

1 INTRODUCTION

2

3 Powerlifting (PL) is a strength sport where 1-repetition-maximum (1RM) strength determines
4 competitive success. Competitors are allowed three attempts of three barbell lifts: the squat,
5 bench press, and deadlift. Their heaviest successful lift from each discipline contributes to
6 their total, and the competitor with the highest total within their respective age and weight
7 category wins. There are numerous formats in PL, the most common being the classic
8 division (22). In this division, competitors may only wear knee sleeves, a belt, and wrist
9 wraps as supportive equipment. Drug-tested PL within the International Powerlifting
10 Federation (IPF) has seen competitors increase by more than seven-fold from 2011-2021
11 (22). With this increased number of competitors comes a higher demand for coaches.

12

13 PL competitors work with coaches to develop training and recovery regimes to achieve a
14 higher competition total. It is generally observed that coaching in powerlifting is often
15 conducted remotely, likely due to the limited availability of specialized powerlifting gyms and
16 the relatively straightforward nature of the movements involved in the sport. This approach
17 allows competitors to work with coaches globally. However, there is little to no barrier to
18 becoming a coach, which can unfortunately lead to a lack of regulation and potentially low-
19 quality PL coaching practices. As higher satisfaction with strength and conditioning coaching
20 has been associated with positive athletic outcomes (8), ensuring competitors' satisfaction
21 with the coaching process may be necessary for coaching in powerlifting as well.

22

23 Remote coaching (RC) involves delivering coaching services digitally and remotely, allowing
24 athletes to receive guidance and feedback regardless of their location. The existing RC
25 literature focuses on health-based outcomes such as weight loss (10), diabetes
26 management (3), and physical activity (7). In contrast, PL literature is limited to exercise
27 prescription (2,12), stretching practices (25), tapering (30) and injury prevalence (26).

28 Despite the prevalence of RC for powerlifting (referred to as “online” hereafter to distinguish

29 from health-based RC) there are currently no evidence-based guidelines available. A better
30 understanding of factors underlying positive and successful PL coaching relationships
31 appears an important consideration within an online PL coaching context.

32

33 Communication is a vital component of the coaching process (5), particularly in RC (16). The
34 frequency of communication between coach and athlete has been shown to impact
35 outcomes across various domains, with more frequent coaching often leading to better
36 performance and engagement (1). In PL, frequent communication may be key in helping
37 athletes optimize their training and recovery routines, ensuring regular feedback and
38 adjustments.

39

40 The type of communication also plays an important role in the success of the coaching
41 relationship (19). Research focusing on health outcomes has shown both verbal (1,15,21)
42 and written (4,20,28) forms of communication to be effective, yet SMS-based coaching has
43 seen less success (24,31). Interestingly, in some studies (19,20) RC protocols were equally
44 as effective as in-person coaching and resulted in greater participation. Understanding the
45 role and application of different modes of communication may be important in an online PL
46 context due to the need for detailed feedback and consistent program adjustments.

47

48 Finally, the length of the coaching relationship is another critical factor for influencing
49 success (10). Longer coaching relationships allow for more personalized adjustments, as the
50 coach gains a deeper understanding of the individuals needs over time (8). In remote
51 coaching settings, this relationship-building becomes even more important to ensure
52 progress (11). Therefore, powerlifters working with a coach over an extended period may
53 experience greater performance improvements and higher satisfaction with the coaching
54 process.

55

56 Considering the sparse sports-specific research, only limited inferences can be made about
57 the role of RC in sports coaching generally and in online PL coaching specifically. Thus,
58 research providing a framework for online PL is needed. Therefore, the present cross-
59 sectional survey aims to gather insight into current online PL coaching delivery methods and
60 their associations with increases in PL total and lifters' satisfaction with the online coaching
61 experience. Based on the current evidence in RC research and the breadth of technical,
62 exercise prescription, and recovery-based guidance required for PL coaching, we
63 hypothesized that a higher frequency of communication, verbal feedback, and longer
64 coaching relationships would result in greater increases in PL total and higher satisfaction
65 from lifters.

66

67 **METHODS**

68 **Experimental approach to the problem**

69 A cross-sectional anonymous online survey was conducted on competitive powerlifters
70 working with an online coach. Participants were recruited for the survey via multiple
71 channels, including emails sent to members of the national powerlifting federation (email list
72 size not disclosed), social media posts detailing the study and participant requirements, and
73 approximately 20 posters displayed at an international competition. These posters outlined
74 the inclusion criteria and provided a QR code for those willing and eligible to participate.

75

76 **Subjects**

77 A total of 113 competitive powerlifters (age: 31.08 ± 10.6 years) volunteered for this study,
78 with 59 participants competing in the male category (age: 27.1 ± 8.9 ; Goodlift points [GLP]:
79 81.8 ± 9.6) and 54 competing in the female category (age: 35.5 ± 10.1 ; GLP: 77.5 ± 13.3). An a-
80 priori sample size calculation was completed to ensure sufficient power for detecting
81 meaningful effects. Based on the threshold for a 'medium' sized effect (as total variance
82 explained in the model, $R^2 > .13$), a .05 alpha error rate, and 80% power, initially based on

83 an estimated seven predictors. A sample size of 103 participants was determined to be
84 appropriate, which was increased to a target sample size of 119 to account for potential data
85 loss (and seemed reasonable based on our original estimates). Note in the final analysis,
86 models included six predictors in the 'Change in PL total' model and five predictors in the
87 'Lifter Satisfaction' model.

88

89 Participants had received at least six months of ongoing online coaching or had ended
90 coaching less than six months before they completed the survey and competed in at least
91 two IPF-sanctioned PL competitions, one before starting with their current coach (or their
92 first competition if it was with their current coach) and one between January 1, 2020, and
93 December 2022, with results registered on Open IPF (PL results database). In addition to
94 being listed as inclusion criteria, these characteristics were screened within the survey.

95 Participants provided written consent to be included in the study through a mandatory
96 consent question at the beginning of the online survey, with the research approved by the
97 University Ethics Committee (#22/280).

98

99 **Procedures**

100 The survey, comprising three sections and 27 questions, was delivered online via Qualtrics.
101 Initially, it was tested amongst research peers who both compete in and coach PL to
102 determine its relevance to the research aims and questions. No large-scale changes were
103 made from the original version; however, minor additions and amendments (e.g., clarity in
104 framing of questions) were implemented to ensure all the appropriate data was collected
105 accurately.

106

107 Section one collected participant demographic data related to PL, including age, highest
108 GLP (coefficient score to determine strength relative to body mass (6)), competitive category
109 (male or female), and most recent weight class. Section two determined length of coaching
110 relationship in months, with the final section pertaining to current or most recent coaching

111 relationship. These questions concerned the participants' injuries, PL totals, GLP, weight
112 classes, and their coaches' education. Importantly, participants noted how often they
113 communicated with their coach (options ranged from 'every session' to 'less than once per
114 month') and the predominant mode of communication, with written feedback defined as
115 emails and messaging services, and verbal feedback including video recordings, calls, and
116 voice messages. Change in PL total was then calculated using participants' most recent PL
117 total and their total before coaching ($[(\text{most recent total} - \text{prior total}) / \text{prior total} \times 100]$).
118 Similarly, change in GLP was calculated ($[(\text{most recent GLP} - \text{prior GLP}) / \text{prior GLP} \times 100]$).
119 These data were then exported to Microsoft Excel and screened. Firstly, responses that did
120 not meet the inclusion criteria were removed. Secondly, data that was obviously wrong (such
121 as an unattainable GLP or PL total) or incomplete was removed. The variables of interest for
122 statistical analyses were PL total, satisfaction (1-5 scale, from extremely dissatisfied to
123 extremely satisfied), communication mode (written or verbal), frequency (Less than once per
124 month < once per month < once every two weeks < once per week < every session), and
125 length of online coaching delivery (in months), and coach education (no formal education <
126 personal training cert < strength and conditioning cert < undergraduate degree <
127 postgraduate degree, and don't know) and participant injury status (yes or no). Note, for
128 subsequent statistical analyses coach education 'don't know' answers were coded as NA
129 values.

130

131 **Statistical analyses**

132 Data were screened for incomplete, duplicate, and false answers. All statistical analyses
133 were performed in R language and environment for statistical computing (29). The
134 *performance* package (17) was primarily used to assess model diagnostics with *robustbase*
135 (18) and *ordinal* (23) packages for the final analyses.

136

137 Mean and standard deviations were calculated for change in PL total, length of coaching
138 relationships, and LS scores. Frequencies of responses were calculated for current coaching

139 relationships, communication frequency, mode of communication, and coach education. To
140 address our aim of detecting associations between coaching delivery characteristics and
141 success of an online PL coaching relationship, LS and Change in PL total were set as the
142 dependent variables in two regression models. Both models included mode, frequency, and
143 length of online coaching delivery, and coach education and participant injury status as
144 predictor variables. The Change in PL total model also included age to control for time spent
145 training. Additionally, the LS model included GLP to understand the relationship between
146 satisfaction and success in PL.

147

148 For the Change in PL total model, a robust linear regression was adopted due to the
149 presence of heteroscedasticity (Breusch-Pagan test, $p < .001$) and potentially influential
150 observations in the data. Model fit was reported using adjusted R² and comparing the model
151 against its null using a Robust Wald test. For each predictor, raw (B) and standardised
152 (Beta) coefficients and their associated 95% confidence intervals and p-values were
153 reported. For LS, ordinal regression was selected to retain the ordered nature of the
154 dependent variable. Within the original model, coach education violated the assumption of
155 proportional odds ($p < .001$, using *nominal_test* (23)), and thus was entered in the final model
156 as a nominal variable. The final 'partial' ordinal regression model fit was reported using
157 Nagelkerke R², and a Likelihood ratio test comparing to the null. Contribution of model
158 predictors were reported using odds-ratios and their associated 95% confidence intervals
159 and p-values. For all tests, significance was accepted at the $p < .05$ level.

160

161 **RESULTS**

162 **Demographics**

163 The anonymous online survey received 275 responses. After screening for incomplete and
164 false answers, 113 were recorded. Of those who responded, 99 (87.61%) participants were
165 currently working with a coach, and 14 (12.39%) were within the last six months. Male

166 participants had a mean PL total of 621 ± 111 kg and females 382 ± 77 kg. Male GLP scores
 167 were, on average, 81.7 ± 9.7 and females were 77.5 ± 13.0 . Coaching relationships were, on
 168 average, 21.8 ± 14.5 months long (21.2 ± 15.6 for females and 22.3 ± 13.6 for males). When
 169 asked to rank their level of satisfaction with online coaching on a 1-5 scale (extremely
 170 satisfied to extremely dissatisfied), participants, on average, scored their experience as
 171 4.4 ± 1.1 (4.4 ± 1.0 for males and 4.4 ± 1.2 for females). Of all respondents, a mean increase of
 172 $14.6 \pm 15.5\%$ ($14.0 \pm 12.4\%$ for males and $15.3 \pm 18.5\%$ for females) in their PL total during their
 173 time spent with their most recent coach was calculated.

174

175 **Table 1 – Coaching characteristics.**

	All (n = 113)	Male (n = 59)	Female (n = 54)
	Count (%)	Count (%)	Count (%)
Communication Frequency			
Every session	42 (37.1)	24 (40.68)	18 (33.33)
Once per week	63 (55.8)	31 (52.54)	32 (59.26)
Once every two weeks	3 (2.7)	2 (3.39)	1 (1.85)
Once per month	4 (3.5)	2 (3.39)	2 (3.7)
Less than once per month	1 (0.9)	0	1 (1.85)
Mode of Communication			
Verbal	46 (40.7)	21 (35.59)	25 (46.3)
Written	67 (59.3)	38 (64.4)	29 (53.7)
Lifter satisfaction with the coach			
Extremely satisfied	73 (64.6)	38 (64.4)	35 (64.82)
Somewhat satisfied	28 (24.78)	16 (27.12)	12 (22.22)
Neither satisfied or dissatisfied	3 (2.66)	1 (1.7)	2 (3.70)
Somewhat dissatisfied	2 (1.77)	1 (1.7)	1 (1.85)
Extremely dissatisfied	7 (6.2)	3 (5.09)	4 (7.41)
Coach education			

Unsure	33 (29.2)	18 (30.5)	15 (27.7)
No formal education	15 (13.27)	9 (15.25)	6 (11.11)
Personal training certificate	7 (6.2)	2 (3.4)	5 (9.23)
Strength and conditioning certificate	11 (9.73)	6 (10.2)	5 (9.23)
Undergraduate degree	35 (30.97)	19 (32.2)	16 (29.63)
Postgraduate degree	12 (10.62)	5 (8.47)	7 (12.96)

176

177

178 **Change in PL total**

179 The model results for change in PL total are shown in Table 2. The model explained 51.9%
 180 of the variance in the change in PL total ($R^2=.52$, $p<.001$, $n=73$). A significant positive
 181 relationship was found between percentage change in PL total and the length of lifter-coach
 182 relationships ($p<.001$). Furthermore, a positive relationship was found between change in PL
 183 total and coach education ($p=.024$). Finally, a negative relationship was found between
 184 change in PL total and age ($p=.007$). There was no relationship with mode ($p=.148$) or
 185 frequency ($p=.677$) of communication.

186 **Table 2 – Association between coaching characteristics to change in powerlifting total.**

Variable	Unit	B	CI	Beta	p
Age	Years	-0.21	-0.36 – -0.06	-0.14	.007
Coach education	No formal education < personal training cert < strength and conditioning cert < undergraduate degree < postgraduate degree	1.42	0.19 – 2.64	0.12	.024
Communication frequency	Less than once p/month < once p/month < once p/two weeks < once p/week < every session	-0.58	-3.34 – 2.18	-0.03	.677
Time with coach	Months	0.57	0.46 – 0.69	0.49	<.001
Communication mode	written = 1 verbal = 0	-2.80	-6.63 – 1.02	-0.17	.148
Injured during coaching period	yes = 1 no = 0	-0.43	-4.77 – 3.91	-0.03	.843

B = unstandardized coefficients; CI = 95% confidence intervals; Beta = standardised coefficient; p = p-value; note: dependent variable is change in power lifting total, in kg; cert = certificate; p/month = per month, p/week = per week. Adjusted R2 = .52, p<.001, N=73, dependent variable is change in powerlifting total

188 Lifter Satisfaction

189 The model results for LS are presented in Table 3. The model explained an estimated 18.6%
190 of the variance in LS (Nagelkerke $R^2=.19$, $p<.001$, $n=77$). A significant positive relationship
191 was found between LS and highest GLP ($p=.041$). The overall effect of coach education was
192 negative ($p=.045$); however, the odds varied across thresholds of LS. Specifically, the odds
193 of being in a higher satisfaction category (relative to the combined lower categories) were
194 positive with coach education for the 1|2 and 2|3 thresholds but negative for the 3|4 and 4|5
195 thresholds ($p<.005$). There was a small but non-significant relationship with time spent with a
196 coach ($p=.0.63$). No relationship with frequency of communication ($p=.591$) or either written
197 or verbal feedback was observed ($p=.730$).

198 **Table 3 – Association between coaching characteristics and lifter satisfaction**

Variable	Units	OR	CI	p
1 2 Coach education	No formal education < personal training cert < strength and conditioning cert <	4.14	1.76 – 9.78	.001
2 3 Coach education	undergraduate degree < postgraduate degree	3.94	1.53 – 10.11	.004
3 4 Coach education	**	0.22	0.09 – 0.56	.001
4 5 Coach education		0.45	0.26 – 0.79	.005
Coach education [#]		0.56	0.32 – 0.99	.045
GLP		1.05	1.00 – 1.10	.041
Communication frequency	Less than once p/month < once p/month < once p/two weeks < once p/week < every session	1.22	0.60 – 2.48	.591
Time spent with coach	Months	1.04	1.00 – 1.09	.063
Communication mode (written)	written = 1 verbal = 0	1.23	0.39 – 3.88	.730
Injured during coaching period	yes = 1 no = 0	1.33	0.45 – 3.94	.608

199 B = unstandardized beta, CI = 95% confidence interval; GLP = Good lift points (arbitrary units), S&C = strength and conditioning; dependent variable is lifter satisfaction, in likert scale values
 200 (1=extremely dissatisfied, to 5=extremely satisfied); cert = certificate; p/month = per month, p/week = per week; R2=.19, p<001, N=77. **Note, the effect of coach education was not consistent over
 201 levels of the dependent. In the table, # represents the overall effect, with thresholds denoting the comparison of the odds of being in higher categories of satisfaction versus lower categories, given a
 202 change in education, relative to the comparison point (e.g., 2 | 3, corresponds to the odds of rating satisfaction as 3 or higher versus 2 or lower).

203 DISCUSSION

204 This study aimed to gather insight into current online PL coaching delivery methods and their
205 associations with increases in PL total and lifters' satisfaction with the online coaching
206 experience. Our results partially supported the initial hypothesis. Longer coaching
207 relationships were associated with greater increases in PL total. However, contrary to our
208 expectations, neither the frequency of communication nor the mode of feedback significantly
209 impacted either PL total or LS. The results from the survey provide an understanding of how
210 online PL coaches communicate with their clients, but largely indicate the complexity of
211 assessing the performative impacts of coaching relationships, and the need for future study.

212

213 The association between longer coaching relationships and greater change in PL total
214 ($p < .001$) was the strongest contributor to the model of the variables entered. Specifically, our
215 model suggested that for every extra month of coaching received, lifters had an increase in
216 their PL total of 0.57%. Additionally, younger lifters were more likely to achieve greater
217 increase in PL total ($p = .007$). Considering that younger individuals probably have accrued
218 less training time in PL, lower total increases over time are intuitive. This positive relationship
219 between performance gains and the length of the coaching relationship suggests that
220 extended time with a coach may enhance performance through more tailored training and
221 feedback, even when controlling for the effects of age. However, it is also possible that
222 athletes who perform better for reasons outside of the coach's influence are more likely to
223 maintain longer coaching relationships, suggesting a potential inverse causality.

224 Nonetheless, it is plausible that when a coach and lifter spend more time working together,
225 they develop a stronger relationship, leading to better performances in competition. This is
226 somewhat supported by the longer lifter-coach relationships and higher LS ($p = .063$). A wide
227 variety of approaches are available for coaches to develop a lifter's 1RM (2,32); therefore,
228 time to implement sufficient trial and error is likely necessary. Supporting this notion,
229 previous studies on RC interventions, though not sport-specific, have shown that longer RC
230 interventions (14) tend to outperform shorter ones (28).

231

232 Over 90% (105/113) of powerlifters reported communicating with their coach at least once
233 per week. Previous RC studies have shown that communication frequencies ranging from
234 once per week to once per month tend to outperform controls at achieving desired outcomes
235 (7,9,13,28). While we expected that more frequent communication between the lifter and
236 coach would result in a greater increase in PL total and higher LS, our results did not support
237 this hypothesis ($p>.05$). The lack of participants in our sample receiving lower
238 communication frequencies likely limited our ability to draw broader conclusions about the
239 impact of communication frequency on PL total and LS. However, the predominance of
240 participants reporting high-frequency communication is an interesting finding, as it
241 underscores the apparent preference or perceived need for coaches and lifters to
242 communicate at least once per week. This may reflect a common practice in the powerlifting
243 community, where regular updates and feedback are critical for performance. Future
244 research should focus on the effects of lower communication frequencies, particularly by
245 sampling populations that receive communication less frequently, such as once per month or
246 every two weeks, to better understand their influence on performance and satisfaction.

247

248 When we asked powerlifters about their primary mode of communication with their coach.
249 40.7% (46/113) noted they received verbal feedback, and 59.3% said they received written
250 feedback (67/113). Contrary to our hypotheses, no significant relationships between the
251 mode of communication and change in PL total or LS were observed ($p>.05$). While no
252 studies have directly compared different modes of communication, both written (13,20,27,28)
253 and verbal (1,15,21) communication modes have outperformed controls in various studies.
254 Further, some studies have compared multi-modal communication to a singular mode (i.e.,
255 messages and calls vs. calls alone). In one study, the group receiving SMS and calls from
256 their coach had more significant weight loss than the control group, whereas the cohort
257 receiving only SMS coaching did not (9); however, there was no significant difference
258 between the two groups. Ultimately, given the multifaceted nature of PL coaching (nutrition

259 for weight cutting, technique assessment and correction, resistance training programming,
260 and coaching psychology), more research is needed on coaching communication modes for
261 PL to determine what modes are ideal, in what circumstances, and in what combination.

262

263 A secondary finding was the significant relationship that coach education had with LS and
264 the change in PL total. Due to the lack of regulation surrounding online PL coaching,
265 coaches can begin practicing without formal education, which creates a wide range of
266 educational backgrounds among coaches. Although no prior literature explicitly compares
267 different levels of coach education to performance outcomes, it generally features educated
268 coaches. Our survey data revealed a significant positive relationship between coach
269 education and change in PL total ($p=.024$). Specifically, lifters with coaches who had higher
270 levels of education - such as moving from a strength and conditioning certification to an
271 undergraduate degree - experienced a 1.4% greater increase in their PL total. The
272 relationship between LS and education was more complicated, with the relationship
273 inconsistent across levels. Specifically, higher coach education appears associated with 3.9
274 to 4.1 times higher odds ($p<.004$) of being at least somewhat dissatisfied or neither satisfied
275 nor dissatisfied (rating of 2 or 3, respectively), as opposed to being extremely dissatisfied
276 (rating of 1). However, at higher thresholds, an increase in coach education is associated
277 with a lower likelihood of being in the higher satisfaction categories. Specifically, individuals
278 are 4.6 times and 2.2 times less likely to be somewhat satisfied (4) or more, or extremely
279 satisfied (5) as the level of coach education increases (respectively; $p<.005$), compared to
280 being in the combined lower categories. At face value, it would seem more coach education
281 might be helpful up to a point, but after that, it may not necessarily lead to greater
282 satisfaction – or may indeed detract from it.

283

284 The relationship between higher education and greater total increases intuitively makes
285 sense as coaches with more domain-specific knowledge might better understand strategies
286 to elicit strength gain. Additionally, it is possible that more educated coaches possess

287 greater critical thinking skills and can problem solve more efficiently, an important tool for
288 coaching. However, when considering LS, the inflection point observed where coach
289 education was lower in those with the highest LS scores is intriguing. While we can
290 speculate as to the cause of this relationship, it is important to note that the regression
291 model explained only ~20% of the variance in LS. With that caveat in mind, the transition
292 point between positive and negative associations with satisfaction around moderate levels
293 suggests that while education has a more direct association with strength development, the
294 association with relationship dynamics is more complicated. For example, the “soft skills” of
295 coaching required to produce very high levels of LS may require time and experience to
296 develop, which might conflict with the necessities involved in engaging in prolonged studies.
297 With that said, due to the novelty of this finding, more trial-based research regarding coach
298 education is warranted before definitive conclusions on this topic should be made.

299

300 Another secondary finding we observed was the significant relationship between GLP and
301 LS ($p=.041$). Our results suggest that lifters with a higher bodyweight strength coefficient
302 score had a higher LS score. This relationship is logical given that those with a higher GLP
303 have likely progressed successfully with their coach since working with them (controlling for
304 duration of coaching relationship), causing greater LS. However, it is also possible that
305 stronger lifters have spent more time in the sport and are more likely to understand their
306 preferences when it comes to choosing a coach. Therefore, they may be more likely to pick
307 someone that they know they will be satisfied with.

308

309 The authors acknowledge the limitations within this research. Firstly, the survey data was
310 self-reported. Although participants were directed to a PL results database for competition-
311 related questions, it is possible that, in some cases, participants did not use the database.
312 Secondly, the questionnaire was conducted online and anyone with access to social media
313 could partake, meaning we cannot be sure that in every case our participants were truthful or
314 met all inclusion criteria. Thirdly, our cross-sectional survey and correlational data are

315 subject to the limitations present in all such observational designs; causality cannot be
316 determined or assumed, and in cases where there may be a causative relationship between
317 variables, its directionality is also unknown. Lastly, our sample size was only 113 after
318 screening for incomplete and inclusion criteria-violating responses, and for our regression
319 analyses was lower due to missing values (N=73-77). This small sample size may not be
320 large enough to accurately represent the larger population of competitive powerlifters.

321

322 **PRACTICAL APPLICATIONS**

323 This survey provides insight into how coaches communicate with their lifters. Our main
324 finding was the positive relationship between the time a lifter spent with their coach and the
325 increase in their PL total. Where the relationship seems amicable, coaches and PL
326 competitors should give thought to the length of time they work together, as understanding
327 what works for the individual may take time. In our sample, communicating with a lifter via
328 written and verbal feedback did not clearly change outcomes, and might be used
329 interchangeably based on individual preference until more decisive information is available.
330 Additionally, coaches may provide feedback weekly or on a per-session basis, both are
331 viable options and common practice amongst PL coaches. Higher coach education had a
332 notable relationship with greater increases in PL total and, to an extent, LS. Therefore,
333 acquiring formal education in a field relevant to or coaching may benefit coaches.

334

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