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MONITORING OF LOADS AND RECOVERY PERCEIVED DURING WEEKS WITH DIFFERENT SCHEDULE IN YOUNG SOCCER PLAYERS

SPREMLJANJE OBREMENITEV IN OKREVANJA MLADIH NOGOMETAŠEV V VEČ TEDNIH Z RAZLIČNIMI PROGRAMI TRENIRANJA

ABSTRACT

In soccer, to prescribe tailored training and recovery programs requires coaches to be aware of how both internal and external training loads affect individual players' performances. This study aimed to collect players' sessions rating of perceived exertion (RPE) responses, recovery scores, and training log during four weeks planned with two conditions [one match ($W1_{\text{match}}$) and two matches ($W2_{\text{match}}$)], in order to investigate differences, if any, between the conditions and play roles. Twenty two players from a youth team of a Kosovan elite soccer club (age: 14.5 ± 0.3 yrs, height: 174 ± 7.9 cm, body mass: 60.1 ± 7.9 kg) participated in this study. Individual session-RPE and recovery data were collected by means of an Albanian version of the RPE Borg's CR_{10} and a modified total quality recovery (TQR) scale.

The weekly match conditions showed significantly ($p < 0.05$) higher mean session-RPE values for $W1_{\text{match}}$ compared to $W2_{\text{match}}$ (866 ± 91 and 774 ± 88 , respectively), while no differences were found for recovery scores (6.50 ± 0.9 and 6.19 ± 1.0 , respectively). Furthermore, no differences ($p = 0.76$) between roles (defenders: 810 ± 81 ; midfielders: 789 ± 59 ; forwards: 815 ± 57 , AU) were found.

The Albanian version of Borg's CR_{10} scale showed to be a useful tool to depict players' ITLs and recovery status during ($W1_{\text{match}}$ and $W2_{\text{match}}$) conditions. Consequently, their use can be suggested to Albanian speaking youth soccer coaches.

Key words: Perceived exertion, session-RPE, Recovery Questionnaire, Youth Soccer

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IZVLEČEK

Če želijo nogometni trenerji igralcem ponuditi prilagojene programe treniranja in okrevanja, se morajo zavedati, na kakšen način interne in eksterne trenajne obremenitve vplivajo na uspešnost posameznih igralcev. Cilj raziskave je bil zbrati ocene zaznanega napora (RPE) igralcev med treningom, ocene okrevanja in trenajni dnevnik v obdobju štirih tednov ob dveh pogojih [ena tekma (tekma $W1$) in dve tekmi (tekma $W2$)] ter proučiti morebitne razlike med pogoji in igralnimi položaji. V raziskavi je sodelovalo 22 igralcev mladinske ekipe kosovskega vrhunskega nogometnega kluba (starost: $14,5 \pm 0,3$ let, višina: $174 \pm 7,9$ cm, telesna masa: $60,1 \pm 7,9$ kg). RPE med treningom in podatke o okrevanju smo zbirali s pomočjo albanske različice lestvice za zaznavanje napora Borg CR_{10} in prilagojene lestvice skupnega kakovostnega okrevanja (TQR).

V pogojih ene tekme na teden so bile srednje vrednosti RPE med treningom statistično značilno višje ($p < 0,05$) pri tekmi $W1$ v primerjavi s tekmo $W2$ (866 ± 91 oz. 774 ± 88), nobenih razlik pa ni bilo pri ocenah okrevanja ($6,50 \pm 0,9$ oz. $6,19 \pm 1,0$). Poleg tega nismo ugotovili nobenih razlik ($p = 0,76$) med igralnimi položaji (branilci: 810 ± 81 ; vezni igralci: 789 ± 59 ; napadalci: 815 ± 57 , AU). Albanska različica Borgove lestvice CR_{10} se je izkazala kot uporabno orodje za opredelitev interne trenajne obremenitve (ITL) in statusa okrevanja v tekmovalnih pogojih (tekmi $W1$ in $W2$). Zato lahko njeno uporabo priporočimo albansko govorečim nogometnim trenerjem.

Ključne besede: zaznan napor, RPE med treningom, Vprašalnik o okrevanju, mladinski nogomet

INTRODUCTION

Soccer, like other field games, is composed of complex and non-linear dynamic movement patterns (Carling, Bloomfield, Nelsen and Reilly, 2008). At the elite level this game mirrors the influence of the evolution of play, which is recognizable over time (Wallace and Norton, 2014). The increased density of players performing in portions of the pitch that are smaller with respect to the past, an aspect that requires a higher level of skills, and a tangible increase of the ball speed and intensity of play, has led toward an adaptation of players' fitness level to cope with the multidimensional components of soccer performance (Reilly, Bangsbo and Franks, 2000). Consequently, in soccer, the growing specificity of training requires strength and conditioning coaches to be aware of how the external training loads (ETLs) may affect the players' internal responses (internal training loads, ITLs) (Rampinini, Coutts, Castagna, Sassi and Impellizzeri, 2007). Thus, in soccer, it is essential to monitor trainings and games in order to have a clear insight of players' strengths and weaknesses (Stølen, Chamari, Castagna and Wisløff, 2005 and plan exercise prescriptions that are effective to mimic such training and game demands (Carling, Bloomfield, Nelsen and Reilly, 2007; Drust, Atkinson and Reilly, 2007). Among the difficulties, there is the fact that often trainings are characterized by drills practiced as a group, which raises the risk to not tailor ETLs to the players' individual characteristics (Alexiou and Coutts, 2008) whether not individually monitored.

A method for training load quantification frequently utilized during the last two decades is the use of heart rate (HR) responses as intensity measurement, based on the well-known linear relationship between HR and VO_2 over a wide range of steady-state sub-maximal workloads (Åstrand and Rodahl, 1986). Following this principle, some HR-based methods have been developed for a routine use of HR as training intensity measurement [i.e., Edwards' (Edwards, 1993), Banister's (Banister, 1991) and Lucia's (Lucia, Hoyos, Santalla, Earnest and Chicharro, 2003) methods]. Nevertheless, in team sports the use of such methods has not been free from criticism, due to the intermittent nature (non-linear) of these sports and the limitation of the HR to assess activities characterized by very high-intensity and/or short duration, and its limited practicability in monitoring training load in resistance training and technical skills, respectively (Impellizzeri, Rampinini, Coutts, Sassi and Marcora, 2004). To overcome these aspects the athletes' RPE has been utilized more and more frequently as individual marker of training intensity (Borg, Ljunggren and Ceci, 1985). To yield a global evaluation of an entire training session another non-invasive tool that includes RPE values has been developed by Foster et al. (Foster, 1998; Foster, Hector, Welsh, Schrage, Green and Snyder, 1995) as a measure of load in arbitrary units. Named session-RPE, this method provides an appraisal of the entire session of the players' RPE obtained by means of the CR-10 Borg's scale (Borg, Hassmén and Lagerström, 1987) multiplied by the duration of the session. Through the years this method has proved to be valuable to assess a wide variety of training forms (Foster et al., 2001; Day, McGuigan, Brice and Foster, 2004) and has been used in different team sports (Impellizzeri, Rampinini, Coutts, Sassi and Marcora, 2004; Coutts, Rampinini, Marcora, Castagna and Impellizzeri, 2009; Manzi, D'Ottavio, Impellizzeri, Chaouachi, Chamari and Castagna, 2010; Wrigley, Drust, Stratton, Scott and Gregson, 2012; Acubat, Patel, Barnet and Abt, 2012). In soccer, Impellizzeri et al. (Impellizzeri, Rampinini, Coutts, Sassi and Marcora, 2004) showed a significant correlation between session-RPE and HR-based methods, demonstrating the former to be a reliable indicator of global internal load to assess youth players. However, in literature the CR10 Borg's scale has been utilized primarily based on the English version, a fact that in non-native English-speaking countries does not

allow the majority of coaches (and by reflection athletes) to use it, unless there is a translated version in his/her native-language. Indeed, (Haddad et al., 2013) demonstrated that the translated CR-10 French version was a valid tool for francophone-speaking athletes. Unfortunately, while in literature have been provided some versions, none of these regards Albanian language.

In addition to the above mentioned aspects, in youth soccer monitoring of trainings and matches is of great importance to avoid, that physiological and technical stressors may interfere with the players' growth and maturation (Malina, Bouchard and Bar-Or, 2004). Therefore, a thorough knowledge of their players' activity demand could help soccer coaches in designing adequate exercise prescriptions (Aughey, 2011; Carling, Bloomfield, Nelsen and Reilly, 2008), as well as to design scientifically recovery strategies (Tessitore, Meeusen, Cortis and Capranica, 2007; Tessitore, Meeusen, Pagano, Benvenuti, Tiberi and Capranica, 2008). For the latter purpose, Kenttä and Hassmén (Kenttä and Hassmén, 1998) suggested to assess the athletes' total quality recovery (TQR) process, by means of a TQR scale structured around the scale developed for RPE's monitoring. In soccer, Brink et al. (Brink, Nederhof, Visscher, Schamikli and Lemmink, 2010) investigated the relationship between training load and recovery in young elite soccer players to develop training guidelines and identify players at risk of overreaching (OR) (Brink, Visscher, Coutts and Lemmink, 2012). Thus, both session-RPE and recovery questionnaire could be used as indicators of the exercise intensity and stress-recovery balance to routinely monitor youth soccer trainings and matches. Nevertheless, probably due to the language barrier, there is a lack of literature regarding the monitoring of youth soccer in Albanian-speaking countries. For this reason, in this study it has been hypothesized that the translation of R-10 Borg's scale and recovery questionnaire into their native language could encourage Albanian-speaking soccer coaches to use these tools in the training process more frequently.

Therefore, the purpose of this study was to measure RPE and recovery status of young soccer players during four consecutive weeks scheduled with the same number of training units and different number of matches. We hypothesized that the weekly training loads perceived by players would be higher during weeks with two matches, than in those with only one. Moreover, we also hypothesized that adopting Albanian versions of the CR-10 Borg's scale and modified TQR to monitor RPE and recovery could facilitate Albanian-speaking players to have more confidence with these assessment tools.

METHODS

Experimental approach to the problem

The prospective cohort experimental design of this study aimed to assess four weeks of players' internal and external loads and their recovery status during and after trainings and matches by means of the RPE scale, recovery questionnaire and training log.

To maintain a high ecological approach of the study, the training plan performed during the experimental period (four-weeks) was set by the team's coaching staff and included three training units per week. Indeed, the typical team's weekly program was composed of physical training (muscular strength, agility, aerobic, anaerobic exercise) and technical-tactical work with the ball (Reilly, 2005), which included small sided games and always ended with a match. Indeed, in the first and the third week was scheduled only one match, while in the second and the fourth week two matches were played. Furthermore, to avoid subjective evaluations of the soccer specific drills

performed the training log of each unit was filled always by the same researcher with several years of soccer experience.

The players' RPE and recovery, during and after trainings and matches, were assessed by means of a CR-10 Borg's scale (Borg, Ljunggren and Ceci, 1985) [ranging from "very, very easy" (1 point) to "maximal" (10-points)] and a 10-point recovery scale similar to the RPE scale [ranging from "very, very poor recovery" (1 point) to "fully recovered" (10 points)], respectively. Both RPE and recovery scales were translated in Albanian in order to increase the players' awareness and comprehensibility (Figure 1).

A)	Rate of Perceived Exertion	Shkalla e Përceptimit të Ngarkesës
	0 Rest	0 Pushimi
	1 Very, very easy	1 Shumë, shumë i lehtë
	2 Easy	2 I lehtë
	3 Moderate	3 Mesatar
	4 Somewhat hard	4 Paksa i rëndë
	5 Hard	5 I rëndë
	6 -	6 -
	7 Very hard	7 Shumë i rëndë
	8 -	8 -
	9 -	9 -
	10 Maximal	10 Maksimal

B)	Recovery Questionnaire	Pyetëtori i Rikuperimit
	1 Very, very poor recovery	1 Rikuperim shumë, shumë i vogël
	2 Very poor recovery	2 Rikuperim shumë i vogël
	3 Poor recovery	3 Rikuperim i vogël
	4 Reasonable recovery	4 Rikuperim i arsyeshëm
	5 Good recovery	5 Rikuperim i mirë
	6 -	6 -
	7 Very good recovery	7 Rikuperim shumë i mirë
	8 -	8 -
	9 -	9 -
	10 Fully recovered	10 Rikuperim i plotë

Figure 1. Ten- points rating of Perceived exertion (A); and modified total quality recovery (B) in English and Albanian versions

Subjects

Twenty-two male young (Under 15) soccer players (mean \pm SD; age: 14.5 ± 0.3 yrs, height: 174 ± 8 cm, body mass: 60.1 ± 7.9 kg) were voluntarily recruited to participate in this study. All players belonged to a youth team of a Kosovan elite (first league) soccer club (the "2 korriku" club from

Pristina, Republic of Kosovo), and had at least 5.7 ± 2.3 years of previous soccer experience. All players and their parents (or guardians) were fully informed of all experimental procedures before giving their informed consent to participate in the study. The experimental design was approved by the Review Board of the Ministry of Health of the Republic of Kosovo (Prot. No 05-6677).

Procedures

The players' RPE responses were asked 30 minutes after the end of each training unit to prevent that the exercise performed at the end of the unit could be dominant in the individual ratings. Then, for each training unit and match the individual ITLs were calculated by means of the session-RPE method (Foster et al., 1995): training duration (expressed in minutes) multiplied by training intensity (expressed as RPE value), while the team's ITLs were calculated as the mean of all players that took part at each single unit or match and at the entire weekly schedule. The recovery questionnaire was submitted to the players before every training session and match, asking them "how recovered do you feel today?". In addition, for the entire data collection period, the players followed the coaching staff directions about how to manage rest, sleep and nutrition and avoid demanding activities during the daily hours without training.

Statistical analysis

If a participant missed two or more RPE/ recovery scores during the experimental period, he was excluded from statistical analysis. Otherwise, if he missed only one RPE/recovery score this value was replaced with the mean score for that corresponding training session (Brink, Nederhof, Visscher, Schamikli and Lemmink, 2010).

Repeated measure analysis of variance (ANOVA) was used to assess differences in session-RPE and recovery values between training units. Thus, 1-way analysis of variance (ANOVA) was carried out to assess differences in session-RPE according to players' field position (defenders, midfielders, forwards). Furthermore, independent t-test was used to test differences in session-RPE and recovery between weeks scheduled with one or two matches. The alpha level of significance was set at $p \leq 0.05$, meaning that differences with p value lower than 0.05 were considered significant. The software package SPSS version 21.0 was used for statistical analysis.

RESULTS

The repeated measure ANOVA within subjects showed significant session-RPE differences between training units [$F(14, 294) = 39.478, p = 0.01$]. Additionally, significant differences were found in recovery score between training units [$F(14, 294) = 2.580, p = 0.02$].

Furthermore, one way ANOVA demonstrated no significant session-RPE differences [$F(2, 19) = 0.278, p = 0.760$] according to playing position (Table 1). Additionally, the T-test showed significant differences ($p < 0.05$) in weekly session-RPE between weeks with a different competition schedule (1 match: 866.32 ± 91.255 and 2 matches: 774.05 ± 87.74). Moreover, no significant differences ($p = 0.295$) in recovery scores between weeks with one match and two matches were found (Table 2). In addition, training log data depicted a complete exclusion of strength and conditioning aspects during weeks scheduled with two matches (Table 3).

Table 1: RPE, session-RPE, and recovery score data for all training units and matches

Training units	RPE	Session-RPE	Recovery score
1st Week			
Unit 1	4.34 ± 0.6	70.9 ± 49.4	6.32 ± 2.2
Unit 2	3.68 ± 0.7	294.7 ± 49.7	6.21 ± 2.2
Unit 3	3.29 ± 0.7	305.6 ± 65.1	6.24 ± 1.5
Match 1	4.54 ± 1.6	356.2 ± 109.9	7.06 ± 0.4
2nd Week			
Unit 4	3.35 ± 0.5	301.5 ± 41.9	6.80 ± 1.7
Match 2	4.62 ± 1.2	342 ± 63.2	7.0 ± 1.4
Unit 5	3.0 ± 0.6	270 ± 48.1	5.49 ± 1.6
Unit 6	2.82 ± 0.4	240 ± 29.1	5.33 ± 1.1
Match 3	4.00 ± 1.1	255.4 ± 103.9	7.53 ± 1.3
3rd Week			
Unit 7	3.5 ± 0.5	243.3 ± 34.9	5.86 ± 1.2
Unit 8	3.4 ± 1.1	256.6 ± 74.3	7.05 ± 1.3
Unit 9	3.6 ± 0.5	261 ± 30.4	7.31 ± 1.4
Match 4	3.3 ± 0.7	0.8 ± 79.8	7.73 ± 1.0
4th Week			
Unit 10	3.4 ± 0.7	324.8 ± 45.9	.3 ± 2.1
Match 5	5.8 ± 1.6	393.5 ± 120.4	8.3 ± 1.5
Unit 11	3.7 ± 1.2	317.7 ± 94.0	.5 ± 1.8
Unit 12	1.8 ± 0.5	94.3 ± 23.7	.2 ± 1.4
Match 6	6.2 ± 1.4	431.7 ± 131.8	7.4 ± 1.1

Values are given as mean ± SD

DISCUSSION

This study aimed to investigate RPE and recovery status of young soccer players during four consecutive weeks scheduled with the same number of training units and different number of matches. To the authors' knowledge this is the first work that adopts Albanian versions of the CR-10 Borg's scale and modified TQR to monitor RPE and recovery in order to enhance the confidence of Albanian-speaking players toward the use of these assessment tools.

The main findings of this study showed: a) significant session-RPE and recovery scores differences between training units during the entire experimental period; b) significant weekly session-RPE values differences between weeks scheduled with a different number of matches; c) absence of significant RPE and recovery differences related to players' playing positions.

When the session-RPE data have been related with the weekly schedule, our results registered lower values ($p < 0.05$) during weeks scheduled with 2 matches compared to those with only one. Similar findings have also been published in two studies on young soccer players (Impellizzeri, Rampinini, Coutts, Sassi and Marcora, 2004) and elite basketball players (Manzi, D'Ottavio, Impellizzeri, Chaouachi, Chamari and Castagna, 2010), respectively. However, these studies showed a typical daily trend with a decrement of session-RPE values toward the end of the week when the match day was approaching. In contrast, in current study a general fluctuation of values among training units regardless of the weekly schedule of matches was registered. A possible

Table 2: Session-RPE and recovery score differences between weeks scheduled with one and two matches (a); and differences in Session-RPE related to playing positions (b).

	Weeks	Weekly session-RPE (AU)	Recovery Score
a)	Weeks with 1 match	866.3 ± 91.2*	6.5 ± 0.9
	Weeks with 2 matches	774.1 ± 87.7	6.2 ± 1.0
	Playing position	session-RPE (AU)	
b)	Defenders	810.2 ± 80.6	
	Midfielders	789.5 ± 58.7	
	Forwards	814.8 ± 57.3	

*Values are given as mean ± SD. *Significant difference ($p < 0.05$)*

explanation of the discrepancy highlighted in our study could be due to the seasonal planning established by the soccer federation in Kosovo, for both adults and young players. In Kosovo in the mid of the season a winter break is planned from the beginning of December until the beginning of March for climatic reasons, which allows the teams to apply a double periodization. During this period, training is mainly performed indoor with focus on physical preparation, which strongly increases the players' fitness level. Consequently, since data sampling in our experimental study started at middle of April (just one month after the end of the "winter pre-season") the general low variation of daily session-RPE values found within the week could have been determined by the very good fitness level of players and their high motivation to compete. To support this statement Jeong et al. (Jeong, Reilly, Morton, Bae and Drust, 2011) claimed that in soccer the variation of training loads are highly likely to be a direct function of the training programs for that particular period of the soccer season. Indeed, in their study on professional Korean soccer players the authors reported significantly lower in-season values compared to the pre-season ones in relation to the different goals of the coaches' program. Moreover, in our study the four experimental weeks were planned before the start of the play-off phase of the championship, when usually the coaches' programs are mainly focused on technical and tactical aspects, which are generally less stressful in terms of physiological load.

Comparing the existing literature with our study, the session-RPE values we found during matches (304 ± 107.34 AU) were lower than those reported in soccer by Wrigley et al. (Wrigley, Drust, Stratton, Scott and Gregson, 2012) in U14 and U16 categories (693 and 680 AU, respectively) and by Impellizzeri et al. (Impellizzeri, Rampinini, Coutts, Sassi and Marcora, 2004) in U19 category (625 ± 60 AU), respectively. Nevertheless, the absolute value of the session-RPE is also directly influenced by the match duration. Hence, it has to be considered that the duration fixed by the Kosovo's soccer federation for the category observed in our study was 70 minutes (two halves of 35 minutes), while it was of 90 minutes for the study of Impellizzeri et al. (Impellizzeri, Rampinini, Coutts, Sassi and Marcora, 2004) due to an older category. Moreover, some authors point on the fact that differences of the domestic soccer's culture would determine a different physical and tactical approach to the competition between countries (Wrigley, Drust, Stratton, Scott and Gregson, 2012; Dellal et al., 2011). An aspect that could explain the general lower values registered in our study, in a country as Kosovo that is actively producing several efforts to increase the quality of its domestic soccer for both adult and youth.

Regarding the weekly micro-cycle, in current study the session-RPE values of the training units scheduled the day before the second weekly match were always lower compared to the same units performed during weeks with only one competition. On the contrary, a different trend has been reported by Manzi et al. (Manzi, D'Ottavio, Impellizzeri, Chaouachi, Chamari and Castagna, 2010) in professional basketball players, where higher external training loads were performed the day before the second weekly match. The authors explained their findings as a strategy aiming to partially compensate the loads intentionally reduced during the units before the first match. Nevertheless, it is always worth to remember players' perception of training loads is related to the individual perception of physiological and psychological stress (Coutts, Rampinini, Marcora, Castagna and Impellizzeri, 2009), thus athletes' perceptions may noticeably differ along consecutive training units (Algrøy, Hetlelid, Seiler and Pedersen, 2011).

In relation to the players' playing position, our results showed no significant differences between defenders, midfielders and forwards about weekly session-RPE values. Nevertheless a tendency toward lower midfielders' values compared to the other playing positions was shown, which is in agreement with the general findings presented by Gomez-Piriz et al. (Gomez-Piriz, Jiménez-Reyes and Ruiz-Ruiz, 2011) in their study on Spanish professional soccer players. Although, subjects of the current study were young soccer players, it can be assumed that the lower perceptions experienced by our midfielders were probably due to their higher fitness level (Gomez-Piriz, Jiménez-Reyes and Ruiz-Ruiz, 2011), although it can be only speculated and not confirmed by data on players' fitness level, since these were not collected.

A possible effect of the high fitness level of our players, combined with the effect of general light training loads, can be even seen in their individual responses to the recovery questionnaire, where significant differences between weeks scheduled with one or two matches (mean weekly: 6.50 ± 0.91 , 6.19 ± 1.01 , respectively) were not found. Moreover, according to the individual responses marked before each match, our players felt a recovery status that was testified by scores of 7 ("very good recovery") or even above. Nevertheless, in the present study, the mean score of recovery was between the anchors "good recovery" and "very good recovery" (6.29 ± 0.54 point) which was rather similar (or slightly higher) with the results presented in two previous works of Brink et al. (Brink, Nederhof, Visscher, Schmikli and Lemmink, 2010; Brink, Visscher, Arends, Zwerver, Post and Lemmink, 2010) with young soccer players. In the present study, in addition to the positive influence of players' fitness level, another reasonable explanation for the general good recovery and low fluctuations of values among training units could also be the collaborative behavior of our players. Indeed, they showed to strictly follow the team's coaching staff guidelines about eating, sleeping, drinking and resting after training sessions and matches.

Finally, the analysis of team's training log showed that the highest amount of training was devoted to technical and tactical aspects. In this case, our data are generally higher compared to the results presented on young English soccer players of three youth categories (U14, U16, and U18) (Wrigley, Drust, Stratton, Scott and Gregson, 2012). Indeed, in our study a lower amount of time was performed on strength and conditioning training compared to the results of Wrigley et al. (Wrigley, Drust, Stratton, Scott and Gregson, 2012). In addition, what can be deduced by the training load of our work is that the very reduced volume or even absence of strength and conditioning training (respect to technical and tactical ones) during the weeks scheduled with two matches was a strategy of the team's coaching staff to preserve players from excessive physical stress during the last training period before the start of the play-off phase.

Table 3: Weekly distribution of total training time (%)

	Weeks				
	Week 1	Week 2	Week 3	Week 4	Week 5
Warm up	29.2	31.6	32.4	23.1	22.6
Technical/Tactical	46.3	41.2	25.5	54.3	27.8
S&C	12.4	-	25.9	-	10
SSGs/Game drills	12	27.2	16.2	22.6	39.5

(S&C = strength and conditioning; SSGs = small sided games)

Conclusions

In this study, the session-RPE method and a modified recovery scale were used with young Kosovan soccer players to identify differences in their responses to the weekly training loads during the crucial part of the competitive season (before of the play-off) scheduled with one or two matches per week. The findings showed a significant effect of the different competitive schedule, highlighting the necessity to continuously monitor the training process. Thus, in youth soccer the session-RPE and recovery scale can be considered valuable tools for coaches and strength and conditioning professionals to plan the weekly training sessions according to players' subjective responses (Foster, 1998; Impellizzeri, Rampinini, Coutts, Sassi and Marcora, 2004).

To the authors' knowledge this is the first study that used Albanian versions of CR-10 and recovery questionnaire, which could facilitate the diffusion and more extensive use of these monitoring tools among coaches who live in Albania-speaking countries, leading them to coach in a more globalized way with colleagues of other languages and cultures.

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