

Changing coaches in a local Portuguese professional soccer team: influencing factors and decision effect

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Abstract

In male professional soccer, changing coaches frequently occurs during a sports season. Although this decision may disrupt players' and teams' development, organizational progress, and financial stability, the administrations still decide to change coaches due to several sportive factors. This study aims to describe a local Portuguese professional soccer team's reality regarding specific factors influencing the decision to dismiss a coach across a sports season and reflect on the decision effect. The sample was composed of three male coaches who managed a professional soccer team during the 2020/2021 season and thirty-six male professional soccer players. Our results showed that the coaches were dismissed after a sequence of unsatisfactory results and the team being in a relegation position. Both new coaches had a short-term positive impact on team results and players' total distance covered in official matches. In terms of training, there was a decrease in the total distance covered by the players in the weeks following the change of coach, raising the hypothesis that there was a focus on tactical and technical aspects, rather than on the physical work of the team. Also, the change of coach led to a modification in the players most used in official matches in two or three specific positions on the field. Although, changing coaches did not have long-term effects on the team sports results. Therefore, considering the financial effort required and the sportive effects, the decision to change coaches during a season seems questionable. Our findings contribute to the analysis of an event that has become more frequent in our reality, being a topic that still requires further exploration in other local contexts.

Keywords: football; coach dismissal; sports expectation; changing impact; total distance.

Introduction

In male's professional soccer, head coach changes frequently occur during a sports season (Zart & Güllich, 2022). Soccer has an extremely high coach dismissal rate (Bell et al., 2013; Tozetto et al., 2019). Professional soccer is more about business than entertainment, and because of the growing importance of the sports industry, soccer clubs have become enterprises (Şener & Karapolatgil, 2015). As a result, sport entrepreneurship is essential for staying relevant in the soccer industry (Hammerschmidt et al., 2021; Núñez-Pomar et al., 2020). Since it may enhance the club's name on the biggest stages, strong sporting results desired by team owners are crucial for sustained economic and financial sustainability (Trequattrini et al., 2016). Consequently, a sequence of multiple rounds falling short of owners' performance expectations generally results in an in-season head coach dismissal (Bachan et al., 2008; Frick et al., 2010; Rocaboy & Pavlik, 2020). The administrations of professional clubs still decide to replace coaches throughout the season, even though it may

significantly disrupt player and team development, organizational progress, and financial stability (Mallett & Lara-Bercial, 2016).

Due to the availability of extensive, precise, and transparent data on managerial change and team performance, research on coach dismissals in professional team sports is expanding (d'Addona & Kind, 2014). In addition, the effectiveness of coaches is more thoroughly, regularly, and openly evaluated by the media. In soccer literature, the prevalence of head coaches' dismissal at the professional level has been carefully studied. There are primarily two strands in the growing research literature utilizing sports data to examine management dismissal and change. While the first strand examines the factors that lead to coach changes and makes a distinction between coach dismissals and resignations (Bryson et al., 2021; Holmes, 2011; Salaga & Juravich, 2020; Van Ours & Van Tuijl, 2016; Wangrow et al., 2018), the second strand focuses on assessing the impact of changing coaches on team performance (Argentieri et al., 2019; Arrondel et al., 2020; Audas et al., 2002; Bykova & Coates, 2020; Flepp & Franck, 2021; Gómez et al., 2021; Paola & Scoppa, 2012; Rocaboy & Pavlik, 2020; Scelles & Llorca, 2020, 2021; Semmelroth, 2022; Van Ours & Van Tuijl, 2016; Zart & Güllich, 2022). Furthermore, coach dismissal has been studied recently using duration analysis (Bryson et al., 2021; Gilfix et al., 2020; Van Ours & Van Tuijl, 2016; Wangrow et al., 2018). Overall, there is a balance between the investigations that showed favorable results of the team's performance in the short and long term after changing coaches, and those that reported worse team performance levels after coach release.

Meanwhile, the literature has mentioned different causes that lead to coaches' dismissal. The most usual are recent match results, disappointing league standing, investors' and supporters' unhappiness, and the media's impact (Bachan et al., 2008; d'Addona & Kind, 2014; Van Ours & Van Tuijl, 2016). Even with some insights in the literature into match performance after coach transition throughout a sports season, understanding how coaching changes affect the players' physical performance is still limited. In a past study about this topic, the authors described that both players' total distance and team results improved in the short term after changing the head coach. However, this effect disappeared after approximately five matches (Radzimiński et al., 2022). So, physical performance throughout the match may indirectly influence the sporting outcomes (Radzimiński et al., 2022). In another investigation examining the relationship between match results and players' physical performance, the authors concluded a decrease in players' physical performance in both training and match situations after the coach's dismissal (Pieper et al., 2014). Coaches should be aware that after a series of unexpected negative results, clubs' owners may decide to dismiss them (Van Ours & Van Tuijl, 2016). Knowing that the final results of the games are influenced by a set of technical, tactical, and physical variables (Konefal et al., 2018; Rampinini et al., 2009; Tenga et al., 2010), it is essential that coaches plan and implement in the training processes their ideas regarding these variables (Radzimiński et al., 2022).

Therefore, this study aims to describe a local Portuguese professional soccer reality regarding specific factors influencing the decision to change coaches in the course of a sports season. Most studies on firing, hiring, and changing coaches focus on a global description of championships focusing on sports results. Our study presents a local view and reflection of a specific Portuguese first-division soccer club, analyzing the effect of changing coaches not only on team sports results but also on representative variables of players' external load, which is the field time and total distance covered in training and official matches. This investigation presents two main contributions to sports literature. First, it contributes to the analysis of an event that has become more frequent in our sportive reality, being a work of reflection that will certainly lead to the discussion of the impact of certain decisions on the financial, administrative, and organizational stability of clubs of this location. Finally, it presents an in-depth research tool on the topic of a coaching change that can be replicated and compared in other sporting contexts, making the most of club resources.

Material & methods

Participants

Our investigations concerned the phases with three different coaches who managed a professional soccer club during the 2020/2021 season. Participants in this study were 36 male professional soccer players (age = 26.4 ± 3.2 years, height = 181.5 ± 6.6 cm, body mass = 78.1 ± 8 kg). Three goalkeepers (8.3%), 13 defenders (36.1%), 8 midfielders (22.2%) and 12 forwards (33.3%). Twenty-seven players have the right lower limb as dominant (75%), and nine have the left lower limb as dominant (25%). All procedures applied were approved by the Ethics Committee of the Faculty of Human Kinetics, CEIFMH N° 34/2021. The investigation was conducted following the Declaration of Helsinki, and informed consent was obtained from all participants.

Team's competitive pathway variables and injury report

The characteristics of this club's competitive path in the 2020/2021 season are in the public domain. Data was collected from the sports platforms zerozero.pt and transfermarkt.com. The consistency of the information in both sources (date of signing and dismissal of coaches, matches, results) was identical, validating the data presented. The injury occurrence is characterized by the work session (training or competition) that the player was performing when the injury was contracted. The exposure time and total distance were collected by a

10-Hz GPS unit (EVO, Catapult, Melbourne, Australia), during each training session and official match. The Global Positioning System (GPS) device was put in a skin-tight bag in the thoracic region between the scapulae. Participants used the GPS device in both training and in match situations. Injury incidence was calculated as the number of injuries contracted during a sporting activity divided by 1000 hours of exposure time and multiplied by the exposure time collected with GPS.

Statistics

Descriptive statistics were used to summarize the data collected. The demographic data of the participants are presented by mean and standard deviation. Absolute values show the number of soccer players and injuries and the absolute value and percentage present the Team's sports results. The points achieved in the coach's first and last four matches are presented in absolute values. Injury occurrence, exposure time, and injury incidence are also presented by absolute values. The total distance covered by the players in the first and last three matches and the first and last three weeks conducted by each coach is also presented by absolute values. All analyses were performed using IBM SPSS Statistics software 28.0 (SPSS Inc., Chicago, IL, USA).

Results

Table 1 shows the team's competitive path through the 2020/2021 season. This team participated in the Portuguese First Soccer Division, finishing 15th and accumulating 35 points. The team managed to reach the quarter-finals of the Portuguese Cup and had a total of 38 matches throughout the season. Of those, 53% were losses.

Table 1. Characteristics of the team competitive pathway during the 2020/2021 sports season.

Division	1 st
League Final Rank	15 ^o
League Points	35
Portuguese Cup	Quarter-Finals
Matches played (n)	38
Wins	13 (34%)
Draws	5 (13%)
Losses	20 (53%)

Table 2 resumes the sporting path and the results achieved by each coach who commanded the team during the analyzed season. Coaches A and B were sacked when this team was in relegation position. The coach who had fewer weeks in the club (Coach C) was the one who achieved better results, reaching more points in the Portuguese league.

Table 2. Sporting path and results achieved by the three coaches during the 2020/2021 season.

	Coach A	Coach B	Coach C*
Hiring date	03/08/2020	06/12/2020	11/03/2021
Dismissal date	04/12/2020	08/03/2021	Until season end
Years as Coach	18	19	15
Weeks in the club	17	13	10
Matches as coach	9	17	12
League points	7	11	17
Points per match	0.77	0.65	1.42
Position when fired	17 ^o	18 ^o	15 ^o
Total matches won	3	5	5
Total matches drawn	1	2	2
Total matches lost	5	10	5
Best winning streak	2	3	3
Worst no-win streak	4	9	4
Match Results	LWWLDDLWL	LWWWDLWWLLLLLLDL	WLLWLWWLDDL

*Only this season's data was reported, as this coach has remained with the club. W (win), D (draw), L (loss).

The results achieved in the first and last four matches of each coach in charge before they were fired (Coaches A and B) or before the end of the season (Coach C), are represented in table 3. The decrease in the number of points achieved in each coaches' first four matches was noticeable compared to the number of points gained in their last four matches.

The sum of points achieved by the three coaches in the first four matches since they took charge of the team was 21. On the other hand, the sum of the last four matches of each one was 7 points. Overall, there was a 66.6% decrease in points achieved when comparing the first and last four matches of each of the three coaches.

Table 3. Points achieved in first and last four games of each coach during the 2020/2021 season.

	Coach A	Coach B	Coach C
First four games			
Game 1	0	0	3
Game 2	3	3	0
Game 3	3	3	0
Game 4	0	3	3
Total points achieved	6	9	6
Last four games			
Game -4	1	0	0
Game -3	0	0	1
Game -2	3	1	1
Game -1	0	0	0
Total points achieved	4	1	2

Table 4 shows the team injury report for the 2020/2021 season. Among 36 players, 23 contracted 34 injuries, with an average of 0.9 per player. Coaches A and B dealt with 12 and 14 injuries, respectively. Coach C dealt with eight injuries. Coach B was the one who had to deal with the most days missed (228 days). However, Coach C had a higher average of days missed per injury (18.3 days). Overall, most of the injuries occurred in training sessions. While the incidence of injuries did not show much variation in training, this statement is not valid for match situations. In this case, Coach A dealt with a higher incidence of injuries at the beginning of the season (45.9). This value gradually decreased throughout the season, with lowest value being under Coach C (5.1).

Table 4. Injury, occurrence, exposure, and incidence during the 2020/2021 season.

	Total	Coach A	Coach B	Coach C
Number of injuries	34	12	14	8
Injured Players	23	12	12	8
Total days missed due to injury	487	113	228	146
Average days missed per injury	14.3	9.4	16.3	18.3
<i>Occurrence (n)</i>				
Training	20	5	8	7
Match	14	7	6	1
<i>Exposure (h)</i>				
Training	7154.8	1873.88	3066.34	2214.58
Match	639.5	152.75	287.49	199.27
<i>Incidence*</i>				
Training	2.8	2.7	2.6	3.2
Match	21.9	45.9	20.9	5.1

*Injury incidence (per 1000h), h (hours).

Table 5 compares the coaches' first choices for each specific position on the field, according to each player's playing time. Constant maintenance of the same goalkeepers, right winger, and left winger as first choices can be observed, regardless of the coach in charge. In central defense, midfield, winger, and striker, there were usually changes associated with the change of coach. On average, each coach made three changes in the most used players in official matches, compared to one of the other coaches who also headed this professional soccer team.

Table 5. Comparison of coaches' player choice from each specific position with more match minutes.

	Coach A – Coach B	Coach B – Coach C	Coach A – Coach C
Goalkeeper	Maintain	Maintain	Maintain
Right-back	Maintain	Maintain	Maintain
Left-back	Maintain	Maintain	Maintain
Central-back	Changed	Changed	Changed
Midfielder	Maintain	Changed	Changed
Winger	Maintain	Changed	Changed
Forward	Changed	Maintain	Changed

Figure 1 represents the total distance covered by the players who participated in the last three matches under Coach A and the first three under Coach B. The exact representation is made in Figure 2 concerning the last three matches under coach B and the first three under coach C. In both cases, the increase in the total distance covered in the matches is evident when a new coach takes over the team. Figures 3 and 4 refer to the total distance covered by players in the first and last three weeks of training. Contrary to the official matches, in the training weeks, a superior total distance covered was noticed before a coach was dismissed and his successor

was hired. The data of the four figures correspond to the distance covered for the whole team, both in game situations and in the analyzed training weeks. The analyzed weeks had the same number of training sessions, so they can be compared equally. Furthermore, the players' performance in official matches was evaluated by all players who participated in the matches. In the training situations, we considered to characterize this factor by the players who had participated in the compared weeks, validating the achieved results.

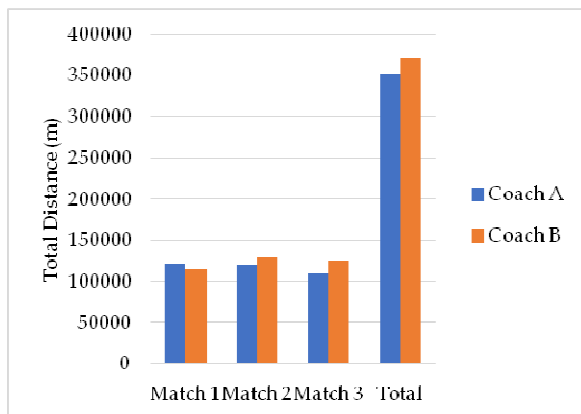


Figure 1. Last matches of Coach A vs first matches of Coach B.

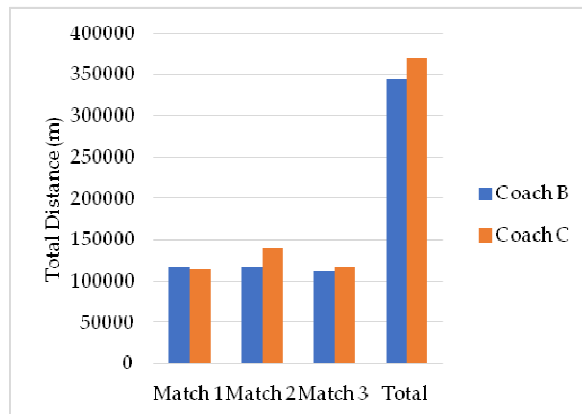


Figure 2. Last matches of Coach B vs First matches of Coach C.

Discussion

This study aimed to describe a local Portuguese professional soccer reality regarding specific factors influencing the decision to change coaches across a sports season. Our main results showed that the coaches were dismissed after unsatisfactory results, and the team was in a relegation position. Both new coaches had a short-term positive impact on team results and players' total distance covered in official matches. Although, changing coaches did not have long-term effects on the team sports results.

Throughout the 2020/2021 sports season, this team presented three coaches. Interestingly, the first two coaches were fired after a series of bad results that led the team to relegation position at both moments of the coaches' dismissal. Indeed, the literature shows that recent match results (d'Addona & Kind, 2014; Pieper et al., 2014; Van Ours & Van Tuijl, 2016), coach win percentage (Frick et al., 2010) and the league position (Bryson et al., 2021; d'Addona & Kind, 2014; Gilfix et al., 2020), are all associated with coaches' dismissal. In Europe's main leagues, the manager turnover rate is high due to the remarkable frequency of within-season managerial change. Aiming the increase of team's performance, it seems easier to replace a coach than a whole group of players (Muehlheusser et al., 2018). The coaches may be fired to make credible the threat of the dismissal even if the poor performance is merely the consequence of bad luck or if a better successor is not available (d'Addona &

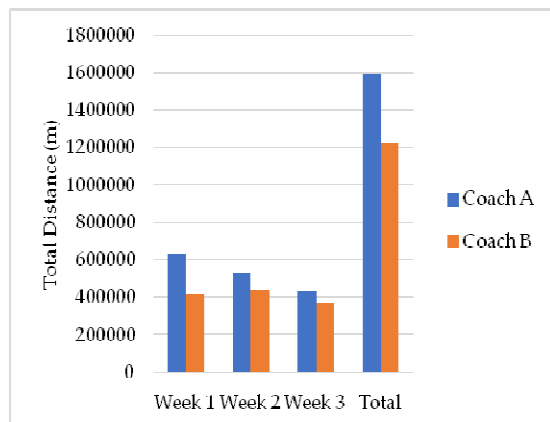


Figure 3. Last training weeks of Coach A vs First training weeks of Coach B.

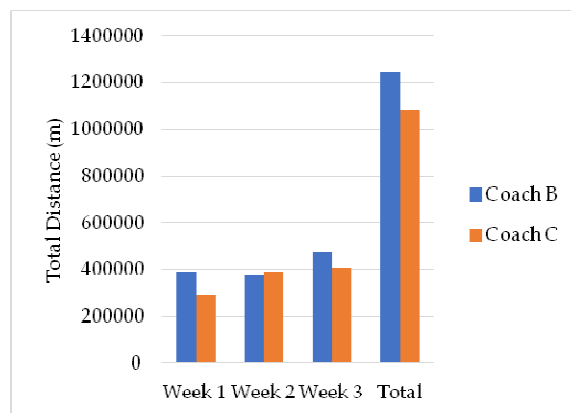


Figure 4. Last training weeks of Coach B vs First training weeks of Coach C.

Kind, 2014). The risk of relegation is one of the most determinant factors that influence the decision of soccer teams to dismiss their coaches (d'Addona & Kind, 2014), since it gives rise to negative financial consequences that the owners of the soccer clubs want to avoid (Wilson et al., 2019).

According to our analysis, the first coach stayed at the club for nine matches and the second coach for 17. The literature reinforces that the coach's dismissal decision is usually made after a certain number of consecutive matches during which the team's performance sharply declines (Radzimiński et al., 2022). This period has been previously defined as approximately twenty matches (Balduck et al., 2010). Both coaches stayed less time than the one revealed in the literature. Still, the difference between the two is substantial. Indeed, the decision to dismiss the first coach after an underwhelming start of the season is delicate. The whole process of firing a coach presents costs (Muehlheusser et al., 2018). Additionally, recruiting a new coach is associated with spending more money (Flepp & Franck, 2021). If making this decision once over a sports season is complex, making it twice may bring greater financial instability to the club, and this may be one of the reasons why the second coach had more time at the club than the first, since the average points per match were even lower than the first.

As far as the sporting results are concerned, in our investigation, there was a clear short-term improvement when there was coaching change. Such improvement eventually faded with the passage of time, demonstrating that there was no long-term improvements. Past studies have examined the influence of coach turnovers during a competitive season in soccer (Lago-Peñas, 2011; Radzimiński et al., 2022). A study in the Spanish Soccer League described a short-term positive impact of coach turnover on team performance, followed by a continued gradual worsening of further match results (Lago-Peñas, 2011). The significantly immediate improvement after changing the coach may be due to the shock effect, which probably increases players' motivation after the coach's dismissal. Indeed, a few days seems insufficient for new coaches to implement new soccer specific behaviors for the team (Lago-Peñas, 2011). Nevertheless, this effect no longer exists when the comparison before and after dismissal is made over 10, 15, or 20 matches (Lago-Peñas, 2011). Similarly, a study conducted in the German Soccer League found that dismissing the coach in the mid-season did not affect the subsequent results of the team performance (Heuer et al., 2011). Related conclusions found a slight, short-term improvement in the French Soccer Ligue teams' performance after hiring a new coach (Arrondel et al., 2020). In the mid-term to long-term, this effect was insignificant. Furthermore, the longitudinal analysis of the top European Soccer Leagues demonstrated that beneficial effects of changing the coach were absent after 15–20 matches (Gómez et al., 2021). On the other hand, a study made across nine years in the Premier League, Bundesliga, and La Liga, demonstrated that an in-season head coach change may result in instant performance improvement that could remain for up to 16 matches (Zart & Güllich, 2022). Due to the lack of long-term benefits, mid-season coach dismissions seem to be questionable (Radzimiński et al., 2022). Other studies have also reported that, on average, coaches' dismissal do not improve soccer teams' performance during the season (Besters et al., 2016; Paola & Scoppa, 2012). Furthermore, the decisions to fire a coach are mainly due to fan and media pressure rather than the realistic hope of improving the teams' performances (Flores et al., 2012).

Regarding sports injuries, the first two coaches had to deal with a higher number of injuries. The third and final coach had to deal with 30% to 40% fewer injuries. Overall, the analyzed team had 34 injuries throughout the season, with a training injury incidence of 2.8 per thousand hours and a match injury incidence of 21.9 per thousand hours. Overall, our findings align with those of earlier researchers (Hoffman et al., 2019; Jones et al., 2019; Noya Salces et al., 2014; Raya-González et al., 2020; Torrontegui-Duarte et al., 2020; Yáñez et al., 2021), highlighting the significance of keeping an eye on both the internal and external loads when competing. Training programs may be adjusted to improve player performance and readiness, lowering the possibility of injuries occurring during matches.

An investigation published earlier this year has suggested that future studies investigate the main changes in the most used players at the time of dismissal and change of coach (Radzimiński et al., 2022). Interestingly, it turned out that in our research, the three coaches presented, on average, three changes in the most used players per specific sector. While the goalkeeper and full-back positions were unchanged, the central defender, midfielder, winger, and forward positions showed variations from coach to coach. However, this team has undergone very few changes in the mid-season transfer market, with four arrivals (central defender, right-back, midfielder and forward) and two departures (a central defender and a forward). The analysis suggests that the three coaches had practically the same options from the beginning to the end of their cycle at the club, making differentiated decisions between them. The change of coaches is not exclusively dependent on sports results. The coaches also contribute to the valorization of the assets of the soccer clubs by fostering the growth of the players' market value which leads to clubs' future capital gains (Buzzacchi et al., 2021). Indeed, the managers can make young players debut, decide each player's field time, discover the best roles for the soccer players on the pitch, and improve the players' on-field performance through training methods that enhance tactics and skills (Buzzacchi et al., 2021). It should be noted that a new coach needs a certain amount of time to implement his principles, tactical behaviors, leadership style and training methods. Thus, a premature coach change may not be the most appropriate decision to improve a team performance (Balduck & Buelens, 2007).

Finally, there was an evident increase when comparing the total distance covered by players in the last three matches before and after the coach's dismissal. Because the final match result could often be related to physical performance (Paul et al., 2015), it seems justified to explore the impact of a new coach on players' external load in official matches (Chmura et al., 2018; Radzimiński et al., 2022). Previous studies have indicated the importance of these parameters as highly predictive of the match result in professional soccer (Konefal et al., 2018), however data on this topic is still controversial. A previous study conducted in professional soccer did not find any significant difference in players' match locomotion after changing the coach (Castellano & Casamichana, 2016). In contrast, a recent investigation on professional soccer players of Polish Ekstraklasa, presented substantial improvements in the total distance covered immediately after a coach turnover (Radzimiński et al., 2022). Indeed, since substitute players try to demonstrate their importance for the team, whereas first team players must prove that they deserve to keep their position, the increased in total distance covered is most likely affected by enhanced motivation (Guerrero-Calderón et al., 2021; Lago-Peñas, 2011). However, after a period of approximately five matches, this effect disappears. Therefore, changing the coach seems questionable in a long-term perspective in terms of the progressive increase of the total distance covered by professional soccer players since motivational factors and the so-called shock effect seem to have a more significant immediate impact in increasing external player load variables.

Regarding the total distance covered in training sessions in the three weeks before and after the change of coach, our research shows a decrease in this variable immediately after the arrival of the new coach. Effectively, the new coaches presented different tactical and structural ideas about the match and team performance. Thus, the focus in the first weeks of work might be on tactical-technical content and less on the physical aspect. A study on the top three competitive standards of Spanish soccer showed some reduction in both training and match physical performance when analyzing the four weeks before and after the coach's dismissal (Guerrero-Calderón et al., 2021). All these findings emphasize the importance of coaches' role in planning and implementing technical, tactical, and physical training process, needing sufficient time and stability to do it (Radzimiński et al., 2022).

Although this is an attractive growing topic in scientific research, there are some limitations on this study. Since it describes a local reality, the results cannot be generalized. However, its replication in other contexts may be carried out if future studies intend to describe in depth their sporting reality. Considering the difficulties of collecting data in a professional sports context, specifically in soccer, our data pertains to the only representative professional soccer team from Madeira Island in the Portuguese First Soccer League. In addition, most of the studies in the area are based exclusively on their analysis of sports results. Our studies go further analyzing other important variables that must be considered, such as sports injuries and external loads variables (i.e., total distance covered and players' time on the field), making a depth description of the topic in our local reality.

Conclusions

This study presents the results of collective reflection for regional clubs and their administrative structures. Aiming to describe a local reality regarding specific factors influencing the decision to dismiss coaches in a sports season, our findings are fundamental in describing an event that has become more frequent in our reality. Our results showed that the coaches were fired after unsatisfactory results, and the team being in a relegation position. It was also revealed that a change of coach had a short-term positive impact on the team's results and the total distance covered by the players in the following games. Furthermore, it was apparent that the change of coach had an impact on the decrease in total distance covered by the athletes in the following weeks of training. Furthermore, it was evident that the change of coach had an impact on the decrease in total distance traveled by the athletes in the following weeks of training. This leads us to believe that the concern of new coaches lies predominantly in tactical changes and changes in collective game behavior, taking into account the vision of the new technical staff. Even so, firing a coach and hiring another one with different game ideas and with different players choices did not bring long term effects on the team's sportive results. Thus, it is still questionable in sportive, financial and organizational aspects the change of coaches during a sportive season. As this is a topic with need of more exploration by different sports agents, future studies should use different metrics to evaluate the players' performance and the impact of changing coaches on the teams' collective performance.

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Conflict of Interest Declaration

The authors declare no conflict of interest.

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