65 significantly impacted the accuracy rates (e.g., Aamodt & Custer, 2006; Bond & DePaulo, 2006). In
66 order to identify potential factors, we must first take a closer look at the actual judgement and
67 decision-making process. Dual-process models of information processing assume that there are two
68 different types of information processing when making a judgement (e.g., Chaiken & Maheswaran,
69 1994; Chaiken & Trope, 1999; Petty et al., 2005) (for an application of dual-process theorizing to the
70 domain of sports see Furley et al., 2015): *Heuristically* (also called *peripheral route*) or
71 *systematically* (also called *central route*). When processing information and making a judgement in a
72 heuristic manner, individuals focus less carefully on the content of a statement and more so on
73 peripheral cues, such as the likability or trustworthiness of the source or simply the number of
74 arguments presented by the source (Petty et al., 2005). On the contrary, systematic information
75 processing allows a person to carefully pay attention and evaluate the quality of the arguments
76 presented (e.g., Chaiken & Trope, 1999). The importance of dual-process models has also been

77 shown in other sport- and exercise-related settings (Furley et al., 2015): for instance, a physically
78 inactive person might have the intention to work out in the evening, but has a negative attitude
79 towards physical exercise and tends to avoid straining physical activities (e.g., Bluemke et al., 2010).
80 In the evening, his/her favorite TV program is on and the person has to make a decision on whether
81 to exercise or not. When making the decision heuristically, the person is less likely to exercise as
82 he/she pays less attention to the positive aspects of physical activity. However, when making the
83 decision systematically, he/she weighs the positive and negative aspects of exercising against one
84 another and is more likely to work out (see also, Englert & Rummel, 2016). Taken together, heuristic
85 information processing is less reflective and requires less effort than systematic information
86 processing (Petty et al. 2009; Petty et al., 2005). Previous research from the criminal justice system
87 has reliably shown that judgements are more accurate when taking the systematic information
88 processing route (e.g., Feeley & DeTurck, 1995; Masip et al., 2009; Vrij et al., 2010). This leads to
89 the question: Which factors determine which type of information processing dominates in a given
90 situation? One potential candidate is the level of temporarily available self-control strength, which
91 we will describe in more detail in the following sections (e.g., Davis & Leo, 2012).

92 According to the strength model, all self-control acts are based on a global metaphorical resource
93 with a limited capacity (e.g., Baumeister et al., 1998; see also André et al., 2019; Audiffren & André,
94 2015). In this context, self-control means inhibiting certain impulses or response tendencies in order
95 to keep striving for desirable outcomes and to perform at the highest possible level (e.g., Englert,
96 2017, 2019). Self-control acts include, amongst others, emotion regulation, attention regulation, and
97 most importantly for the present investigation, judgement and decision making (Hagger et al., 2010;
98 Samuel et al., 2018) (for an overview, see also Englert, 2017, 2019). It is assumed that after
99 individuals have worked on a self-control task their self-control resources become temporarily
100 depleted for a certain amount of time. During this so-called state of *ego depletion*, following self-
101 control tasks are executed less efficiently as less cognitive effort is likely to be invested (e.g.,
102 Baumeister et al., 1998). Given that self-control strength needs to be exerted in order to process
103 information via the cognitively demanding systematic route, previous empirical research has shown
104 that ego depleted individuals tend to process information in a heuristic manner (e.g., Baumeister et
105 al., 2008; Unger & Stahlberg, 2011; Wheeler et al., 2007). In two studies, Reinhard, Scharmach, and
106 Stahlberg (2013) manipulated ego depletion and found out that ego depleted participants were more
107 likely to process information heuristically and displayed lower lie detection accuracy rates than non-
108 depleted participants (for similar findings, see also Davis & Leo, 2012; Wheeler et al., 2007).

109 Based on these empirical findings and theoretical assumptions, we assumed that individuals are more
110 likely to process information heuristically if they had been working on a straining self-control task
111 before (i.e., under ego depletion). As systematic information processing is associated with higher
112 accuracy rates during judgement and decision making, we tested the hypothesis that depleted
113 individuals are less accurate in correctly classifying ambiguous situations during a soccer match than
114 non-depleted participants (see also Reinhard et al., 2013). In order to test these assumptions, we
115 adopted Englert and Schweizer's approach (2020) and asked participants at two separate times of
116 measurement to rate the truth of a series of 28 video-taped statements of soccer players, in which
117 they either lied to a referee or told him the truth. At one time of measurement, participants' self-
118 control strength was experimentally depleted, while it remained intact at the other time of
119 measurement (order counterbalanced).

120 3 Materials and Methods

121 3.1 Participants

122 A G*Power (Faul et al., 2007) analysis showed that a sample of $N = 27$ was necessary for detecting
123 at least a medium effect (parameters: $f = 0.30$, $\alpha = 0.05$, $1 - \beta = 0.85$, $r_{\text{repeated measures}} = 0.50$, $\varepsilon = 1$).
124 Based on this estimate, a total of $N = 27$ university students from a German university volunteered to
125 partake in the present investigation (16 females, 11 males; $M_{\text{Age}} = 27.74$ years, $SD_{\text{Age}} = 7.17$). Three
126 participants had soccer refereeing experience ($M = 3.67$ years, $SD = 3.79$). The study was approved
127 by the local ethics committee, and all participants delivered written informed consent.

128 3.2 Design, procedure, and measures

129 The participants were tested at two times of measurement exactly seven days apart under
130 standardized conditions in single sessions on a regular computer in a university lab room. All
131 instructions, video clips, and questionnaires were delivered via an online survey program (Unipark).
132 Each participant was wearing regular stereo headphones and the sound was played at a constant
133 volume. At one time of measurement, participants' self-control strength was experimentally depleted
134 (depletion condition), while it remained intact at the other time of measurement (control condition;
135 order counterbalanced). First, participants reported demographic information (i.e., age, sex,
136 refereeing experience).

137 Then, self-control strength was experimentally manipulated by using the Stroop test, which has been
138 frequently applied in self-control research (e.g., Bray et al., 2012; Englert & Bertrams, 2014). The
139 Stroop test consists of color words which are either displayed in the same font color as the color word
140 (congruent Stroop trial; e.g., the word "red" written in red font color) or in a different font color
141 (incongruent Stroop trial; e.g., the word "red" written in yellow font color); participants need to
142 always name the font color instead of the written color word. It has been reliably shown that in order
143 to ignore the color word and to read the font color instead, self-control needs to be invested, which is
144 why this task has been regularly applied to manipulate self-control strength. In the present study, at
145 both times of measurement, participants first performed a series of 32 practice trials and then worked
146 on 300 incongruent Stroop trials in the depletion condition and on 300 congruent Stroop trials in the
147 control condition. The number of falsely identified Stroop trials and the average response latencies
148 were measured as manipulation checks, assuming that in the depletion condition, participants would
149 make more mistakes and would need longer to answer each trial (in milliseconds) (e.g., Bray et al.,
150 2012; see also, Pageaux et al., 2014).

151 At both times of measurement, following the Stroop task, the participants were informed that they
152 would be watching a series of video clips. These video clips were taken from Englert and
153 Schweizer's study (2020), in which the authors created 28 video clips in which male soccer players
154 from a club from the sixth highest league in Germany (out of 11 leagues) were either telling the truth
155 or lying regarding two simulated critical game situations. These simulated game situations took place
156 immediately before an interview with a professional soccer referee. In both situations, the player
157 acted as a defender as another player played a long pass toward the goal line for his teammate. Once,
158 the defender was asked to not allow the other player to get to the ball and to instead let the ball cross
159 the goal line, which would lead to a goal kick for his team. In the other situation, the instructions
160 were similar with the only difference being that the defender did actually touch the ball last before it
161 passed the goal line. In this latter case, the correct decision would have been a corner kick. However,
162 in both situations, the defender was asked to tell the referee, who had not seen the critical situation, in
163 the subsequent video interview, that the offensive player had touched the ball last and the correct
164 decision was supposedly a goal kick, meaning that the defender was telling the truth in one interview
165 and was lying in the other. The referee asked each player exactly the same questions and was not

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166 seen in the video. The participants in the current study did not watch the critical situation, but only
167 the subsequent interview. The participants were also told that each player was in a similar critical
168 situation twice during the same game and would thus be interviewed by the same referee at two
169 separate times. However, the participants were not made aware of the fact that each player was lying
170 in one interview and speaking the truth in the other interview, leading to a total of 14 true statements
171 and 14 lies. On average, each video clip lasted roughly 28 seconds ($M = 27.5$, $SD = 6.27$) and the
172 player's upper torso, face, and legs could be seen in each clip. The sound quality was the same in all
173 video clips. Participants were further instructed that they would have to rate the veracity of each
174 interview on a continuous scale ranging from 1 (*not at all true*) to 10 (*totally true*) immediately
175 following each video clip (for this procedure, see also Marksteiner et al., 2013). The video clips were
176 displayed in a randomized order immediately after finishing the Stroop task in both conditions. In
177 total, participants rated the veracity of 28 video statements while being ego depleted and the veracity
178 of the same 28 video statements with fully available self-control strength. In order to reduce the
179 likelihood of a learning effect, the two times of measurement were separated by exactly seven days,
180 and the order of the video presentation was randomized.

181 – Figure 1 about here –

182 Finally, after the second time of measurement, the participants were debriefed and thanked for their
183 participation.

184 3.3 Data analysis

185 Data were analyzed using SPSS (version 27; SPSS Inc., Chicago, IL, United States). We ran paired
186 samples *t*-tests to investigate the assumptions that the depletion condition would perform worse in the
187 Stroop task (i.e., longer response latencies in milliseconds; higher number of Stroop errors) and
188 would be less adept in correctly distinguishing between true and false statements than the control
189 condition. All effect sizes were calculated as Cohen's *d* (i.e., small effect: $d = 0.2$; medium effect: $d =$
190 0.5 ; large effect: $d = 0.8$; Cohen, 1988). For all analyses, statistical significance was accepted as $p <$
191 0.05 .

192 4 Results

193 4.1 Preliminary analyses

194 As expected, the Stroop response latencies in the depletion condition ($M = 839.08$ ms, $SD = 179.68$)
195 were significantly longer than in the control condition ($M = 717.55$ ms, $SD = 156.80$), $t(26) = 7.02$, p
196 $< .0001$, $d = 1.35$. Additionally, there was the expected tendency in the number of Stroop errors
197 between the depletion condition ($M = 7.96$, $SD = 6.00$) and the control condition ($M = 6.59$, $SD =$
198 5.80), which however failed to reach statistical significance, $t(26) = 1.86$, $p = .075$, $d = 0.36$. On
199 average, the depletion condition ($M = 331633.70$ ms, $SD = 69442.08$) needed significantly longer to
200 finish the 300 Stroop trials than the control condition ($M = 295259.67$ ms, $SD = 53785.51$), $t(26) =$
201 3.89 , $p < .0001$, $d = 0.75$.

202 4.2 Primary analyses

203 In line with Englert and Schweizer's approach (2020), for both conditions, we first compared the
204 veracity ratings of the true statements to the veracity ratings of the lies in order to investigate the
205 question of whether participants in both conditions were able to distinguish (on average) between

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206 true and false statements (for descriptive statistics see Table 1). In both groups, false statements were
207 rated significantly lower than true statements, indicating that participants in both conditions were
208 able to distinguish between true and false statements (control: $t(26) = 2.15, p = .041, d = 0.41$;
209 depletion: $t(26) = 4.34, p < .001, d = 0.83$).

210 Next, in order to investigate potential differences between the depletion and the control conditions,
211 we compared the ratings of the true statements between the two times of measurement (control vs.
212 depletion). Contrary to our hypothesis, the veracity ratings did not differ statistically significantly
213 between the depletion condition ($M = 5.99, SD = 0.81$) and the control condition ($M = 5.83, SD =$
214 0.98), $t(26) = 0.81, p = .426, d = 0.16$. There were also no significant differences between the
215 depletion condition ($M = 5.39, SD = 0.73$) and the control condition ($M = 5.32, SD = 0.98$) in the
216 veracity ratings of the false statements, $t(26) = 0.39, p = .703, d = 0.07$ (see also Table 1).

217 4.3 Complementary Bayesian Hypothesis Testing

218 We ran additional Bayesian paired samples t -tests, to further investigate whether the differences in
219 the veracity ratings of true and false statements between the depletion and the control condition do
220 not exist (i.e., that the null hypotheses are more likely to be true; for this approach, see also Dienes,
221 2014; Wagenmakers et al., 2018a, b). For the true statements, a two-sided analysis revealed a Bayes
222 factor (BF01) suggesting that the data were 3.64 times more likely under the null (i.e., the two
223 conditions do not differ in their veracity statements of the true statements) than the alternative
224 hypothesis (i.e., the two conditions differ) with a median effect size of 0.14, which indicates
225 moderate evidence in favor of the null hypothesis. For the false statements, the results indicate that
226 the observed data are 4.58 times more likely under the null (i.e., the two conditions do not differ in
227 their veracity statements of the false statements) than the alternative hypothesis (i.e., the two
228 conditions differ) with a median effect size of 0.07, which indicates moderate evidence in favor of
229 the null hypothesis.

230 – Table 1 about here –

231 5 Discussion

232 In the present study, we tested the assumption that individuals would be less adept in correctly
233 identifying the veracity of a player's statement following a critical game situation during a soccer
234 match if they had been working on a straining self-control task beforehand. For that reason,
235 participants rated a series of video statements at two times of measurement, once with fully available
236 self-control strength and once in a state of ego depletion (order counterbalanced). According to two-
237 process models, there are two types of information processing, namely a heuristic and a systematic
238 mode. When judging the veracity of a statement in a heuristic manner, individuals tend to focus on
239 rather invalid cues to deception (e.g., number of statements), while a systematic mode is related to an
240 increased focus on valid cues (e.g., actual content of the statement) and a higher likelihood of
241 classifying a statement correctly (DePaulo et al., 2003; Forrest et al., 2004). But, systematic
242 information processing is effortful and, according to several authors, requires self-control strength
243 (e.g., Baumeister et al., 2008; Davis & Leo, 2012; Reinhard et al., 2013; Unger & Stahlberg, 2011;
244 Wheeler et al., 2007). If one's self-control resources had been taxed in a previous task, he/she is less
245 likely to have the necessary self-control strength to process information systematically and will tend
246 to process heuristically instead. However, the results did not support our hypothesis as there were no
247 statistically significant differences in the accuracy rates between the control and the depletion
248 condition.

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249 When investigating why the control and the depletion condition did not differ regarding their veracity
250 ratings, it is important to emphasize that in both conditions, participants actually could differentiate
251 between true and false statements (although not very strongly). This can be considered a necessary
252 prerequisite for testing our main hypothesis: If participants in the control condition cannot distinguish
253 between true and false statements, then they cannot get worse in the depletion condition. Given that
254 this prerequisite was met, how can we then explain that participants in the depletion and the control
255 conditions did not differ, considering that the study was adequately powered and that the depletion
256 manipulation was effective? One potential explanation for this pattern is that participants in the
257 control condition did rely on heuristic processing as well. This would both explain why participants
258 were not able to distinguish more strongly between false and true statements (because doing so
259 would require more systematic processing) and why they did not get worse in the depletion
260 condition. To address this issue, further research might want to employ not only a condition that is
261 supposed to decrease systematic and to increase heuristic processing (such as the depletion condition
262 in the present research), but furthermore a condition that is supposed to increase systematic
263 processing. This might be accomplished by incentivizing participants, for example (see also,
264 Beckmann, 2020).

265 Another potential explanation might be the low level of expertise/experience of the participants in
266 our study (only three participants had soccer refereeing experience), as one might reason that
267 participants with soccer refereeing experience are better at correctly judging player statements (e.g.,
268 MacMahon et al., 2007; Moore et al., 2019). Even though several large-scale studies from the
269 criminal justice system and educational psychology have reliably demonstrated that the raters'
270 expertise does not affect their accuracy rates (e.g., Aamodt & Custer, 2006; Bond & DePaulo, 2006),
271 future studies should investigate whether the same is true in sports-related judgement and decision
272 making situations.

273 We would also like to address the fact that the depletion condition took significantly longer to finish
274 the Stroop task than the control condition. This matter seems especially important, as a recent study
275 by Boat and colleagues (2020) revealed that longer Stroop task durations were related to lower
276 performance in a subsequent self-control task. However, in the current study we did not find an effect
277 of the different Stroop task durations on the veracity ratings. Future studies should continue to dig
278 deeper into the effects of different self-control task durations on performance (see also Wolff et al.,
279 2021).

280 Individuals do not only differ in their levels of temporarily available self-control, but also in their
281 general self-control abilities, meaning that some are simply better at regulating themselves than
282 others (i.e., trait self-control; Tangney et al., 2004). In general, individuals with higher levels of trait
283 self-control are more adept at volitionally controlling their impulses and focusing on the task at hand
284 (e.g., De Ridder et al., 2012). In the current study, we did not measure trait self-control strength;
285 however, given the fact that we applied a repeated measures design, we assume that trait self-control
286 strength did not play a major part in our study. It has to be noted that the validity of the ego depletion
287 effect itself has been questioned on theoretical and empirical grounds. On an empirical level, some
288 recent large-scale replication studies did not find reliable statistical evidence for the ego depletion
289 effect (e.g., Blázquez et al., 2017; Hagger et al., 2016). For instance, Vohs and colleagues (in press)
290 conducted a preregistered replication report with over 3,500 participants from 36 labs worldwide.
291 While participants with depleted self-control did not differ significantly from the non-depleted
292 participants in terms of their performance, depleted participants did feel more fatigued than control
293 participants. So why did depleted participants feel fatigued while their actual performance did not

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294 suffer from their depletion? It might be reasonable to assume that the dependent variable in the Vohs
295 et al. study (Cognitive Estimation Test) (Bullard et al., 2004) was not self-control demanding *enough*.
296 If the dependent measure only requires minimal effort, it is highly unlikely to be affected by a
297 straining preceding self-control task (see also, Loschelder & Friese, 2016). In a similar fashion, in
298 our study rating the videos systematically might not place sufficiently high self-control demands on
299 one's self-control resources, thus making it more difficult to find statistically significant differences
300 between the depleted and the non-depleted conditions. Furthermore, while the results of the Stroop
301 test revealed the expected differences between the depletion and the control condition, we did not
302 apply an additional manipulation check measuring the level of perceived depletion following the
303 Stroop task. This notion seems especially important, as for instance Clarkson and colleagues (2010)
304 have demonstrated, that participants who perceived themselves as being more depleted performed
305 worse in following self-control acts than participants who perceived themselves as being less
306 depleted (see also Wright & Mlynski, 2019). Even though previous studies have reliably shown that
307 participants reported significantly higher levels of perceived depletion after the incongruent Stroop
308 task compared to the congruent one (e.g., Hagger et al., 2010), future studies should apply additional
309 manipulation checks to test the effectiveness of the respective ego depletion manipulation.

310 On a theoretical level, several researchers argue that the assumption of a limited metaphorical self-
311 control resource is not appropriate and cannot be adequately tested empirically (for a discussion, see
312 also Eronen & Bringmann, 2021). For instance, the process model by Inzlicht and Schmeichel (2012,
313 2016) postulates that a primary self-control act does not deplete limit resources but rather instigates
314 shifts in motivation (i.e., the person does not want to work on another straining task), emotions (i.e.,
315 the person perceives other straining tasks as rather negative), and attention (i.e., impaired attention
316 regulation), which ultimately affects performance in subsequent self-control tasks. In a similar
317 fashion, according to the behavioral restraint extension of the general fatigue analysis (e.g., Wright
318 Agtarap, 2015; Wright & Mlynski, 2019), the amount of self-control (i.e., restraint intensity) one can
319 or, more precisely, is willing to invest in a given task is not dependent on temporarily available self-
320 control resources. Rather it is a function of perceived fatigue, task difficulty (i.e., the magnitude of an
321 unwanted urge), and success importance (i.e., the importance of resisting the urge), with associated
322 cardiovascular responses following (i.e., changes in systolic and diastolic blood pressure as well as
323 mean arterial pressure; Wright et al., 2012). Therefore, fatigue does not automatically lead to less
324 effort or impaired self-control performance (e.g., Wright et al., 2013). For instance, if a fatigued
325 person thinks that success in an upcoming task is highly unlikely and that success is not especially
326 important, he or she is unlikely to invest high amounts of effort which will eventually lead to
327 impaired performance. However, if the same person views success in the upcoming task as likely and
328 important, he or she will be willing to invest more effort and perform at a higher level. Assessing
329 these additional psychological and physiological parameters specified in the process model as well as
330 the behavioral restraint extension of the general fatigue analysis might shed some light on the actual
331 mechanisms contributing to our present pattern of results. Taken together, even though we did not
332 find statistically significant differences between the control and the depletion condition in accuracy
333 rates, we do consider the present findings to be highly informative. First, they suggest that
334 participants are not necessarily worse at detecting lies in sports when in a state of ego-depletion.
335 Second, the present findings suggest fruitful avenues for further research (e.g., different
336 manipulations for systematic and heuristic processing). Third, it adds to the recent discussion
337 surrounding the ego depletion effect, indicating that systematic information processing might be less
338 prone to be affected by states of ego depletion. Fourth, it highlights the necessity to dig deeper into
339 the psychological and physiological mechanisms potentially affecting self-control performance.

340 6 Tables

341 **6.1 Table 1**

342 *Mean veracity ratings for the true and false statements, separated by condition (depletion vs. control)*

Statement	Depletion condition		Control condition	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
True	5.99	0.81	5.83	0.98
False	5.39	0.73	5.32	0.98

343 *Note.* $N = 27$. Each video was rated on a continuous scale ranging from 1 (*not at all true*) to 10
 344 (*totally true*).

345 **7 Figures**

346 *Figure 1.* Illustration of the experimental setup for the generation of the stimulus material. The player
 347 wearing the jacket is a confederate acting as an attacking player, the player wearing the white jersey
 348 is a confederate acting as the teammate of the attacking player, and the player wearing the black
 349 jersey is the target player acting as the defender. The referee is standing on the right, observing the
 350 scene.



351

352 **8 Conflict of Interest**

353 The authors declare that the research was conducted in the absence of any commercial or financial
 354 relationships that could be construed as a potential conflict of interest.

355 **9 Author Contributions**

356 CE, AD, and GS equally contributed to the conceptualization of the study and review of relevant
 357 related work. CE, GS, and AD analysed and interpreted the data. CE and GS prepared the draft

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358 manuscript, while AD provided the critical revisions. All authors approved the final version of the
359 manuscript and agreed with the order of presentation of the authors.

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530 12 Data Availability Statement

531 The raw data supporting the conclusions of this manuscript will be made available by the authors,
532 without undue reservation, to any qualified researcher.