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1 **Monitoring practices of training load and**
2 **biological maturity in UK soccer academies**

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29 **Abstract**

30 ***Purpose***

31 Overuse injury risk increases during periods of accelerated
32 growth which can subsequently impact development in academy
33 soccer, suggesting a need to quantify training exposure. Non-
34 prescriptive development scheme legislation could lead to
35 inconsistent approaches to monitoring maturity and training
36 load. Therefore, this study aims to communicate current
37 practices of UK soccer academies towards biological maturity
38 and training load.

39 ***Methods***

40 Forty-nine respondents completed an online survey
41 representing support staff from male Premier League academies
42 ($n = 38$) and female Regional Talent Clubs ($n = 11$). The survey
43 included 16 questions covering maturity and training load
44 monitoring. Questions were multiple-choice or unipolar scaled
45 (agreement 0-100) with a magnitude-based decision approach
46 used for interpretation.

47 ***Results***

48 Injury prevention was deemed *highest* importance for maturity
49 (83.0 ± 5.3 , mean \pm SD) and training load monitoring ($80.0 \pm$
50 2.8). There were *large* differences in methods adopted for
51 maturity estimation and *moderate* differences for training load
52 monitoring between academies. Predictions of maturity were
53 deemed *comparatively low* in importance for bio-banded

54 (biological classification) training (61.0 ± 3.3) and *low* for bio-
55 banded competition (56.0 ± 1.8) across academies. Few
56 respondents reported maturity (42%) and training load (16%) to
57 parent/guardians, and only 9% of medical staff were routinely
58 provided this data.

59 ***Conclusions***

60 Although consistencies between academies exist, disparities in
61 monitoring approaches are likely reflective of environment-
62 specific resource and logistical constraints. Designating
63 consistent and qualified responsibility to staff will help promote
64 fidelity, feedback and transparency to advise stakeholders of
65 maturity-load relationships. Practitioners should consider
66 biological categorisation to manage load prescription to promote
67 maturity appropriate dose-responses and help reduce non-
68 contact injury risk.

69

70 **Keywords:** *maturation, training load, monitoring, injury,*
71 *adolescence, soccer*

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78 **Introduction**

79 For academy soccer players, the pubertal growth period is a
80 particularly sensitive time and should be managed with
81 caution^{1,2}. This period coincides with progressive, age specific
82 increases in prescribed training exposure (hours), irrespective of
83 individual biological maturation based on the development
84 scheme legislation (policy)^{3,4}. Elite Player Performance Pathway
85 (EPPP)³ and FA Women's Talent Pathway for Regional Talent
86 Clubs (RTC)⁴ policy provides recommendations for
87 multifaceted components of player development, including
88 minimum weekly training time, staff requirements, monitoring
89 training load and biological maturity. The systematic increases
90 in training exposure across both genders predominantly reflect
91 development stage informed increases in weekly training load
92 (20-50% depending on academy category) with adolescent
93 players⁵. Most injuries within adolescent soccer are non-contact
94 and soft tissue in nature^{6,7} suggesting that these injuries may be
95 attributable to inadequate training load prescription or growth-
96 related physical and anthropometrical changes^{8,9}. Significant
97 time loss through injury, or illness may have major implications
98 for (de)selection and long-term development¹⁰.

99

100 Most (58-69%) injuries within professional soccer academies
101 occur during training rather than match-play. Injuries peak

102 following periods of relatively increased (relative risk of 3.5
103 following pre-season) or reduced training exposure (mid-season
104 break)^{6,11,12}. These findings are consistent with adult
105 populations, where large (>10%) and sudden fluctuations in
106 training load can amplify injury risk¹⁵. This highlights the
107 importance of quantifying training load to mitigate injury risk¹⁴,
108 particularly during periods of accelerated biological
109 development¹. Consequently, to enhance long-term development
110 and improve the sensitivity of (de)selection criteria, fluctuations
111 in physical and functional attributes of players owing to
112 maturity, and the associated response to training exposure,
113 should be monitored and communicated to key stakeholders (e.g.
114 coaches, medical staff and parents/guardians)¹⁵.

115

116 EPPP and RTC policies aim to outline minimum standards for
117 each category to facilitate adequate talent development
118 environments for players. Adherence to these standards are
119 assessed and used to classify each academy (e.g., category 1/tier
120 1) in return for financial investment and associated prestige
121 helping with recruitment and retention. Yet, the extent of EPPP
122 guidelines is somewhat non-prescriptive and open to
123 interpretation (e.g. ‘188.2. anthropometric assessments’ and
124 ‘188.7. monitoring of physical exertion [Category 1 academies
125 only]³’, with no minimum expected monitoring standards or
126 guidelines provided in RTC legislation⁴. Although this

127 ambiguity facilitates context and environment specific
128 approaches which are warranted¹⁶, it may subconsciously reduce
129 consistency and generate opportunity for '*mixed-practice*' rather
130 than '*best-practice*'.

131

132 Various methods to predict maturity status and timing exist with
133 each having logistical, systematic or resource-based confines¹⁷.
134 Similar limitations exist for training load monitoring which
135 influences the methods adopted by academies¹⁶. As a result,
136 debate remains around approaches to monitoring training load
137 and which combination of internal (e.g. heart rate, rating of
138 perceived exertion [RPE]) or externally derived metrics (e.g.
139 total distance covered, activity profiles) offer most value for
140 academy practitioners¹⁶.

141

142 Previous surveys investigating training load monitoring have
143 been conducted within professional populations^{18,19} and
144 identified varied approaches to collating and disseminating data
145 to stakeholders, with resource and communication-based
146 limitations apparent. Despite strong evidence outlining its
147 relevance within academy settings, no such attempt to
148 investigate current practices of maturity and training load
149 monitoring within male or female academy soccer currently
150 exists. Assessing the current extent of, and manner in which both
151 male and female academies monitor these factors, would provide

152 a platform to develop practice and subsequently optimise
153 development. Therefore, given likely disparities in situational,
154 logistical and environmental factors that govern both male and
155 female academy practices, the aim of the current study was to
156 establish and compare current perceptions and perceived barriers
157 of practitioners to maturity and training load monitoring within
158 UK soccer academies.

159

160 **Methods**

161 *Design*

162 A cross-sectional survey design was used to ascertain
163 perceptions of staff from male (EPPP) and female (RTC)
164 academies during the first trimester (August to December) of the
165 2017/18 soccer season. Following ethical approval from the
166 University ethics committee and in accordance with the
167 Declaration of Helsinki, voluntary informed consent was
168 included prior to survey completion. No personal details of the
169 respondent or club were requested to maintain respondent
170 anonymity. Two eligibility questions 1) *Have you already*
171 *completed the survey?* (Yes or No); 2) *Are you currently working*
172 *with academy players within an EPPP or RTC setting?* (EPPP,
173 RTC or No) followed the consent page to prevent duplicate
174 responses and ensure construct validity respectively. Each
175 respondent was required to state which professional league their
176 club competed in, the academy category (e.g. Cat/RTC), job role,

177 employment status accompanied by which age category
178 (Foundation [<9 to <12 years], Youth Development [<13 to <16
179 years], Professional Development [<18 to <23 years]) they
180 primarily worked with.

181

182 *Subjects*

183 118 respondents started the survey, however, there were 23
184 incomplete responses and 46 respondents failed eligibility
185 criteria (question 2) and were excluded from analysis. In total,
186 49 respondents completed the survey (Cat1: $n = 15$ [31%]; Cat2:
187 $n = 13$ [27%]; Cat3: $n = 10$ [20%]; RTC: $n = 11$ [22%]). Most
188 respondents worked in the Youth Development Phase (YDP;
189 57%) or Professional Development Phase (PDP; 39%); with 4%
190 working with the Foundation Phase (FP). Most responses were
191 from sport science support staff (sport scientists, strength and
192 conditioning coaches, athletic development or physical
193 development coaches; 77%) with medical (physiotherapists,
194 sports therapists, rehabilitation specialist or doctor; 15%) and
195 technical coaching staff (lead or age group coach; 8%) providing
196 the remainder of the responses. Most of the respondents were
197 employed either full-time (57%) or part-time (23%), with a
198 smaller number of responses coming from sessional staff (hourly
199 paid; 14%) and internship students (6%). Most respondents
200 worked for Championship (43%) or Premier League (29%)

201 clubs, but some responses were from League One (14%), League
202 2 (6%) and clubs within the National League or below (8%).

203

204 ***Methodology***

205 Content validity²⁰ of the initial survey was reviewed via
206 communications between the research team and practitioners (n
207 = 5) and academics ($n = 4$) with experience of academy soccer
208 and survey-based studies. This process removed five questions,
209 combined six questions into three and had language amendments
210 for clarity. The final survey consisted of 16 questions that
211 included 2 unipolar (0 = *not important*; 100 = *highly important*)
212 and 6 multiple choice questions each, covering two concepts: 1)
213 *monitoring of biological maturity* and 2) *training load*
214 *monitoring*. Response analysis to establish internal consistency
215 of each concept using Cronbach's alpha²¹ yielded alphas rated as
216 'good', which ranged from 0.78 [95% confidence interval 0.72
217 to 0.86] (*monitoring of biological maturity*) to 0.83 [0.72 to 0.86]
218 (*training load monitoring*). The survey was then published using
219 an online survey tool (surveymonkey.com, California, Palo Alto,
220 USA), with completion time of ~10 minutes. A web-link invite
221 to participate was distributed to coaches, sport science support
222 staff and medical practitioners within EPPP and RTC clubs via
223 personal networks and social media.

224

225 ***Statistical Analysis***

226 Responses from the multiple-choice questions were converted
227 into a proportion of the total number of respondents from each
228 academy category. Independent-group proportion differences
229 for multiple choice questions were calculated with the following
230 scale used to classify magnitudes of difference 10%, 30%, 50%,
231 70% and 90% as *small*, *moderate*, *large*, *very large* and
232 *extremely large* respectively²². Given the small sample size and
233 the large number of inferences, we elected to use moderate as
234 our threshold for meaningful differences.

235

236 Numerical data from unipolar-scaled questions were rank
237 ordered and presented as mean \pm SD to qualitatively illustrate
238 perceived importance. To facilitate distribution-based
239 interpretations and overcome the limitations of few verbal
240 anchors on the unipolar scale, four perception levels were
241 devised based on percentage thresholds of the overall mean;
242 *lowest* (<25%), *comparatively low* (25% to 50%), *comparatively*
243 *high* (50% to 75%) and *highest* (>75%)²³. Inferential analysis
244 (ANOVA) was conducted using JASP computer software
245 (v0.11.1, Amsterdam, Netherlands) to establish independent
246 group mean differences in perceived importance and 99%
247 compatibility limits (CL) to reduce inferential error rates, which
248 were subsequently translated into probabilistic terms using a
249 customised Magnitude-Based Decisions (MBD) spreadsheet²⁴.
250 A clear standardised difference for non-clinical substantiveness

251 of 10% was adopted, as this is considered the smallest important
252 effect threshold for between-group differences²². Only those
253 effects that were above the smallest important effect were
254 reported and these were then interpreted against the following
255 Bayesian scale: 0.5% *most unlikely* or *almost certainly not*; 0.5-
256 5% *very unlikely*; 5-25% *unlikely* or *possibly not*; 25-75%
257 *possibly*; 75-95% *likely* or *probably*; 95-99% *very likely*; and
258 99.5% *most likely*²⁴ to express uncertainty. For both approaches
259 to analysis, all comparisons were made against EPPP Cat1
260 academies. In light of the EPPP infrastructure being more mature
261 than RTC, and these Cat1 academies fulfilling significant
262 requirements to be awarded this status, they should be regarded
263 as the benchmark of best practice within UK academy football.

264

265 **Results**

266 *****Table 1 near here*****

267

268 ***Biological Maturity***

269 Injury prevention was identified as *highest* importance for
270 estimation of maturity across academy groups, with overall
271 athletic development, load management, coach and player
272 feedback considered *comparatively high* (Table 1). Legislative
273 expectations from clubs and governing bodies as well as bio-
274 banded competition were considered *lowest* importance. Cat1
275 academies placed more importance on EPPP legislation than

276 Cat3 academies and a *likely to very likely* lower importance on
277 player feedback than all other academies. Time constraints, staff
278 numbers, resource limitations and staff competency were all
279 perceived to be *comparatively higher* barriers to implementing
280 maturity predictions (Table 1). Staff numbers and resource
281 limitations are *likely to very likely* bigger barriers in lower ranked
282 academies than Cat1. Coach support, financial budget
283 limitations, management and parental/guardian support were all
284 perceived as *comparatively low* barriers, with differences
285 between Cat1, Cat3 and RTC academies *possible to likely*.

286

287 *****Table 2 near here*****

288

289 There were *large* differences between the methods of maturity
290 estimation utilised by Cat1 and Cat2 academies (Table 2). Cat1,
291 3 and RTC academies preferred the prediction adult height whilst
292 Cat2 had a clear preference for maturity offset (i.e. time from
293 peak height velocity). Sport Science support staff were primarily
294 responsible for collection of maturity data consistently across all
295 academies. There were no small to large differences in the
296 methods used by academies to communicate maturity feedback and
297 *moderate to very large* differences suggesting that fewer Cat1
298 academies report this data to parents/guardians. There were
299 small to moderate differences that suggest that academy status

300 is linked to the activities influenced by maturity status
301 monitoring (i.e. pitch-based training, competitive fixtures etc).

302

303 *****Table 3 near here*****

304

305 ***Training Load***

306 Monitoring training load is deemed *highest* importance for injury
307 prevention (Table 3). Player recruitment, retention,
308 parent/guardian and player feedback and legislative purposes
309 were considered *comparatively low* importance. Responses
310 suggest Cat 1 academies *likely* share load monitoring
311 information with parent/guardians less often than other
312 academies.

313

314 Resource limitations, staffing numbers, financial budget
315 limitations and limited intervention opportunity were all
316 considered *comparatively high* barriers to training load
317 monitoring (Table 3). Cat3 academies *likely* find these barriers
318 more prominent than Cat1. Management and coach support, staff
319 competency and limited opportunity for intervention were
320 *comparatively low* barriers to training load monitoring. A
321 *possible to likely* differences in coach support may infer greater
322 coach buy-in within Cat1 academies than others. Additionally, it
323 is *likely* that RTC academies perceived staff competency as a
324 greater barrier than Cat1 academies.

325

326 *Moderate* differences suggest that Cat1 academies utilise RPE
327 and coach perception less than other academies in preference for
328 external training load measures (Table 4). *Small to moderate*
329 differences suggest that Cat1 academies favour customised
330 spreadsheets to the Performance Management Application
331 (PMA), conversely it is worth noting that the PMA is not
332 available for RTC academies which likely influenced between-
333 group comparisons. Training load data was mostly collated by
334 Sport Science support staff with *moderate* differences between
335 Cat1 and RTC academies. *Moderate* differences suggest Cat1
336 academies report training load data to age group coaches more
337 frequently than other academies, but less to lead age group
338 coaches than Cat2 academies.

339

340 *****Table 4 near here*****

341

342 **Discussion**

343 This study represents the first attempt to establish perceptions of
344 monitoring of maturity and training load in UK soccer academies.
345 Given inherent differences between the two constructs, findings
346 are discussed individually.

347 *Biological Maturity*

348 Practitioners agreed that injury prevention was of *highest*
349 importance for predicting maturity characteristics. Responses
350 indicate that practitioners recognise associations between
351 maturity characteristics and amplified injury risk, and that
352 monitoring maturity positively influences long-term outcomes¹.
353 Yet, there is disparity concerning protocols employed to predict
354 maturity between academies, with indicators of timing (offset)
355 and status (percentage of predicted adult height) prominent.
356 ‘*Other*’ responses may include a maturity ratio, growth velocity
357 curves or skeletally derived methods (e.g. body dimensions)²⁵.
358 Both dominant protocols are advocated by the legislative bodies,
359 however Cat1, Cat3 and RTC academies demonstrated a greater
360 reliance on the prediction of adult height, with C2 favouring
361 maturity offset (Table 2). Their prevalence is likely attributable
362 to the ‘non-invasive’ and logistically simple algorithm-based
363 protocols, yet evidence has previously outlined limitations in
364 somatic assessment of maturity in comparison with more
365 invasive skeletal protocols¹⁷. Consequently, it is imperative that
366 practitioners are cognisant of the relevant methodological
367 limitations and accommodate for this when informing decision
368 making to ensure appropriate classification and accurate
369 (de)selection evaluations.

370 Despite being pivotal for categorisation, practitioners
371 unanimously perceived maturity prediction of *comparatively*
372 *low* importance for biologically classified training and *lowest* for

373 competitions. This is perhaps surprising given the recent rise of
374 bio-banded male soccer tournaments supported by the EPPP, in
375 which players are categorised by their current biological
376 maturity²⁶. The relative immaturity of the Women's FA Talent
377 Pathway could explain the *comparatively low* importance placed
378 on this by RTC clubs. Bio-banding is largely considered "an
379 alternative method of categorising players, according to maturity
380 status rather than their chronological age category, with the
381 assumption that this will alleviate (de)selection bias associated
382 with earlier and/or later maturing players."²⁷

383 Bio-banding is a relatively new concept that has until recently
384 traditionally adopted a talent development and selection focus,
385 and therefore the relevance of bio-banding for managing load
386 and injury was possibly overlooked within survey responses. It
387 is reasonable to think that biological constraints within training
388 and match-play would reduce physical variation and help
389 coaches adequately stimulate players to reduce the typically
390 increased injury incidence around biological growth spurts^{2,26}.
391 Evidence suggests trends in injury type throughout maturation,
392 with late maturers having more osteochondral disorders and
393 earlier maturers having more tendinopathies¹¹. These non-
394 traumatic injuries are largely preventable, which supports that
395 biologically appropriate training prescription may help reduce
396 the incidence of certain injuries through more effective
397 manipulation of intensity. Therefore, practitioners are

398 encouraged to consider the wider benefits of biological
399 categorisation to optimise training load to facilitate biologically
400 relevant content¹.

401 Time constraints, resource limitations, staff number and
402 competency were considered as *comparatively high* barriers
403 particularly in lower ranked academies, which could negatively
404 impact validity of maturity predictions, ²⁸. Even when maturity
405 assessments are stringently controlled, prediction equations can
406 vary 0.1 to 0.2 years between weekly measures²⁹. Therefore,
407 anthropometric data collection requires precise measurements to
408 reduce systematic error, which may be compromised in the
409 absence of adequately trained or experienced staff, equipment or
410 time. Whether these data are sport science led as prevalent in the
411 survey, or medical staff led, consistency is paramount to reduce
412 systematic error and thus safeguard data fidelity (i.e. inter-rater
413 reliability)²⁵. Importantly, the quality of internal communication
414 between support, medical and technical staff within soccer clubs
415 has been linked with injury rates and match availability¹⁵.
416 Therefore, academies that designate responsibility of maturity
417 monitoring to specifically trained staff will likely enhance
418 transfer to positively influence athletic performance and
419 associated caveats (i.e. reduction of injury risk).

420 There were *moderate to very large* differences between the low
421 number of Cat1 respondents reporting maturity data to players

422 and parent/guardians. This is surprising considering Cat1
423 academies perceive resources as comparatively lower barriers
424 than Cat3 and RTC and therefore likely have better mechanisms
425 to communicate this information effectively. Being transparent
426 with maturity data and informing parent/guardians of the
427 associated transient physical and functional turbulence related to
428 growth, disadvantages (i.e. stress or anxiety) may be alleviated
429 and may even lead to an autonomy supportive bio-psychosocial
430 environment, reducing the likelihood of drop-out or injury³⁰. In
431 contrast, failure to involve stakeholders or providing a clear
432 rationale for decision-making has been termed as '*autonomy-*
433 *thwarting*' behaviour and linked to failed career progression and
434 behavioural disengagement within soccer³¹.

435

436 ***Training Load monitoring***

437 Injury prevention perceived to be of *highest* importance for
438 monitoring training load within academies. This is likely
439 influenced by recent associations between training exposure and
440 injury in both adult and adolescent populations^{32,33}. Despite
441 being of *highest* importance for injury prevention, remarkably
442 almost no medical staff were routinely provided training load
443 data (Table 4). This may suggest a reactive approach to injury
444 management, opposed to a proactive approach whereby medical
445 staff are actively involved in load management decisions. By

446 routinely sharing training load data with medical staff (e.g.
447 multidisciplinary team meetings), a more unified approach could
448 better inform the process and help reduce injury incidence¹⁵.
449 This suggests a communication breakdown in lower ranked
450 academies, negating the purpose of monitoring training load and
451 possibly the impact on reducing injury burden¹⁵.

452 In addition, responses suggest coach and player feedback,
453 overall development, systematic progression and
454 individualisation and prescription of future training activities
455 were considered of *comparatively high* importance. Although
456 Cat1 academies reported training load to coaches 80% of the
457 time, other academies reported this data to coaches less. On a
458 positive note, this implies that active engagement in training load
459 monitoring is accepted across academies, but the communication,
460 interpretation and application of this appears to be negating
461 impact, likely attributable to the resources available. Although
462 these findings outline reduced impact of monitoring strategies,
463 they correspond with similar conclusions from professional
464 soccer^{18,19}. These studies identified coach buy-in and discipline
465 as prominent barriers to the effective impact of training load
466 monitoring, implying that this problem is not an academy-
467 isolated problem. In resolution, academies are encouraged to
468 employ a routine load monitoring strategy enabling consistent
469 collation and interpretation of data in line with context specific
470 and resource appropriate objectives that fit their structure¹⁶. This

471 should be combined with an education programme to involve all
472 stakeholders and subsequently establish palatable dissemination
473 strategies to enhance its application¹⁶, potentially supported by a
474 local academic institution.

475 Cat1 academies utilise external training loads more than other
476 academies, which is unsurprising based on the resource
477 investment associated with this. This potentially explains why
478 other academies (Cat3) perceive staff numbers, financial budgets
479 and resource limitations, as *comparatively high* barriers to
480 training load monitoring. Although microelectromechanical
481 systems (MEMS) may provide a wealth of data, it does not
482 automatically result in better monitoring outcomes as some
483 ambiguity exists around the precision of devices and metrics to
484 monitor³³. Research suggests combining internal and external
485 loads offer best practice and better dose-response outcomes¹⁶ to
486 appropriately quantify the magnitude of internal response in light
487 of the external stimulus³². This is crucial during periods of
488 accelerated growth, considering likely fluctuations of the dose-
489 response within adolescent soccer.

490 In the absence of resources to facilitate MEMS, RPE has been
491 shown to be a suitable and valid surrogate gauge of relative
492 psychophysical training intensity³⁴. The application of RPE
493 derived training load values are accessible and cost-effective,
494 which may explain the dominant use of this within academies

495 that reported financial and resource barriers (Cat2, Cat3 & RTC).
496 RPE correlates well with physiological and some MEMS derived
497 metrics, and they can be collated retrospectively with suitable
498 validity in adolescent populations, although an approach
499 utilising multiple markers of training load is preferable if
500 resources permit^{14,34}.

501 *Limitations*

502 Although 49 responses are comparative to other soccer surveys
503 ($n = 19-41$ ^{18,29,35}), it is below that of others ($n = 182-242$ ¹⁹). It is
504 acknowledged responses from the study represent a portion of
505 the population and the opportunity for multiple responses from
506 academies could lead to clustering¹⁹. The smaller sample size is
507 somewhat negated as responses were from high-performance
508 environments from a finite pool of UK-based academies. From
509 anecdotal estimations, this study includes responses from
510 approximately 38% of registered academies, from which a
511 statistically conservative approach to inference was adopted to
512 minimise false positive risk with power and precision results
513 indicated by the 99% compatibility intervals for smallest
514 important effects only. It is also acknowledged that engagement
515 in this survey is more likely from those academies actively
516 engaged in load and maturity monitoring, which may have
517 influenced findings.

518 Finally, it is noted differences between the more established
519 EPPP and developing FA Women's Talent Pathway academies
520 exist, and that legislations for these pathways may influence
521 differences in responses. However, this survey provides the first
522 comparison between the professional practices of male and
523 female adolescent academies and was therefore considered a
524 novel facet to the study.

525

526 **Practical Applications**

527 Designating consistent responsibility for data collation to
528 suitably qualified staff may enhance maturity and training load
529 data dependability, engagement and help establish palatable
530 dissemination strategies. Through this more effective feedback
531 loop, academies will promote transparency of data and better
532 inform stakeholders of maturity-load relationships leading to
533 enhanced impact at group and individual levels. This
534 interdisciplinary approach will require a more proactive, and
535 targeted style of monitoring, to facilitate early intervention
536 around accelerated growth periods. Finally, practitioners should
537 consider using biological categorisation to help manage load
538 prescription and maturity appropriate dose-response to help
539 reduce non-contact injury risk.

540 **Conclusion**

541 Survey responses suggest that routine monitoring of biological
542 maturity and training load is commonplace within adolescent
543 soccer and that clubs adopt monitoring practices to primarily
544 prevent injury. But, resource and environmental constraints
545 create natural diversity around the methodologies and success of
546 the monitoring process which may nullify impact. Without
547 positively impacting player development or reducing injury risk,
548 the monitoring process is futile. Therefore, practitioners are
549 encouraged to identify a context-specific monitoring system that
550 can be reliably and consistently applied and communicated to
551 players, coaches and parent/guardians efficiently.

552

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556

557

558

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