Preseason Strategies of Italian First League Soccer Clubs in Relation to their Championship Ranking: A Five-Year Analysis

by

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This study is focused on the strategies adopted by Italian 'Serie A' soccer clubs during the non-competitive period. Thus, duration (i.e., number of days) of the specific non-competitive periods (i.e., off- plus pre-season, off-season, pre-season, summer camp), the number of games (i.e., friendly, official and polled games) and days between games (i.e., ≤ 3, 4-5, or ≥ 6 days between two consecutive games) of the entire non-competitive period were recorded and compared by clubs participating in the European Championships (EU), only 'Serie A' (A) and promoted from 'Serie B' (B) during five and single seasons (i.e., 2009/10-2013/14). Due to the short B off-season duration (2009/10-2013/14, 2010/11, 2011/12, 2012/13, 2013/14, p≤.001), effects between clubs emerged also for the off- plus preseason (2009/10-2013/14, EU vs A, p≤.01, EU vs B, p≤.01, A vs B, p≤.001; 2011/12, 2012/13, 2013/14, p≤.001). Nevertheless, no difference between clubs resulted for the pre-season. Reduced duration of summer camps was reported by the EU (i.e., 2009/10-2013/14, 2009/10, 2013/14, p≤.001). A higher number of official games were played by EU than A (i.e., 2009/10-2013/14, p≤.001; 2010/11, p≤.01). No effect emerged for the days between games. Therefore, despite the longer 'Serie B' schedule and EU preliminary UEFA games that determined the off-season restriction, clubs demonstrated the tendency to guarantee satisfactory pre-season duration.

Key words: team sports periodization, Italian soccer first league, summer training camp.

Introduction

Contrary to many individual sports, a team sports season is characterized by a shorter preparation period and a longer competitive phase. This extended competitive period, with frequent games, determines additional difficulties in achieving and maintaining athletes' peak performances over the entire season (Duthie et al., 2003; Kraemer et al., 2004). Hence, to reduce the risk of maladaptation and even exhaustion in players which may be induced by excessive loads, the coaches search for optimal strategies for training periodization (Gamble, 2006; Pyne et al., 2001).

Periodization has traditionally been defined as the implementation of planned changes in acute training variables with the aim of optimizing and/or maintaining gains in athletic performance (Fleck, 2011). The classical theory of training considers this process as a progressive sequence of targets (from general to specific) and low to high-intensity phases (Bompa, 1999; Harre, 1982; Matveiev, 1981), what has determined

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strategies of periodization termed as 'traditional models' (Chiu and Barnes, 2003). However, the traditional models have shown several limits when applied to team sports, where the specificity of game demands requires a simultaneous development of the different abilities and skills involved (Issurin, 2010). For this reason, in team sports coaches need specific strategies to manage changes in acute training variables and ensure that their athletes are prepared to successfully compete on a weekly basis for the upcoming game (Gamble, 2006; Pyne, 2001). Thus, the goal to adapt the periodization for discipline's specific targets requires to include planned variations that systematically shift the emphasis toward different training effects during different phases of the season (Mallo, 2011) which is divided into three main periods termed as off-, pre and in-season (Gamble, 2006). Generally, the off-season can be defined as the period with a total absence of scheduled activity (games and training sessions) permitting players involved in a long period of stressful training and competitions from the previous season to recover (Reilly and Williams, 2003). Then, the following preseason (PRE) comprises the period between the first seasonal training session and the first championship game. Afterwards, the in-season phase includes the entire competitive period until the official end of the season.

In Europe, the playing season for most national soccer leagues can span in excess of 35 weeks and elite teams can play up to 70 official games during a season (Carling et al., 2010; Ekstrand et al., 2004). Thus, as argued above, the preseason is rather short (a few weeks) and often, especially in semi- and no-professional leagues, players start the new season after off-season's heavy deconditioning effects (Tessitore et al., 2011). Such unbalanced condition characterized by a higher frequency of scheduled weekly training sessions (often 2 daily units) can pose a heavy physiological and psychological demand on players (Caldwell and Derek, 2009). In this regard, Jeong et al. (2011) comparing one week of pre-season with one week of in-season training in professional soccer players demonstrated that the former was more intense than the latter. For this reason, the coaches periodization strategies carried out at the beginning of a new soccer season can be seen as an attempt to stimulate

specific fitness, technical, tactical and psychological training adaptations (Viru and Viru, 2001), as well as proper individual and collective recovery strategies to avoid impairment of performance (Tessitore et al., 2007). Unfortunately, in elite soccer the practice (exercise) and recovery strategies adopted are influenced not only by the coaches' knowledge about the scientific guidelines of theory and methodology of training. In fact, they are also driven by the coaches' attempt to integrate the internal factors (technical, tactical, conditional and psychological) of training with the external factors (i.e. economical, of marketing, etc.) of teams' periodization.

To deeply understand the influence of external factors on periodization strategies, economical aspects have to be also discussed. On this subject, a study on Italian professional soccer has shown the relevance that the 'Serie A' league (the highest) plays in terms of economic, social and media impact factor, being considered one of the most important industries of the country (Montanari et al., 2008). Moreover, considering sport and tourism among the world's most popular leisure experiences (Ritchie and Adair, 2004), it is not surprising that in Italy the expenses needed for the Serie A summer camps are often offered by the municipalities hosting these clubs, in order to increase the economic activities in the area's hotels by attracting very dedicated soccer fans to visit their 'beloved team' (Gibson, 1998).

Accordingly, all these external factors can be seen in the light of how they can influence the clubs' periodization strategies during the entire preseason. Specifically, one should think about the days spent by the teams on training sessions far away from their usual sporting facilities, or traveling long distances with different time zones covered (Goumas, 2014), or the amount of friendly games (or tournaments) often imposed to the coaching staff by the clubs' commercial strategies. Nonetheless, the soccer's literature related to the preseason has been mainly focused on quantitative and qualitative aspects of training methodologies, recovery and risk of injury (Junge and Dvorak, 2004; Tessitore et al., 2007; Wong et al., 2010), while a closer focus on the strategies adopted to manage preseason periodization, in the light of the wider perspectives mentioned above, is still lacking.

Therefore, the overall purpose of this study was to investigate differences, if any, among strategies adopted by Italian Serie A clubs to manage their preseasons (and consequently their off-seasons). It was hypothesized that clubs characterized by different seasonal goals, according to their ranking (e.g., clubs participating in both Italian and European competitions, or only in the Italian championship, or clubs currently promoted from the second league) could pursue different strategies. Moreover, since each club could follow a different strategy during subsequent seasons, five year observation was provided.

Material and Methods

Design

To assess the periodization strategies adopted by the twenty clubs that annually participate in the Serie A championship promoted by the Italian soccer federation (Federazione Italiana Giuoco Calcio, FIGC), an observational study was carried out. The Italian 'Serie A' championship is based on a hierarchical organization (Montanari et al., 2008) with a system of promotion and relegation at the end of the season aiming to maintain a fixed number of clubs in the table. According to this system, at the end of the season the last three ranked clubs are relegated into the second league (Serie B), while three clubs are promoted by Serie B into Serie A. Furthermore, according to the number of entrants assigned by the Union of European Football Associations (UEFA), a corresponding number of Serie A clubs (based on the final rank of the previous season) get the right to participate in one of the two UEFA competitions: Champions- or Europe-League. Consequently, for the scope of our study, the twenty clubs participating in the Serie A championship were classified into three categories: i) clubs that participated in both Serie A and European competitions (EU); ii) clubs that participated only in Serie A (A); iii) clubs that participated only in Serie A after being promoted from Serie B at the end of the previous season (B).

Participants

The five-year investigation of this study resulted in a total of 100 specific data collections, corresponding to one collection for each of the twenty clubs that annually took part in the Serie A championship. Along the five soccer seasons (2009/10, 2010/11, 2011/12, 2012/13, 2013/14), the total panel of one hundred was composed by 28 different clubs that participated in Serie A as follows: 14 clubs for all five seasons, 3 clubs for four, 1 club for three, 5 clubs for two and 5 clubs for only one season.

Procedures

Data were annually collected during each of the five soccer seasons, through information provided by the official websites of the Italian Serie A League (www.legaseriea.it) and all clubs involved in the investigation. The following sub-periods were considered for the analysis of periodization strategies (Figure 1):

1. Off-season: considered as the sub-period between the last official game of the previous season and the beginning of the preseason of the new one;
2. Preseason: considered as the sub-period between the first official training and the first official championship game of the season;
3. Off-season + Preseason: considered as the sum of the two sub-periods mentioned above;
4. Summer Camp: considered as the specific sub-period of the preseason spent by the clubs on training performed away from their own facilities (sport centers).

Furthermore, to analyze differences in periodization strategies, according to the three club categories considered in this study, the following parameters were observed during each of the five seasons:

- Duration of each sub-period (number of days);
- Number of friendly and official games played during each sub-period;
- Number of days spent in each sub-period between two consecutive games according to the following three classes of duration: ≤ 3, 4-5, or ≥ 6 days.

Statistical Analysis

To provide the descriptive analysis (means and standard deviations, M ±SD) of all data, Excel spreadsheet program (Microsoft Office, 2007) was used. Then, statistical analyses were conducted with SPSS v. 21.0 (SPSS Inc., Chicago, Illinois, USA) software, and the criterion of significance was set at $p < 0.05$. A chi-square test (χ^2) was used to identify effects between the clubs ranking

categories (i.e., EU: 34 clubs; A: 51 clubs; and B: 15 clubs), in relation to each observed parameter (i.e., duration, number of games, and number of days between games), and considering the expected occurrences according to a coefficient related to the number of clubs of each ranking competition level (Lupo et al., 2012) for all five years (Table 2). When significant differences were found, a post-hoc analysis was applied to compare each couple of the clubs ranking category (i.e., EU versus A, EU versus B, and A versus B) by means of the Bonferroni correction (the new significance was set at $p \leq 0.016$). Successively, *Phi* effect sizes (ES) between groups were calculated, considering 0.1, 0.3, 0.5 as small, medium, and large effect sizes, respectively (Huck, 2000).

Results

Differences for the number of days ($p \leq 0.016$) spent by the clubs of the three categories (EU, A and B) considered in this study in relation to the four sub-periods (OFF+PRE, OFF, PRE and SC) and organized for each season and the total of the five seasons are shown in Table 3. Furthermore, a descriptive analysis (means ± standard deviations), for each season and the total of the five seasons, of the average of the number of days spent by the single clubs of the three categories in the four sub-periods is depicted in Table 4.

Finally, the occurrences and differences ($p \leq 0.016$) of the amount of games played by the clubs of the three categories and the average of the number of days spent between two consecutive games in relation to three classes of duration (≤ 3, 4-5, or ≥ 6 days) are reported in Table 5.
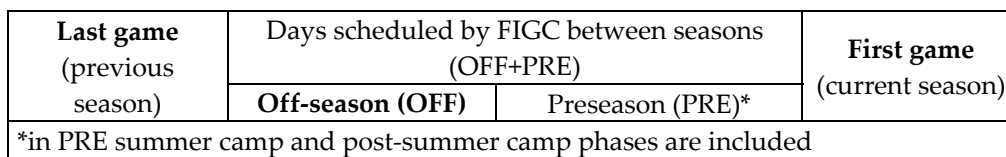
Last game (previous season)	Days scheduled by FIGC between seasons (OFF+PRE)		First game (current season)
	Off-season (OFF)	Preseason (PRE)*	
*in PRE summer camp and post-summer camp phases are included			

Figure 1

Scheme of the whole non-competitive period.

Table 1

Date of the first/last Serie A game and the number of days
of interval scheduled by the Italian soccer federation (F.I.G.C.) during each soccer season

	2009/10	2010/11	2011/12	2012/13	2013/14
Last game in the previous season	31st of May (2009)	16th of May (2010)	22nd of May (2011)	13th of May (2012)	19th of May (2013)
First game of the current season	22nd of August	28th of August	9th of September	26th of August	24th of August
Number of days of off-season + preseason	83	104	110	105	97

Table 2

Number of clubs and a coefficient related to the number
of clubs of each ranking competition level by season

		Clubs	Coefficient
2009/10	**EU**	8	0.40
	A	9	0.45
	B	3	0.15
2010/11	**EU**	7	0.35
	A	10	0.50
	B	3	0.15
2011/12	**EU**	7	0.35
	A	10	0.50
	B	3	0.15
2012/13	**EU**	6	0.30
	A	11	0.55
	B	3	0.15
2013/14	**EU**	6	0.30
	A	11	0.55
	B	3	0.15
All seasons	**EU**	34	0.34
	A	51	0.51
	B	15	0.15

Table 3

Total duration (i.e., cumulated number of days) of the whole non-competitive
period (OFF+PRE) and each sub-period [i.e., Preseason (PRE), Off-period (OFF),
and Summer camp (SC)], competitions]

		OFF+PRE	OFF	PRE	SC
2009/10	*EU (8)*	601	309	292	122 *** (0.2) ### (0.3)
	A (9)	702	359	343	208
	B (3)	208	109	99	78
2010/11	*EU (7)*	715	406 ### (0.8)	309	120
	A (10)	1049 ## (0.8)	584 ### (0.8)	465	183
	B (3)	258	123	135	60
2011/12	*EU (7)*	553 ** (0.2)	335	218** (0.3)	110
	A (10)	928	526 ### (0.7)	402	148
	B (3)	236	128	108	52
2012/13	*EU (6)*	547	335	212	70** (0.4)
	A (11)	1067 ### (0.7)	660 ### (0.7)	407	181
	B (3)	238	134	104	54
2013/14	*EU (6)*	537	311	226	88
	A (11)	1001	699	510	285
	B (3)	258	150	108	61
All five seasons	*EU (34)*	2953 ** (0.1) # (0.1)	1696 ## (0.2)	1257	510*** (0.1)## (0.1)
	A (51)	4747### (0.1)	2719 ### (0.1)	2028	927
	B (15)	1198	644	554	305

Differences ($p \leq .016$; $p \leq .01$; $p \leq .001$) and effect size (values) in relation to clubs
of a different ranking level [i.e., European (EU), Serie A (A) and Serie B (B)

Table 4

*Means ± standard deviations of the number of days during the whole
non-competitive period (OFF+PRE) and each sub-period [i.e., Preseason (PRE),
Off-period (OFF), and Summer camp (SC)] in relation
to clubs of a different ranking level [i.e.,
European (EU), Serie A (A) and Serie B (B) competitions].*

		OFF+PRE	OFF	PRE	SC
	EU (8)	75±8	39±4	37±8	15±5
2009/10	*A (9)*	78±3	39±2	38±5	23±6
	B (3)	69±12	36±12	33±1	26±7
	EU (7)	102±5	58±6	44±10	20±7
2010/11	*A (10)*	105±1	58±3	47±3	20±6
	B (3)	86±8	41±8	45±0	20±4
	EU (7)	79±14	48±8	31±8	16±4
2011/12	*A (10)*	93±7	53±4	40±9	16±5
	B (3)	79±8	43±7	36±4	17±4
	EU (6)	91±10	56±4	35±7	14±5
2012/13	*A (11)*	97±0	60±4	37±4	20±6
	B (3)	79±8	45±8	35±1	18±3
	EU (6)	90±9	52±4	38±10	18±8
2013/14	*A (11)*	91±3	54±3	37±4	19±7
	B (3)	86±9	50±8	36±3	20±12
	EU (34)	87±13	50±9	37±9	16±5
All five seasons	*A (51)*	93±9	53±8	40±6	20±6
	B (15)	80±10	43±8	37±5	20±7

Table 5

Occurrences (n) and differences (p ≤ 0.016) of games [i.e., Friendly+Official Games (FG+OG),
Friendly Games (FG), and Official Games (OG)] and days between
two consecutive games (≤ 3 days; 4-5 days; ≥ 6 days) during the whole
non-competitive period (OFF+PRE) in relation to clubs of a different ranking level
[i.e., European (EU), Serie A (A) and Serie B (B) competitions]

	Club level (and number)	Games (n)			Days between games (n)		
		FG+OG (n)	FG (n)	OG (n)	≤ 3 days	4-5 days	≥ 6 days
2009/10	*EU (8)*	77	68	9	40	13	18
	A (9)	78	71	7	50	11	14
	B (3)	25	22	3	14	7	3
2010/11	*EU (7)*	55	42	13#	22	16	16
	A (10)	60	60	0	35	10	15
	B (3)	20	20	0	11	3	6
2011/12	*EU (7)*	56	45	11	14¥	6	26
	A (10)	53	44	9	22£	11	31
	B (3)	30	27	3	19	7	4
2012/13	*EU (6)*	52	45	7	18	18	16
	A (11)	103	94	9	57	23	21
	B (3)	24	21	3	12	5	7
2013/14	*EU (6)*	56	48	8	19	17	17
	A (11)	113	101	12	39	24	26
	B (3)	26	23	3	10	11	5
All five seasons	*EU (34)*	296	248	48*	113	70	93
	A (51)	382	348	34	203	79	107
	B (15)	125	113	12	66	33	25

*Different from A (p < 0.001), ES = 0.4;
#Different from A (p < 0.001), ES = 0.8;
¥Different from B (p < 0.001), ES = 0.8;
£Different from B (p < 0.001), ES = 0.7.

Discussion

This work was based on five-year observation (from 2009/10 to 2013/14) and aimed to gain more insight into the periodization strategies adopted to manage the off- and preseason by the twenty clubs that annually participated in the Italian Serie A championship. Three main variables (i) duration of each sub-period (i.e., cumulative number of days); (ii) the number of friendly and official games played during each sub-period; (iii) the number of days spent in each sub-period between two consecutive games, were analyzed. It was hypothesized that

the clubs' periodization strategies for the off- and preseason were different in relation to the three different groups (based on the type of competitions played) considered in this study (EU, A and B). In particular, the beginning of the European competitions (exclusively played by EU in our study) is usually scheduled earlier than the Italian Serie A competition (played by EU, A and B in our study), an aspect that could influence the clubs' periodization of the EU group. Moreover, the Italian Serie B has two more clubs in the table than the Serie A championship (20 vs. 18, respectively) which makes the Serie B competition longer (four more games). It was hypothesized that this aspect could influence the periodization of those clubs that were starting the new season in Serie A after being promoted by Serie B.

Regarding the duration of the sub-periods, the findings of this study showed that periodization choices of the clubs were influenced by the competitions' calendar imposed by the Italian soccer federation. In particular, as a consequence of the Serie B competition's schedule of the previous year, the newly promoted in Serie A clubs showed reduced duration of the off-season sub-period. Moreover, the shorter off-season of the EU clubs group in respect to the A one can be explained by the necessity to get as soon as possible a successful competitive level during the preliminary rounds of international competitions (UEFA Champions League and Europa League), what also causes an early beginning of the EU group preseason compared to B and A ones.

In addition, the effect of the competitive calendars scheduled by the Italian soccer federation can also be viewed for the total duration (cumulative days) of the off-season + preseason sub-periods. In fact, every year the end of the Serie A championship can be varied by the FIGC based on the participation of the Italian national team in the World Cup (FIFA) or European Football Championships (UEFA) as observed in this study for the 2009/10 and 2011/12 editions when it was expedited due to the 2010 World Cup (South Africa, 2010) and the 2012 European Championship (Poland and Ukraine, 2012), respectively. Consequently, also the total duration of the off-season + preseason period (cumulative days) registered for the 2010/11 and 2012/13 seasons was longer than in 2009/10 and

2013/14, due to the attendance of the Italian national team to these international tournaments (Table 2). However, though a similar shorter off-season + preseason period was expected to be registered also for the 2011/12, that season was characterized by long off-season + preseason duration determined by the strike of the Italian Footballers Association (Associazione Italiana Calciatori, AIC), which caused the beginning of the championship was postponed (Table 2).

When data were analyzed in relation to the clubs' ranking-categories, differences ($p \leq 0.016$) emerged by the pooled sample (five seasons) showing also small effect sizes (i.e., 0.1 and 0.2), probably due to a heterogenic distribution of data and making it necessary to carry out a specific analysis for each year (single soccer seasons). In particular, the clubs of the B group (promoted by Serie B) showed a general difference ($p \leq 0.016$, effect sizes = 0.1) for OFF + PRE (which is comprised between two consecutive seasons) compared with both A and EU ones. Otherwise, considering the independent seasons' effects (effect size range: 0.2-0.8) difference did not emerge for all the seasons (i.e., 2011 with respect to the EU group; 2010 and 2012 with respect to the A group). A similar trend was observed for the off-season period values for both pooled (all year sample) and single year data analyses, whereas the preseason duration reported only an incidental effect for the 2011 season (i.e., EU versus A, $p \leq 0.01$, effect size = 0.3). Therefore, the reduction of the off-season period for the B group was mainly determined by the participation of these clubs in the play-off phase during the previous championship, which provoked an extension of the competitive phase duration. Instead, the absence of marked differences for preseason duration among clubs of different ranking groups can be explained by the fact that the coaching staffs tend to preserve a sufficient number of days for training to induce adaptations (Jeong et al., 2011), regarding the constraints of the official seasonal calendar imposed by the FIGC.

The first part of the preseason period is usually spent by the clubs in the summer camp, where the coaching staff can have an all-day relationship with players to elicit their learning of the team tactical strategy, as well as testing their individual skills and team play in practice games

(Feely et al., 2008). The findings of this study showed that clubs belonging to different ranking categories implemented a different strategy also for this phase of the season. Specifically, the summer camp duration of the EU group was significantly shorter with respect to the other two groups. A plausible explanation of this difference might be found once again in the participation of these clubs in the preliminary rounds of the UEFA competitions (UEFA Champions League and Europa League), as well as the pressing demands to participate in friendly games and tournaments for commercial reasons (i.e., following sponsorship deals). Conversely, the A and B clubs spent more days in their summer camps due to a reduced number of official competitions (i.e., no preliminary rounds in UEFA competitions) and lower constraints imposed by commercial reasons. Indeed, the clubs from the A and B groups spent a consistent part of their preseason (A = 21% and B = 25%) in sport facilities located far from their own training centers.

Although clubs of different ranking categories were characterized by different calendar constraints (which determined heterogenic duration of off-season, preseason, off-season + preseason sub-periods), generally all clubs tended to plan a similar number of friendly games before the start of a new championship. However, a difference ($p \leq 0.001$, effect size range = 0.4) between EU and A groups emerged for the number of official games, which were reduced for the latter group. A plausible explanation of this aspect can be given by the fact that in the last years the Italian soccer federation had ruled out the participation of A clubs at the first phase of the Italia Cup ('Coppa Italia'), which is usually played in August (during the preseason period). Consequently, since the season 2010, A and B groups' results differed with respect to the ones of the EU group ($p \leq 0.001$, effect size = 0.8) as these clubs were engaged in the preliminary rounds of the UEFA competitions (based on round-robin tournaments).

Considering the analysis of the number of days between two consecutive games (friendly or official games), the class of interval ≤ 3 days showed higher values for each group (EU, A, B) during all five seasons (EU= 45.1%, A= 54.2%, B= 57.5% of the observed cases), and no significant differences emerged between club ranking categories. However, singular occurrences were observed in the 2011 season, where the EU group mainly reported higher values for the class > 5 days (around 56.5% of cases), determining a significant difference with respect to A ($p \leq 0.001$, effect size = 0.4), confirming that the EU clubs, being engaged in the preliminary phase of the UEFA tournaments, needed more days to prepare for such important official games. On the contrary, for the same season (with respect to EU: $p \leq 0.001$, effect size = 0.8; and A: $p \leq 0.001$, effect size = 0.7), B clubs showed the lowest value for the class of frequency ≥ 6 days of interval (13.3% of the observed cases). An explanation of this aspect is that these clubs were forced to play more frequently to compensate the shorter duration of the off-season + preseason period.

Conclusions

To our knowledge, this is the first study which analyzed the strategies adopted by the Italian first league soccer clubs to plan some aspects of their off-season and preseason periodization along five-year observation. It was hypothesized that the Serie A clubs could adopt a different strategy in relation to their ranking in the table achieved at the end of the previous championship, since this would determine a different goal to start a new season.

The different periodization strategy adopted by the EU clubs can also be explained by the consistent number of 'top players' that composed the seasonal rosters. However, it provokes sequence of linked decisions that differentiated the EU group from the others. Indeed, the participation in EU competitions of these clubs required more top players, otherwise this aspect may increase the interest and necessity for more friendly tournaments to be played during the preseason (also for economical reasons). Thus, an EU club playing more competitions requires a different strategy with regard to the summer camp and the other preseason sub-periods.

Following the results of present study, coaches and physical trainers of soccer clubs need to plan training loads during the preseason period evaluating the quantitative differences among clubs, and replacing their periodization with qualitative proposals. Generally, the workload performed during the preseason is the highest of

the entire year (season), thus, coaches and trainers should be very careful in the administration of exercises in order to limit the risks of injury and optimize the general performance (Lucifora and Simmons, 2004).

In conclusion, future studies should be conducted to compare the different strategies adopted by the three different ranking levels in respect to the level of performance and results gained during the first period of the 'Serie A' when international competitions (i.e., World Cup, UEFA European Championship and Olympic games) are scheduled or not.

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