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3 1 **Top secret training data? External training loads of a cup winning English Super**
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5 2 **League rugby league team**

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12 6 **Running Title: Training load of rugby league players**
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For Peer Review

32 **ABSTRACT**

33 This study quantified the field-based external training loads of professional
34 rugby league players using global positioning systems technology across a playing
35 season. Eleven professional rugby league players were monitored during all field-
36 based training activities during the 2014 Super League season. Training sessions
37 undertaken in preseason ($n = 211$ observations), early ($n = 194$ observations),
38 middle ($n = 171$ observations) and late ($n = 206$ observations) phases of the in-
39 season were averaged for each player and used in the analyses. Large reductions in
40 external training loads between preseason and in-season periods were observed.
41 Within season, a decrease in intensity (relative distance, absolute and relative total-
42 HSR) with a limited change in training duration was observed. These data provide a
43 useful reference for coaches working with similar cohorts, while future research
44 should quantify the adequacy of the training loads reported, considering impact on
45 performance and injury.

46
47 **Key words:** Training load, GPS, Periodisation

48

INTRODUCTION

Coaches and practitioners working with athletes determine the *load* or *exposure* (e.g., session duration and intensity) of training sessions. These *loads* are typically accumulated during technical or tactical training sessions, or the need to provide players with an appropriate physiological load to either simulate a positive fitness adaptation or facilitate recovery (1). Within rugby league, players require well developed physical qualities to compete at an elite level (2-4), given the game comprises high-intensity activities (e.g., sprinting, tackling) (5). However, to date there are limited training data available for rugby league coaches at any level to use as a reference for what may be an appropriate *load* (1).

The rugby league season is classified into three distinct periods; preseason, in-season and off-season (6). The objective of the preseason training period is to develop the physical characteristics of players that have been detrained during the off-season (7, 8). During this training period, players are physically overloaded to mediate a super-compensation response, subsequently enhancing physical performance (9). During the in-season period (when players are competing in weekly matches) the intention is to provide a training stimulus to maintain the fitness of players without inducing match-performance debilitating fatigue (10). Furthermore, the aim is to *peak* towards the end of the season, where teams compete in Cup and knock-out competitions (4).

Advances over the last decade in Global Positioning Systems (GPS) technology have permitted the quantification of the movement demands of player activity during training and match-play (11). Research in rugby league to date has predominantly focussed upon the movement demands of match-play (5, 12, 13), with limited studies investigating the 'load' of training (14). Studies exploring training load in rugby league are limited to pre-season training periods (14), utilise total session duration as a measure of external training load (15), or only quantify specific training activities (e.g., traditional conditioning, repeated high-intensity effort, game-based

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3 77 training, skills) (8). The demands of two separate 12-week pre-season training
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5 78 schedules (14) were also limited to high speed running ($>15 \text{ km}\cdot\text{hr}^{-1}$), body load and
6
7 79 total impacts as a measure of external training load for players, thus further research
8
9 80 is needed to fully understand the movement demands of players not only during pre-
10
11 81 season, but also throughout the different phases of the in-season (early, mid, late)
12
13 82 period.

15 83 Given that rugby league players engage in a diverse range of training modes
16
17 84 in order to induce specific adaptations needed to succeed in competition (8),
18
19 85 understanding the specific training exposure during field based training throughout a
20
21 86 season would allow coaches and practitioners to evaluate current practice.
22
23 87 Therefore, the purpose of this study was to compare the differences in the external
24
25 88 training load experienced by professional rugby league players who were part of a
26
27 89 Cup winning team during field-based training sessions at different stages of the
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29 90 season (i.e., pre- vs. early, mid and late in-season) using GPS technology.
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33 **METHODS**

34 *Participants*

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37 94 Eleven male professional rugby league players (age, 26.5 ± 5.3 years; height,
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39 95 183.9 ± 8.0 cm; body mass, 95.8 ± 10.5 kg) from a professional English Super
40
41 96 League club participated in the study. The team were a Cup winning side during this
42
43 97 respective season. The sample consisted of eleven players (four positional forwards
44
45 98 and five positional backs, who were all regular starting players), as opposed to the
46
47 99 full squad due to the availability of GPS units. Ethics approval was granted from
48
49 100 Leeds Beckett University ethics committee and all players provided written consent
50
51 101 to participate in the study.

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54 102

55 *Design of Study*

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3 104 A repeated measures design was employed to investigate the external
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5 105 training load throughout the 2014 European Super League season in professional
6
7 106 rugby league players. External training load was quantified using GPS technology
8
9 107 during all field-based training sessions (i.e., all training sessions that took place
10
11 108 outdoors on a rugby pitch). The training sessions were completed as part of the
12
13 109 club's normal training. Training phases were broken down into four eleven week
14
15 110 training phases and classified as preseason (November 18th to February 6th; mean
16
17 111 3.5 ± 1.2 training sessions per week), early (February 10th to April 25th; mean $2.5 \pm$
18
19 112 0.7 sessions per week), middle (April 28th to July 3rd; mean 2.4 ± 0.7 sessions per
20
21 113 week) and late (July 7th to September 17th; mean 2.8 ± 0.6 sessions per week)
22
23 114 season. Data observations for each seasonal period were; preseason $n = 211$, early
24
25 115 $n = 194$, middle $n = 171$ and late $n = 206$. To account for uneven data observations
26
27 116 (i.e., due to injury, missed training, non-collection by the GPS unit), data were
28
29 117 averaged for each player within each of the four seasonal phases. This allowed a
30
31 118 repeated measures design to compare the differences specifically between the
32
33 119 phases of the season. Mean individual data were used in the analysis and reported
34
35 120 for each phase.

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40 122 *Procedures*

41
42 123 All participants wore a GPS unit (STATSports Viper Pod, STATSports
43
44 124 Technologies LTD) during training as part of their normal practice. Participants wore
45
46 125 the same GPS unit, to account for inter-unit variability. The sampling rate of the GPS
47
48 126 unit was 10 Hz (16). GPS units were worn in a purpose-designed fitted vest and
49
50 127 positioned in the centre area of the upper back, superior to the scapula level with
51
52 128 thoracic vertebrae 1. This was regular practice for players who had been wearing
53
54 129 GPS technology for 3-4 years during training and match play. Units were switched on
55
56 130 30 minutes prior to the session to allow the satellite signal to be detected and
57
58 131 switched off immediately after the session. Units were then downloaded to a laptop
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3 132 (Dell, Latitude) using STATSports software (Viper) and the session was cut from the
4
5 133 beginning to the end of the training session by the lead researcher. This was
6
7 134 identified by recording the start time of training, then synchronising the timing using
8
9 135 the STATSports software. Previous studies have reported the validity and reliability
10
11 136 of GPS (STATSports) units (<5% coefficient of variation; CV), showing the units
12
13 137 provide an accurate description of movement based variables in team sport athletes
14
15 138 (17-19).

16
17 139 Session duration was calculated in time (minutes) from the beginning of the
18
19 140 warm up until the end of the training session. Total distance (metres) was again
20
21 141 taken from the beginning of warm up until the end of the training session. Distance
22
23 142 was recorded in 6 velocity zones as used previously (20);

24
25 143 Walking ($0.01 - 1.59 \text{ m}\cdot\text{s}^{-1}$),

26
27 144 Jogging ($1.60 - 2.69 \text{ m}\cdot\text{s}^{-1}$),

28
29 145 Cruising ($2.70 - 3.79 \text{ m}\cdot\text{s}^{-1}$),

30
31 146 Striding ($3.80 - 4.99 \text{ m}\cdot\text{s}^{-1}$),

32
33 147 High-speed running (HSR; $5.00 - 5.49 \text{ m}\cdot\text{s}^{-1}$),

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35 148 Sprinting ($\geq 5.50 \text{ m}\cdot\text{s}^{-1}$)

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37 149
38
39 150 HSR and sprinting were aggregated to represent total-HSR, which was also
40
41 151 calculated relative to training duration ($\text{total-HSR}\cdot\text{min}^{-1}$). Relative distance ($\text{m}\cdot\text{min}^{-1}$)
42
43 152 was calculated by dividing total distance by the session duration (minutes).
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48 154 *Statistical Analyses*

49
50 155 Data are presented as mean \pm standard deviations (SD) for the external
51
52 156 training load. Preliminary analyses on data using Kolmogorov-Smirnov test was
53
54 157 conducted to check for normality. A repeated measures analysis of variance (RM
55
56 158 ANOVA) was used to examine the differences for each variable between phases of
57
58 159 the season (i.e., preseason, early, mid and late phase of the in-season), with
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3 160 Bonferroni corrections for multiple comparisons. Cohen's *d* effect size (ES) statistics
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5 161 (21) were also calculated. ES's were interpreted as $<0.20 = \textit{trivial}$, $0.20-0.59 = \textit{small}$,
6
7 162 $0.60-1.19 = \textit{moderate}$, $1.20-2.00 = \textit{large}$, $>2.00 = \textit{very large}$. SPSS (version 20.0; IBM,
8
9 163 Armonk, NY, USA) was used to conduct analysis, with all statistical significance set
10
11 164 at $P < 0.05$.

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RESULTS

167 Table 1 shows the mean \pm SD for external training session load for
168 preseason, early, mid and the late phase of the in-season. A significant overall effect
169 between phases of the season was observed for all variables, excluding variables
170 relative to time (i.e., relative distance and relative total-HSR distance).

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*** Insert Table 1 Here***

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Effect size and *post-hoc* comparisons between the stages of the season
(e.g., preseason vs. early) are shown in Table 2.

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*** Insert Table 2 Here***

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Very large differences were observed between preseason and in-season (i.e.,
early, mid and late phase) for session time and total distance. *Very large* differences
were also observed for preseason vs. early and mid-phase of the season for jogging
distance, and also between preseason and the late phase of the season for total-
HSR.

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Large differences were observed for preseason vs. early and mid-phase of
the season for walking distance, preseason vs. late phase of the season for jogging
distance and preseason vs. in-season (i.e., early, mid and late phase) for HSR.
Large differences were also observed for sprinting distance between preseason and

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1
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3 188 mid and late phase of the season, and total-HSR between preseason and early and
4
5 189 mid-phase of the season.

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7 190 *Moderate* differences were observed for walking (preseason vs. late), jogging
8
9 191 (mid vs. late phase), cruising (pre vs. all in-season phases), striding (preseason vs.
10
11 192 late) and sprinting (pre vs. early, early vs. late, mid vs. late) between phases of the
12
13 193 season. *Moderate* differences were also observed for total-HSR and relative total-
14
15 194 HSR distance between early vs. late, and mid vs. late. Relative total-HSR distance
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17 195 was also *moderately* different between pre and late phase of the season.

18
19 196 All other differences were either *trivial* or *small*.

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DISCUSSION

24
25 199 The study showed that overall session training loads were higher in
26
27 200 preseason compared to the in-season training period. This study also showed that
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29 201 the mean training session load was similar throughout the in-season phases,
30
31 202 although a reduction in intensity, specifically absolute and relative total-HSR in the
32
33 203 late in-season phase was observed. Previous studies have used GPS technology to
34
35 204 describe the match demands (5, 12, 13) and observe short term training periods (i.e.,
36
37 205 preseason; (8, 14)) in rugby league. However, this is the first study to quantify and
38
39 206 compare the external training load throughout the different phases (i.e., pre vs early,
40
41 207 mid and late in-season) of the rugby league season using GPS metrics.

42
43 208 Data presented in this study can be used as a reference by coaches working
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45 209 in sports with long in-season periods, following preseason preparatory phases.
46
47 210 During the in-season period, the aim of the coach is to prescribe training to develop
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49 211 or retain any fitness qualities developed during preseason, alongside the technical
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51 212 and tactical requirements of the sport. Training prescription and manipulation should
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53 213 be undertaken, while considering the fitness: fatigue models proposed (22) to ensure
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55 214 players can compete weekly. When evaluating the data presented in this study,
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57 215 training volume and training intensity should be differentiated to understand the
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3 216 specific stimulus provided (thus how players may respond) and how coaches may
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5 217 further manipulate their training sessions. Within this study, training volume variables
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7 218 can be attributed to both session duration and total distance, while overall intensity
8
9 219 can be attributed to relative distance and also relative and absolute total-HSR.

10
11 220 The mean preseason session duration in this study is similar to previously
12
13 221 reported by Weaving and colleagues during their observations of a rugby league
14
15 222 preseason period (14). The overall intensity (e.g., relative distance) during preseason
16
17 223 appears much lower than previously reported during English and Australian rugby
18
19 224 league match play (95.8 ± 19.6 and 90.2 ± 8.3 m·min⁻¹; (5)). In contrast to this, the
20
21 225 relative total-HSR was greater during preseason than previously reported during
22
23 226 English and Australian rugby match play (6.1 ± 1.8 and 7.8 ± 2.1 m·min⁻¹; (5)). This
24
25 227 suggests players are likely being conditioned for HSR match play activity during
26
27 228 training, which has been previously attributed to match success (23). While it is not
28
29 229 clear if this is the optimum training prescription for players during preseason due to
30
31 230 the lack of physiological data presented, this study does provide the first insight into
32
33 231 seasonal field-based training loads.

34
35 232 What is clear from this study is the apparent *very large* reduction in training
36
37 233 time between the preseason and in-season training period. Similarly, Gabbett et al.
38
39 234 (15) previously observed preseason-training loads were higher than in-season
40
41 235 training periods, however only reported session duration and RPE as a measure of
42
43 236 training load. While players are required to also compete in matches in addition to
44
45 237 training during the in-season period, the training volume during a session (i.e.,
46
47 238 duration) should be modified to account for this. It is unclear at present how much
48
49 239 volume (in addition to intensity) is required to maintain the fitness adaptations
50
51 240 achieved during the preseason period. In addition to the reduction in session training
52
53 241 volume between the preseason and in-season periods, a *large-very large* reduction
54
55 242 in intensity (total-HSR) was observed, which was *small-moderate* when expressed
56
57 243 relative to time (relative total-HSR). In contrast, relative distance was greater in-

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3 244 season than in preseason (*small* difference), which is in line with the *large-very large*
4
5 245 reduction in walking and jogging between preseason and the in-season period.
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7 246 Although *moderate-large* reductions were also observed for HSR and sprint distance,
8
9 247 relatively a lesser reduction between preseason and the in-season period was
10
11 248 observed in comparison to lower speed activities. This may represent the coach's
12
13 249 intention of maintaining session intensity, during the in-season period. Similarly to
14
15 250 preseason, the relative total-HSR was greater and relative distance was lower during
16
17 251 the in-season period than reported during English and Australian rugby match play
18
19 252 (5). The appropriate management of training intensity and duration is especially
20
21 253 pertinent given the length of the rugby league season (9 months). Rugby league
22
23 254 players should be in peak physical condition at the end of the season, given this is
24
25 255 where both the Cup and league knock-out competition takes place (4).

26
27 256 Overall there was a limited change in training load during the in-season
28
29 257 training periods. It has been suggested that in accordance with traditional
30
31 258 periodisation models, training load must be varied in order to elicit optimal
32
33 259 physiological adaptations and limit the negative effects of fatigue (10). Daily variation
34
35 260 may have taken place during training, which could have been lost when aggregating
36
37 261 the data, thus future studies should investigate this. Twist et al. (5) found that during
38
39 262 match play, relative distance covered, low, moderate and HSR activity did not differ
40
41 263 across the early, mid and late in-season periods in both the English and Australian
42
43 264 rugby league competition. As such, it appears players are able to maintain the
44
45 265 physical outputs required during match play, throughout the season.

46
47 266 Observations of in-season training loads show a *small* increase between the
48
49 267 early to mid and mid to late phases (based on time), thus coaches may be increasing
50
51 268 the volume of training sessions towards the end of the season for either physical or
52
53 269 technical and tactical reasons. Despite the observed *small-moderate* ES's as an
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55 270 absolute the change is by only ~1 minute, thus likely not important. Studies within
56
57 271 soccer have shown the maintenance of training session volume (e.g., duration) from
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3 272 the early to the mid phase of the season (76 ± 24 and 76 ± 13 minutes) prior to a
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5 273 reduction at the end of the season (60 ± 20 minutes) (24). A progressive decrease in
6
7 274 volume and increase in intensity would be indicative of a traditional periodisation
8
9 275 strategy (25), although given these players are required to compete every week, the
10
11 276 optimal annual manipulation of training load is still debated (26).

12
13 277 Despite the *small* increase in session duration from the mid to late phase of
14
15 278 the season, it would appear from the external loads that training sessions decreased
16
17 279 in intensity (e.g., reduction in HSR, sprinting, absolute and relative total-HSR).
18
19 280 Although the aims of the coaching team were not quantified at any time during this
20
21 281 study, it could be speculated that the decreased intensity was due to the focus on
22
23 282 technical and tactical aspects, as opposed to the physical conditioning of players,
24
25 283 where higher intensity training may have been observed. Furthermore, it may have
26
27 284 been a subconscious effort from the players who were unable to run at a high
28
29 285 intensity due to the presence of fatigue accumulated throughout the season. Within
30
31 286 soccer, both volume (e.g., duration, distance) and intensity (e.g., relative distance
32
33 287 and HSR) are reduced towards the end of the season (24), in an attempt to dissipate
34
35 288 any accumulated fatigue (26).

36
37 289 What is apparent in this study is the main determinant of total, walking, and
38
39 290 jogging distance is training duration, as similar trends were observed between the
40
41 291 respective variables. As such, throughout the season, coaches should monitor
42
43 292 session duration as a *proxy* measure of load during training, if GPS technology is not
44
45 293 available.

46
47 294 The current notion surrounding training load (indicative of both volume and
48
49 295 intensity), is that players should try and maintain high loads throughout the season
50
51 296 (22, 26). The consequences of such are well developed physical qualities alongside
52
53 297 preparedness for the competition demands (22). It appears that how coaches
54
55 298 progressively manipulate training exposure to achieve high loads is more important
56
57 299 than whether or not players are exposed to high or low training loads (26). The acute
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3 300 (i.e., one-week) to chronic (i.e., four-weeks) ratio of training exposure appears a
4
5 301 predictor of injury risk (22) and injury appears to relate to team success (i.e., ranking)
6
7 302 in rugby union (27), thus should be a consideration for the coach. While it was not
8
9 303 possible to calculate the acute: chronic load within this study due to missing data,
10
11 304 this would appear a suggestion for future research. In addition, this study only reports
12
13 305 the external training load of field-based training, omitting internal response (e.g.,
14
15 306 session rating of perceived exertion, heart rate) which is only one component of the
16
17 307 total exposure a player may experience. Also, this study did not account for the
18
19 308 matches or resistance training that players were exposed to, which again should be a
20
21 309 direction for future research to aggregate all load exposures. The findings from this
22
23 310 study are also limited to one club, and their respective playing cohort, thus the
24
25 311 generalisability of the data may be questionable. Saying that, this cohort were a Cup
26
27 312 winning team during this respective season, thus the data presented can be used as
28
29 313 a starting point for either future research or indeed the practitioner. The change in
30
31 314 physical qualities of players were not quantified in this study, thus it is not clear if this
32
33 315 specific strategies employed during this respective season were optimal for players
34
35 316 to maintain aerobic fitness, speed and strength among other qualities during the nine
36
37 317 month in-season period. Finally, future research should consider the periodisation of
38
39 318 technical and tactical skills that occurs within successful teams, to develop
40
41 319 knowledge of elite sport [\(28\)](#).
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321 CONCLUSION

322 This was the first study to quantify the external training load, measured using
323 GPS technology, across a professional rugby league season. The results found large
324 reductions for training loads between preseason and in-season periods. Across the
325 season, a small decrease in intensity (relative distance, absolute and relative total-
326 HSR) was observed. Future research should quantify the adequacy of the training

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3 327 loads experienced by players, while considering the acute: chronic loads, fitness:
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5 328 fatigue models and the impact on performance and injury.

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Table 1. Mean external session training load of professional rugby league players at different times in the season

	Phase of the Season				RM ANOVA	Post-hoc
	Preseason	Early	Mid	Late		
Session Duration (min)	51.9 ± 5.0	35.8 ± 1.5	36.4 ± 2.7	37.5 ± 2.9	$p < 0.001$	P > E, M, L
Total Distance (m)	3723 ± 265	2793 ± 404	2658 ± 196	2678 ± 213	$p < 0.001$	P > E, M, L
Relative Distance (m·min ⁻¹)	72.6 ± 2.8	75.4 ± 6.9	74.4 ± 7.0	73.5 ± 5.0	$p = 0.338$	
Walking (m)	1137 ± 258	829 ± 228	840 ± 235	869 ± 230	$p < 0.001$	P > E, M, L
Jogging (m)	1240 ± 199	896 ± 75	884 ± 91	949 ± 87	$p < 0.001$	P > E, M, L
Cruising (m)	570 ± 179	435 ± 141	411 ± 135	410 ± 125	$p < 0.001$	P > E, M, L
Striding (m)	280 ± 187	210 ± 142	220 ± 196	176 ± 118	$p = 0.006$	P > E, M, L
High-Speed Running (m)	286 ± 98	185 ± 59	194 ± 51	182 ± 63	$p < 0.001$	P > E, M, L
Sprinting (m)	209 ± 78	147 ± 73	129 ± 65	93 ± 48	$p < 0.001$	P & E > L
Total HSR (m)	496 ± 135	331 ± 48	323 ± 67	276 ± 78	$p < 0.001$	P > E, M, L
Relative Total HSR (m·min ⁻¹)	9.8 ± 2.9	9.2 ± 2.6	9.2 ± 2.1	7.7 ± 2.1	$p = 0.064$	

Table 2. Effect size (*d*) and *post-hoc* differences between mean external session training load of professional rugby league players at different stages of the season

	Preseason vs. Early	Preseason vs. Mid	Preseason vs. Late	Early vs. Mid	Early vs. Late	Mid vs. Late
Session Duration (mins)	<i>Very Large</i> ($p < 0.001$; $d = 4.57$)	<i>Very Large</i> ($p < 0.001$; $d = 3.97$)	<i>Very Large</i> ($p < 0.001$; $d = 3.61$)	<i>Small</i> ($p = 1.000$; $d = -0.26$)	<i>Moderate</i> ($p = 0.636$; $d = -0.73$)	<i>Small</i> ($p = 1.000$; $d = -0.39$)
Total Distance (m)	<i>Very Large</i> ($p = 0.002$; $d = 2.66$)	<i>Very Large</i> ($p < 0.001$; $d = 4.65$)	<i>Very Large</i> ($p < 0.001$; $d = 4.4$)	<i>Small</i> ($p = 1.000$; $d = 0.43$)	<i>Small</i> ($p = 1.000$; $d = 0.36$)	<i>Trivial</i> ($p = 1.000$; $d = -0.10$)
Relative Distance ($m \cdot \text{min}^{-1}$)	<i>Small</i> ($p = 0.385$; $d = 0.51$)	<i>Small</i> ($p = 1.000$; $d = -0.33$)	<i>Small</i> ($p = 1.000$; $d = -0.23$)	<i>Trivial</i> ($p = 0.739$; $d = 0.14$)	<i>Small</i> ($p = 1.000$; $d = 0.31$)	<i>Trivial</i> ($p = 1.000$; $d = 0.15$)
Walking (m)	<i>Large</i> ($p = 0.003$; $d = 1.27$)	<i>Large</i> ($p = 0.005$; $d = 1.21$)	<i>Moderate</i> ($p = 0.013$; $d = 1.11$)	<i>Trivial</i> ($p = 1.000$; $d = -0.05$)	<i>Trivial</i> ($p = 1.000$; $d = -0.17$)	<i>Trivial</i> ($p = 1.000$; $d = -0.12$)
Jogging (m)	<i>Very Large</i> ($p = 0.026$; $d = 2.38$)	<i>Very Large</i> ($p = 0.026$; $d = 2.38$)	<i>Large</i> ($p = 0.012$; $d = 1.97$)	<i>Trivial</i> ($p = 0.983$; $d = 0.15$)	<i>Small</i> ($p = 0.251$; $d = -0.64$)	<i>Moderate</i> ($p = 1.000$; $d = -0.72$)
Cruising (m)	<i>Moderate</i> ($p < 0.001$; $d = 0.85$)	<i>Moderate</i> ($p < 0.001$; $d = 1.02$)	<i>Moderate</i> ($p < 0.001$; $d = 1.06$)	<i>Trivial</i> ($p = 1.000$; $d = 0.17$)	<i>Trivial</i> ($p = 0.095$; $d = 0.19$)	<i>Trivial</i> ($p = 0.485$; $d = 0.01$)
Striding (m)	<i>Small</i> ($p = 0.036$; $d = 0.43$)	<i>Small</i> ($p = 0.033$; $d = 0.32$)	<i>Moderate</i> ($p = 0.047$; $d = 0.68$)	<i>Trivial</i> ($p = 0.794$; $d = -0.06$)	<i>Small</i> ($p = 0.221$; $d = 0.26$)	<i>Small</i> ($p = 0.687$; $d = 0.27$)
HSR (m)	<i>Large</i> ($p = 0.005$; $d = 1.29$)	<i>Large</i> ($p = 0.005$; $d = 1.22$)	<i>Large</i> ($p = 0.005$; $d = 1.30$)	<i>Trivial</i> ($p = 1.000$; $d = -0.17$)	<i>Trivial</i> ($p = 1.000$; $d = 0.05$)	<i>Small</i> ($p = 1.000$; $d = 0.22$)
Sprinting (m)	<i>Moderate</i> ($p = 0.178$; $d = 0.84$)	<i>Large</i> ($p = 0.052$; $d = 1.14$)	<i>Large</i> ($p = 0.002$; $d = 1.85$)	<i>Small</i> ($p = 1.000$; $d = 0.26$)	<i>Moderate</i> ($p = 0.008$; $d = 0.87$)	<i>Moderate</i> ($p = 0.609$; $d = 0.64$)
Total HSR (m)	<i>Large</i> ($p = 0.015$; $d = 1.37$)	<i>Large</i> ($p = 0.011$; $d = 1.68$)	<i>Very Large</i> ($p = 0.002$; $d = 2.05$)	<i>Trivial</i> ($p = 1.000$; $d = 0.10$)	<i>Moderate</i> ($p = 0.193$; $d = 0.60$)	<i>Moderate</i> ($p = 0.814$; $d = 0.65$)
Relative Total HSR distance ($m \cdot \text{min}^{-1}$)	<i>Small</i> ($p = 1.000$; $d = 0.21$)	<i>Small</i> ($p = 1.000$; $d = 0.22$)	<i>Moderate</i> ($p = 0.185$; $d = 0.82$)	<i>Trivial</i> ($p = 1.000$; $d = -0.02$)	<i>Moderate</i> ($p = 0.168$; $d = 0.62$)	<i>Moderate</i> ($p = 0.349$; $d = 0.71$)