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Original Article

Variations of wellbeing measures between player's participation in a match and a playing position: a study of youth soccer players

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Abstract:
Soccer is a sport characterized by combining high-intensity actions with low-intensity actions. This makes it a complex sport, where monitoring the impact of actions that occur both in training and in matches are of great interest to coaches. However, this interest has focused on physical and physiological demands, and not so much on more psychological components. The aim of the study was analysing variations of wellbeing (i) between different match participation profiles and (ii) between playing positions. Twenty under-23 professional male soccer players (20.6±1.0 years) were monitored over a season. The scores were collected before the daily training session or match day. Two hundred training sessions and 38 competition matches were applied throughout the season. An adjusted version of the Hooper questionnaire was used to monitor the wellness in which muscle soreness, fatigue, stress, and mood were measured. Repeated-measures analysis of variance was executed to test the wellness and contextual factor. Bonferroni's post hoc test was used to performed differences between groups. Results revealed that measures were modified by player participation ($p = .00$) and player position on the field ($p = .00$). Reserves and starters had lower values of muscle soreness ($p = .62$; ES = 0.18) and fatigue ($p = .21$; ES = -0.25) also reserves showed the worst values of stress ($p = .00$; ES= 0.38-0.58). Forwards and defenses presented worse values than midfielders and goalkeepers for all items registered (all $p < .05$). The results allow us to suggest that both contextual factors play an important role in the well-being variables reported the week after the match. Therefore, practitioners should consider them for managing training stimulus and recovery strategies.
Keywords: **wellness, training load, football, performance, readiness**..

Introduction.

The analysis about training load in football have been revealing a moderate-to-high training load associated with a weekly-basis competition and some congested competitive periods in certain season moments (Abbott, Brickley, et al., 2018). Such weekly-basis competition crossed with some congested periods may led to variations in the recovery process and also to fluctuations in the wellbeing perception of players during the season (Clemente, 2018) and also in their overall readiness and performance (Selmi et al., 2018).

Monitoring instruments such as global positioning system devices (GPS) or heart rate bands have been widely used to identify the player's training load over the week and to control the progressive overload (Clemente et al., 2017). The training load monitoring can be organized in the external load factors (i.e., related with the physical demands derived by accelerometry or GPS) and the internal load factors (i.e., physiological or psychobiological responses) (Saw et al., 2016). Both categories are generally tracked during training sessions and matches aiming to decrease injury risk (Watson et al., 2017) and illness associated with over training syndrome (Thorpe et al., 2015), and also for avoiding team/player performance deterioration over competitive season (Abbott, Brickley, et al., 2018).

However, player's psychological component and how it could be affected must not be forgotten (Musculus & Lobinger, 2018). Therefore, training/competition stress is an influential element that affects physical and psychologically the well-being status perceived by players (Thorpe et al., 2015). Recent research have been trying to define the influence of contextual factors in the well-being variations, namely considering the advantage of play as local (Lago-Peñas et al., 2016), match result or quality opposition are known (Abbott,

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Brownlee, et al., 2018b). Therefore, validated tools to monitor players response to training and match loads, in global and integrative way, are being currently used in order to improve player's performance (Saw et al., 2016). Indeed, monitoring player's response to training and match loads is crucial for optimizing their performances and preventing injuries. Several validated tools are currenly being used in the field sports sciences.

As part of a functional players monitoring cycle, it is important to control the daily variations of well-being variables namely to determine its associations with the training stimulus or match demands (Clemente et al., 2017). Such monitoring process can be derived from objective-measures (e.g., heart rate variability) or subjective-measures (Clemente, 2018). Despite of both providing different information, it seems relatively well-described that subjective scales may provide valid and reliable information about the well-being perception of the players (Fessi & Moalla, 2018).

Subjective-measures respond to training-induced changes in athlete well-being and they are showed as a reliable and valid tool for managing training load (Saw et al., 2016). Different studies suggests that subjective well-being measures, as measures obtained through Hooper questionnaire, could be negative affected with an acute increase in training load or a congested match schedule, in which teams play more than one match in a week (Rabbani et al., 2018). Also, lower pre-training or match subjective well-being values has been shown as a predictor of external load decrease during training session or match (Govus et al., 2018). Thus, subjective well-being measures should be included as part of a broad monitoring approach in team sports (Saw et al., 2016). In this sense, soccer players are subjected to different stressful contexts, which can impact their training and match performance (Guerrero-Calderón et a., 2021, Couts t al., 2007). Therefore, the use of well-being questionnaires allows coaches to further analyze how young athletes are coping with daily demands (Hills & Rogerson, 2018). In addition, th well-being measures are associated with training intensity (Gabbett et al., 2017). In fact, the literature showed that low values of well-being values combined with high training magnitudes and low variation of training monotony, can impair performance and increases injury occurrence (Gabbett et al., 2017).

Despite this tool's sensibility for managing peaks in training/match load (Buchheit et al., 2013), there are certain contextual factors that can affect their outputs (Abbott, Brownlee, et al., 2018b). Coaches and sports scientists conceptualized soccer as a psychophysiological complex sport where contextual factors as mentioned before, could have a negative effect on subjective perceptions and also on measures obtained through subjective questionnaires (Fessi & Moalla, 2018). Investigations such as (Clemente et al., 2017) and (Clemente, 2018), have recently showed the necessity to complete subjective information obtained through questionnaires along with objective information provided by other tools in search of training load management, avoid fatigue excess, prevent injuries, and therefore optimizing team performance. Assess an athlete's psychological well-being, fatigue levels, and stress. These tools help monitor the psychological response to training and identify signs of overtraining or fatigue (Duignan et al., 2020, Silva et al., 2022)

However, how certain factors such as player participation and player position on the field could affected subjective measures have not been considered. Therefore, the aim of current study was to analyze how contextual factors such as player participation and player position on the field might influence or not self-reported wellbeing, the following a match. The impact on a range of muscular soreness, stress, mood, fatigue, and sleep quality in U-23 male Spanish soccer players were explored.

Materials and methods.

Participants.

Twenty U-23 male soccer players, from Spanish professional club competing in Spanish third division took part in this study over the 2018–2019 season (20.6 ± 1.0 years; 74.6 ± 5.7 kg; 179.6 ± 5.9 cm; 69.0 ± 4.6 $ml \cdot kg^{-1} \cdot min^{-1}$; 9.9 ± 0.6 body fat). The players were included based on the following criteria: (i) Completed the questionnaire before and after training session or match; (ii) Completed the training session or match; (iii) Participated in all sessions during training week and be called for match. Four of the players were external defenders, four were central defenders, five were midfielders, four were external midfielders and three were forwards. Goalkeepers and injured players were not included in the study because their physical load differs from all other field players.

The study was approved by the local institute's research ethics committee and written informed consent was obtained from each player before participation. The study followed the ethical recommendations for the study in humans as suggested by the Declaration of Helsinki. All the players were accustomed to the daily procedures used in this research as part of their habitual training routines.

Instruments.

The wellness was measured with a questionnaire designed by Hooper and colleagues (Hooper & Mackinnon, 1995), adapted to be more specific by McLean and colleagues (McLean et al., 2010). Moreover, it has been used in previous similar researches (Abbott, Brownlee, et al., 2018b).

The questionnaire assessed the following elements of wellness: 1) muscular soreness, 2) stress, 3) mood, 4) fatigue and 5) sleep quality. Each question was scored using a 1–5 Likert scale with 1 representing a low score and 5 a high score. The lowest scores represented: i) Very sore, ii) Highly stressed, iii) Highly

annoyed/irritable, iv) Too much tired, v) Sleeplessness/Insomnia; the highest scores represented the opposite: i) No muscular soreness, ii) Very relaxed, iii) Very positive mood, iv) No fatigue/Very fresh, v) Very restful.

Additionally, wellness index was calculated with the aim of representing player's wellbeing state. The wellness index is obtained from the sum each of the five elements mentioned before (McLean et al., 2010). Scores close to 25 are indicative of an optimal wellness and vice versa. The players were familiarized with the scale in the beginning of the season (pre – season) and such results were not included in the data treatment.

Procedure

The players were daily monitored for their well-being perception using the McLean's questionnaire (McLean et al., 2010). The scores were collected in the morning. The study was conducted over a full season (started on August and finish in June).

The questionnaire was completed 4 – 6 times per week before the daily training session or match day at the same time of the day (proximally 9.30h) in order to avoid the circadian variation (Thorpe et al., 2016). Two hundred training sessions and 38 competition matches (17 won, 12 tied and 9 lost) were applied throughout the season (42 weeks). Training sessions took place in the morning (10.30h) and the average duration of each session was 87 ± 17 minutes. Competition matches had an average duration of 93.1 ± 2.5 minutes. Twenty-one matches took place in the morning (12.00h), and 17 were in the afternoon (16.30h to 19.30h)

Statistical Analysis.

Data was analysed as mean and standard deviation (mean ±SD). To check the normality and the homogeneity of variance, Levene test were used for a $p > 0.05$. Differences between groups were tested using repeated measures ANOVA applied for each independent variable proposed as contextual factor: a) Player's Alinement (Starter, Substitute, Reserve) or b) Player Position (Goalkeeper, Defense, Midfielder or Forward). Bonferroni's post hoc test was used for analysed differences between groups. Finally, Cohen's d effect size was calculated and the value is considered small from 0 to 0.20, medium form 0.21 to 0.50, large from 0.51 to 0.80, and very large from more than 1.30 (Sullivan & Feinn, 2012). All statistical procedures were calculated using the Statistical Package for the Social Sciences (SPSSTM), version 24, and the significance was set at p-value inferior to 0.050.

Results.

Tables 1 and 2 describes the analysis made for players alinement as independent variable. In one side, reserves (NC) and starters (CT) presented the worst values for muscle soreness (3.38 ±0.70 and 3.50±0.65), Stress (3.37 ±0.69 and 3.68±0.69), Fatigue (3.34 ±0.72 and 3.51±0.66), Sleep hours (7.66 ±0.73 and 7.79±0.82) and Wellbeing Index (16.83 ±3.08 and 18.23±3.06). In the other side, reserves (NC) and substitutes who did not participate (CNP) showed the worst values for mood (3.34 ±0.72 and 3.62±0.64). Finally, reserves and substitutes who participated (CSP) revealed the lowest values for Sleep quality (3.47 ±0.65 and 3.78±0.69).

Table 1. Descriptive (mean and standard deviation) and repeated measures ANOVA, independent variable players alinement.

	NC	CNP	CSP	CT	F	p
DM (A.U)	3.38 (0.70)	3.81 (0.56)	3.78 (0.71)	3.50 (0.65)	10.66	0.00*
E (A.U)	3.37 (0.69)	3.75 (0.56)	3.71 (0.70)	3.68 (0.69)	6.60	0.00*
EA (A.U)	3.34 (0.72)	3.62 (0.64)	3.77 (0.75)	3.75 (0.74)	8.26	0.00*
FP (A.U)	3.34 (0.76)	3.83 (0.57)	3.70 (0.74)	3.51 (0.66)	10.65	0.00*
CS (A.U)	3.47 (0.65)	3.88 (0.61)	3.78 (0.69)	3.81 (0.69)	7.02	0.00*
HS (A.U)	7.66 (0.73)	7.87 (0.51)	8.05 (0.70)	7.79 (0.82)	3.88	0.01*
WB (A.U)	16.83 (3.08)	18.95 (2.53)	18.78 (3.05)	18.23 (3.06)	9.23	0.00*

A.U: Arbitrary Units; DM: Muscle Soreness; E: Stress; EA: Mood; FP: Fatigue; CS: Sleep Quality; HS: Sleep Hours; WB: Wellbeing Index; NC: Reserve; CNP: Substitute: No participate; CSP: Substitute: Participate; CT: Lineup, starter

The analysis of variance between groups found significative differences between groups in all items registered (table 1), so in fact, players alinement affects measures obtained through questionnaire. Muscle soreness ($F = 10.66$; $p = .00$), fatigue ($F = 10.65$; $p = .00$), wellbeing index ($F = 9.23$; $p = .00$) and mood ($F = 8.26$; $p = .00$) revealed higher differences between groups than sleep hours ($F = 3.88$; $p = .01$), stress ($F = 6.60$; $p = .00$) and sleep quality ($F = 7.02$; $p = .00$). Interaction between groups (table 2) showed that muscle soreness values and fatigue were different in all interactions analysed, only NC-CT and CNP-CSP revealed no differences. Stress, mood, sleep quality and wellbeing index values were similar in CNP-CSP, CNP-CT, CSP-CT and different for rest of interactions.

Finally, sleep hours values were similar between all interactions, excluding NC-CT and CSP-CT in which interactions were found different values.

Table 2. Effect size (Cohen's d) and Bonferroni's post hoc for repeated measures ANOVA, independent variable players alinement.

	NC-CNP			NC-CSP			NC-CT			CNP-CSP			CNP-CT			CSP-CT		
	Cohen's d		*p*	Cohen's d		*p*	Cohen's d		*p*	Cohen's d		*p*	Cohen's d		*p*	Cohen's d		*p*
DM	-0.69	L	0.00*	-0.57	L	0.00*	-0.18	S	0.62	0.05	S	1.00	0.49	M	0.00*	0.42	M	0.01*
E	-0.38	M	0.00*	-0.56	L	0.01*	-0.52	L	0.00*	-0.22	M	1.00	-0.18	S	1.00	0.03	S	1.00*
EA	-0.41	M	0.04*	-0.59	L	0.00*	-0.56	L	0.00*	-0.22	M	1.00	-0.09	S	0.80	0.04	S	1.00*
FP	-0.74	L	0.00*	-0.48	M	0.01*	-0.25	M	0.21	0.20	S	1.00	0.50	L	0.00*	0.28	M	0.15
CS	-0.65	L	0.00*	-0.46	M	0.03*	-0.50	L	0.00*	0.16	S	1.00	0.10	S	1.00	-0.04	S	1.00
HS	-0.34	M	0.32	-0.54	L	0.01*	-0.16	S	0.75	-0.30	M	0.70	0.11	S	1.00	0.33	M	0.05*
WB	-0.76	L	0.00*	-0.64	L	0.00*	-0.46	M	0.00*	0.06	S	1.00	0.24	M	0.18	0.18	S	0.95

DM: Muscle Soreness; E: Stress; EA: Mood; FP: Fatigue; CS: Sleep Quality; HS: Sleep Hours; WB: Wellbeing Index; NC: Reserve; CNP: Substitute: No participate; CSP: Substitute: Participate; CT: Lineup, starter. **Effect Size:** S: Small; M: Medium; L: Large; VL: Very Large. Results showed are the difference from A – B, i.e. NC-CNP, negative values mean that CNP had higher mean than NC, and vice versa.

Table 3 and 4 describes the analysis made for demarcation or players position on the field as independent variable. Forwards (FO) and defenders (DF)) were players with the lowest muscle soreness (3.17 ±0.56 and 3.48 ±0.65), stress (3.29 ±0.47 and 3.41 ±0.57), mood (3.44 ±0.61 and 3.44 ±0.62), fatigue (3.16 ±0.54 and 3.44 ±0.66), sleep quality (3.47 ±0.64 and 3.70 ±0.65) and wellbeing index (16.52 ±2.32 and 17.50 ±2.77).

Anova revealed significative differences between groups in all items analyzed (table 3), so players position on the field affects measures obtained through the questionnaire as well as players alinement. Stress ($F = 68.08$; $p = .00$), wellbeing index ($F = 51.56$; $p = .00$), muscle soreness ($F = 47.95$; $p = .00$) and fatigue ($F = 47.00$; $p = .00$) presented higher differences between groups than mood ($F = 30.98$; $p = .00$) and sleep quality ($F = 22.99$; $p = .00$). Finally, interaction between groups (table 4) was analysed. No differences in stress, fatigue, sleep quality and wellbeing index were found for GK-MF interaction. Also, interaction between groups showed no differences in DF-FO for stress and mood values, so, values were similar between these positions. Finally, only differences in DF-FO interaction were found for sleep hours.

Table 3. Descriptive (mean and standard deviation) and repeated measures ANOVA, independent variable players position.

	GK	DF	MF	FO	F	p
DM (A.U)	3.71 (0.56)	3.48 (0.65)	3.92 (0.60)	3.17 (0.56)	47.95	0.00*
E (A.U)	3.99 (0.72)	3.41 (0.57)	4.04 (0.63)	3.29 (0.47)	68.08	0.00*
EA (A.U)	3.81 (0.93)	3.44 (0.62)	4.03 (0.67)	3.44 (0.61)	30.98	0.00*
FP (A.U)	3.82 (0.65)	3.44 (0.66)	3.89 (0.62)	3.16 (0.54)	47.00	0.00*
CS (A.U)	3.99 (0.74)	3.70 (0.65)	3.99 (0.62)	3.47 (0.64)	22.99	0.00*
HS (A.U)	7.79 (0.43)	7.67 (0.48)	7.96 (0.59)	7.84 (1.20)	4.58	0.00*
WB (A.U)	19.28 (3.34)	17.50 (2.77)	19.85 (2.67)	16.52 (2.32)	51.56	0.00*

A.U: Arbitrary Units; DM: Muscle Soreness; E: Stress; EA: Mood; FP: Fatigue; CS: Sleep Quality; HS: Sleep Hours; WB: Wellbeing Index; GK: Goalkeeper; DF: Defense; MF: Midfielder; FO: Forward

Table 4. Effect size (Cohen's d) and Bonferroni's post hoc for repeated measures ANOVA, independent variable players position.

	GK-DF			GK-MF			GK-FO			DF-MF			DF-FO			MF-FO		
	Cohen's d		*p*	Cohen's d		*p*	Cohen's d		*p*	Cohen's d		*p*	Cohen's d		*p*	Cohen's d		*p*
DM	0,07	S	0,02*	-0,36	M	0,03*	0,97	L	0,00*	-0,70	L	0,00*	0,51	L	0,00*	1,29	L	0,00*
E	0,93	L	0,00*	-0,08	S	1,00	1,22	L	0,00*	-1,05	L	0,00*	0,23	M	0,42	1,32	L	0,00*
EA	0,51	L	0,00*	-0,29	M	0,07	0,50	M	0,00*	-0,92	L	0,00*	0,00	S	1,00	0,91	L	0,00*
FP	0,58	L	0,00*	-0,11	S	1,00	1,13	L	0,00*	-0,70	L	0,00*	0,46	M	0,00*	1,25	L	0,00*
CS	0,43	M	0,00*	0,00	S	1,00	0,77	L	0,00*	-0,46	M	0,00*	0,36	M	0,01*	0,83	L	0,00*
HS	0,26	S	1,00	-0,32	M	0,50	-0,05	S	1,00	-0,54	L	0,00*	-0,19	S	0,27	0,13	S	0,78
WB	0,60	L	0,00*	-0,20	S	0,60	1,00	L	0,00*	-0,86	L	0,00*	0,38	M	0,01*	1,33	VL	0,00*

DM: Muscle Soreness; E: Stress; EA: Mood; FP: Fatigue; CS: Sleep Quality; HS: Sleep Hours; WB: Wellbeing Index; GK: Goalkeeper; DF: Defense; MF: Midfielder; FO: Forward. **Effect Size:** S: Small; M: Medium; L: Large; VL: Very Large. Results showed are the difference from A – B, i.e. NC-CNP, negative values mean that CNP had higher mean than NC, and vice versa.

Discussion

The aim of the study was examining how contextual factors, as players match participation or players position on the field could influence wellbeing measures obtained through a questionnaire the week after the match.

Results obtained in the present study showed that players participation and players position on the field influenced measures obtained through questionnaire the week after the match. In that way, we need considering both factors in search of knowing in a better way players readiness for the next training or match. These findings are in line with other investigations who showed how certain contextual factors as match result (Fessi & Moalla, 2018) or quality of the opponent (Abbott, Brownlee, et al., 2018a) affect measures obtained through that type of questionnaires.

Players participation affects questionnaire measures the week after the match, especially on muscle soreness, fatigue, mood, and wellbeing index values (table 1). Muscle soreness and fatigue represents players perception about their fitness status, while mood refers to emotional status, both reflect what training and match load entail for players (Saw et al., 2016). Reserves and starters were players with lower muscle soreness, fatigue, and wellbeing index values (no differences in values between groups), in case of mood, reserves and substitutes who did not participate were the players with the worst values. In addition, wellness questionnaires can be very powerfull toos to take decisions in load progression in different tournaments (González-Fernández et al., 2022, Falces-Prieto et al., 2023).

Previous investigations showed how players match participation could impair muscle soreness and fatigue (Silva et al., 2018). Changes in muscle soreness and fatigue perception have been associated with changes in other objective measures as total running distance (Thorpe et al., 2016) and high intensity running distance (Malone et al., 2018), measured through global positioning devices; or Creatine Kinase level who reflects muscle damage (W. Sparkes et al., 2020). Mood values has been closely related with participation, the not participation impairs on players mood (de la Vega Marcos et al., 2011). Negative impairing prolonged in time could exposed players to higher injury risk (Watson et al., 2017) or illnesses associated with overtraining syndrome (Brink et al., 2012).

Micro cycle structuration in football could explain the worst muscle soreness and fatigue values for reserve and starter players (Martín-García, Gómez Díaz, et al., 2018). Weekly competition makes necessary managing training load and match load, in search of minimizing injury risk associated with load decontrol and fatigue excess (Watson et al., 2017). In that way, it is usual designing compensatory strategies during micro cycle for managing the load, as introducing training sessions with the aim of replicated match physical demands for players who did not participate in last match (Martín-García, Gómez Díaz, et al., 2018) and the management of players physical demands on training task for players with the highest match appearances and competitive volume (Sanchez-Sanchez et al., 2017), in which is habitually the introduction of wildcard players for reducing training load (Casamichana Gómez et al., 2018).

Team's micro cycle structuration followed in present study was characterized for implementing compensatory strategies at the beginning of the week (Post-match day/MD+1, or two days after the match/MD+2), followed by a "loading" period on central days (Four and three days before next match/MD-4 and MD-3), and finally by a "tapering" period on last days (Two days and previous match day/ MD-2 and MD-1). This team micro cycle structuration was designed related with residual fatigue-induced by match and training on players (Hader et al., 2019), and its negative effect on muscle soreness and fatigue values.

After match-play or high-intensity training session there is a 24-hour period in which acute fatigue effects appear. Passed this time, residual fatigue emerges whose effects declining until passed 72 hours (Hader et al., 2019) without completely disappearing (Silva et al., 2018). These acute and residual fatigue effects are related with decrements in subjective values obtained through questionnaires (Hader et al., 2019). Thus, starters would show lower muscle soreness and fatigue values because of post-match acute fatigue effects, whose values could improve until central days when performing high-intensity training sessions could negative affect these values. In case of reserve players, the pattern mentioned before would be replicated because they performed a high-intensity training session that replicates match demands (W. Sparkes et al., 2020) at the beginning of the week (MD+1), and also they performed high-intensity training sessions done in central days.

Mood values have been strongly associated with match participation, in fact reserves and substitutes who finally did not play in the match were players with the lowest values in line with previous investigation (de la Vega Marcos et al., 2011).

Player position on the field also modified measures obtained. Measures obtained for all the items registered were different according to player position. Stress, muscle soreness and fatigue were items more affected for that factor in line with previous investigations in which authors showed different tactical and conditional demands according to players position (Caetano et al., 2019). These differences can be appreciated on subjective parameters as measured in present study and, on other objective parameters measured through global positioning devices (Palucci Vieira et al., 2019). Forwards and defenses were players with lowest values for all items registered compared to midfielders and goalkeepers. Muscle soreness, fatigue and stress were items with the worst values in case of forwards and defenses, followed by goalkeepers and midfielders.

Despite the evidence suggesting positional differences, there is no consensus about how position could affect measures obtained through different tools used habitually for load management. It can be reflected for example when authors talk about player worst case scenarios during match (Martín-García, Casamichana, et al., 2018). So, it is necessary to distinguish between player positions when using global positioning devices because the differences in physical and tactical demands during match and training (Rago et al., 2019). However, questionnaires rarely distinguish between positions, despite the differences mentioned before.

Conclusion

This study showed that wellness fluctuate over the weeks and the season and seem to be related to players participation and position. In this way, players participation seem affect wellness results, especially on muscle soreness, fatigue, and wellbeing index in starters and reserves who participate in the matches, whiles the mood values seem to be worst in reserves and substitutes who did not participate. In addition player position on the field seem to be affect measures obtained by the wellness questionnaire. In this way forwards and defenses seem to be players with lowest values for all items registered compared to midfielders and goalkeepers.

Therefore, wellness questionnaires seem to be a powerful tool to take decisions and control the training load and implement compensatory strategies in order to decrement the fatigue effects and improve the performance of soccer players. So combined the use of objective and subjective tools for load management and knowledge for player readiness have been showed as an optimal strategy. Thus, contextual factors as player participation and player position should be consider due to their influence on subjective measures, in search of doing an optimal load management and having better player readiness knowledge for next training session or match.

Declaration of interest.

The authors declare that there are no conflicts of interest and no funding or research grants were received during study, research, or assembly of the manuscript.

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