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Preparation, Exercising, and Motivation in Sports Practice during COVID-19 Pandemic among Young Football Players in Bosnia and Herzegovina

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Abstract

The Covid-19 outbreak has also led to significant changes in football, such as the suspension of leagues, isolation, and the fact that football players are forced to train on their own. Therefore, the purpose of this study was to determine if there were differences in the level of preparation, practices, and motivation for athletic training among young professional football players during the Covid-19 pandemic, depending on the level of competition. The sample of respondents consisted of 82 young football players from Bosnia and Herzegovina, divided into the first league group (n=47, 18.30±0.62 age) and the second league group (n=35, 17.66±0.73 age). The questionnaire for sports preparation and training (SPEQ) was used, which consists of 11 items and was created according to the existing questionnaire for self-assessment of the level of preparation and type of training of athletes during the training process in the Covid-19 pandemic. Also, a questionnaire on sports motivation during the Covid-19 pandemic was used, consisting of 18 items related to motivation to participate in sports, modified according to the Participation Motivation Questionnaire (PMQ). A five-point Likert scale was used for the questionnaire. The questionnaire was available in electronic form and was sent to the football players through a Google form. The difference was found only in the frequency of the type of exercise in two variables, while there were no differences between the groups of young football players in the other variables of training frequency, level of preparation, and motivation in sports training. It was also established that despite the Covid-19 situation, the motivation for sports training among young football players was at a very high level.

Keywords: *soccer, football training, fitness preparation, motivation for training, Covid-19 lockdown*

Introduction

Football is characterized by numerous and diverse complex cyclic and acyclic movements (Gardasevic, Bjelica, & Corluka, 2018). Nowadays, football has evolved with great strides, it is played stronger, faster and more explosive. For this reason, football players must have a high level of physical, technical, tactical and psychological preparation (Aleksić & Janković, 2006; Koprivica, 2013).

In modern football, physical fitness is of great importance for the performance of football players (Castagna, Chamari, Stolen, & Wisloff, 2005). Technical and tactical skills can only be brought to bear if the football player has a high level of physical preparation (Bangsbo 1994; Hoff, Wisløff, & Engen, 2002). Endurance, speed, and strength dominate the physical preparation of football players. This corresponds to the hierarchical structure indicated by Milanović (1996): endurance 30%, speed 25%, strength 20%, coordination 15%, and flexibility 10%. These are precisely the skills that have been most

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frequently assessed in scientific papers dealing with football in recent years (Katanić, Ugrinić, & Ilić, 2019). This suggests that these skills should be developed primarily for the physical preparation of football players.

The Covid-19 pandemic has changed the lives of athletes and led to uncertainties related to maintaining training and postponing sporting events (Mon-López, de la Rubia, Hontoria, & Refoyo, 2020; Parm, Aluoja, Tomingas, & Tamm, 2021). The Covid-19 outbreak also led to significant changes in football, such as suspension of leagues, isolation of players, individual training, etc. (Brooks et al., 2020).

During the Covid-19 pandemic, motivation to play sports may play a greater role due to changes in athletes' routines, such as reduced training and increased uncertainty in goal setting (Tingaz, 2021). Motivation is considered a fundamental factor that promotes athletes' participation in sport activities (Roychovdhury, 2018) and influences success in sport (Bollok, Takacs, Kalmar, & Dobay, 2011). For this reason, many authors are increasingly addressing this issue (Ruffault, Bernier, Fournier, & Hauw, 2020; Leyton-Román, de la Vega, & Jiménez-Castuera, 2021; Katanic, Bjelica, Corluka, Preljevic, & Osmani, 2022).

During the Covid-19 lockout, many teams created home training plans for their players that included physical, technical, and tactical preparation (Peña et al., 2021). Although coaches made efforts to create training plans and programs, athletes usually trained alone at home without supervision (Sarto et al. 2020), which made it difficult to conduct training. It is noticeable that training at home faces more challenges, such as inadequate training conditions, poorly organized training, movement restrictions, and lack of communication with coaches (Jukic et al. 2020), which may negatively affect football players' motivation to perform sports activities.

As far as we know, there are only a limited number of studies investigating the possibilities of training young football players during the Covid-19 pandemic (Washif, Mujika, et al., 2022), and this is certainly the first study of its kind in Bosnia and Herzegovina. Accordingly, the study aimed to determine if there is a difference in the level of preparation, exercise, and motivation for sports training during the Covid-19 pandemic among young professional football players depending on their level of competition.

Methods

Participants

The sample of respondents consisted of 82 young football players from Bosnia and Herzegovina, divided according to the competitive level of the first and second leagues. Table 1 shows the descriptive parameters of the first league group (n=47, 18.30±0.62 age) and the second league group (n=35, 17.66±0.73 age). All participating football players were healthy, had no serious injuries, and had been training for more than 5 years. Ethical review and approval according to local legislation and institutional requirements are required for the study in human participants. Experimental procedures were explained to all participants before participation. The research was conducted in accordance with the Declaration of Helsinki.

Table 1. Sample description of elite and sub-elite young football players.

	Football Players (n 83)	
Competitive Rang	First League	Second League
Number of Participants	47	35
Age (Mean±SD)	18.30±0.62	17.66±0.73

Legend: Mean - Arithmetic mean; SD - Standard deviation; n – number.

Measurements

Two 27-items questionnaires were used to self-assess preparation level, type and frequency of practice, and motivation to participate in athletic training during the Covid-19 pandemic.

Sports Preparation and Exercise Questionnaire (SPEQ)

The SPEQ questionnaire consists of 11 items and was designed following the existing questionnaire on exercise during the Covid-19 pandemic (Washif et al., 2022). The questionnaire contains 4 items related to self-assessment of athletes' level of preparation (Bompa, 1999; Koprivica, 2013), and a five-point scale was used (poor -1, moderate - 2, good - 3, very good - 4, excellent - 5). The remaining 7 items refer to the type of exercise during the training process during the Covid-19 pandemic (Washif et al., 2022), and a three-point scale was used (I did not apply - 1, I applied occasionally - 2, I applied often - 3).

Participant Motivation Questionnaire (PMQ)

A Participant Motivation to Participate in Sports (PMQ) and Maintenance of Sports Participation Questionnaire was used during the Covid-19 pandemic, which consisted of 16 items related to motivation to participate in sports, modified according to the PMQ (Gill, Gross, & Huddleston, 1983; Zahariadis & Biddle, 2000). In previous research (Katanic et al., 2022), the internal structure of the questionnaire was examined using factor analysis, and variables were grouped into factors based on their calculated factor weights. Factor analysis identified dimensions such as "Sports Success," 'Social Status," 'Friendship," 'Physical Health," and 'Sports Activities," which were used in this study. A five-point Likert scale was used in the questionnaire, and responses were labelled as 'very important," 'important," 'somewhat important," "not important," and 'not important at all" (Joshi, Kale, Chandel, & Pal, 2015). The questionnaires were available in electronic form and were sent to the football players via Google form.

Statistics

Data analysis was conducted using the SPSS statistical analysis program (IBM SPSS Statistics for Windows, version 26.0. Armonk, NY: IBM Corp.). Descriptive analysis was used to distribute the data based on the number of participants, means, and standard deviation. An independent-sample T-test was used to determine differences in the level of competition between first and second-division football players in terms of preparation, training, and motivation in sports practice. Statistical significance was assumed at $p>0.05$.

Results

Table 2 shows the level of sports preparation. It was found that there was no difference between groups of football players in any type of preparation (physical, technical, tactical, psychological).

Regarding the frequency of the types of training, a significant difference was found in explosive strength (.024) and ball skills exercises (.027), while there was no difference in the presentation of the other types of training (aerobic, agility/coordination, flexibility, isometric strength, repetitive strength).

Table 2. Level of sports preparation and frequency of exercising between the groups.

			First league (Mean±SD)	Second league (Mean±SD)	t	p
Sports Preparation and Exercising Questionnaire (SPEQ)	Sports Preparation	Physical Preparation	3.64±0.92	3.94±0.76	-1.635	.106
		Technical Preparation	3.96±0.98	4.09±0.82	-.629	.531
		Tactical Preparation	3.94±0.87	3.91±0.98	.107	.915
		Psychological Preparation	4.21±1.04	4.54±0.70	-1.714	.090
	Exercise Frequency	Aerobic Exercise	2.28±0.68	2.23±0.69	.314	.754
		Agility/Coordination Exercise	2.26±0.67	2.40±0.55	-1.035	.304
		Flexibility Exercise	2.26±0.67	2.40±0.55	-1.035	.304
		Explosive Power Exercise	2.23±0.67	2.54±0.51	-2.293	.024*
		Isometric Strength Exercise	1.98±0.64	2.17±0.71	-1.288	.202
		Repetitive Strength Exercise	2.64±0.53	2.60±0.60	.305	.761
		Ball Skills Exercise	1.70±0.72	2.06±0.68	-2.257	.027*

Legend: Mean - Arithmetic mean; SD - Standard deviation; t - t test value; p - Statistical significance; * - Significant difference.

Participants' motivation to exercise was assessed by 16 items divided into 5 factors (sports success, social status, friendship, physical health, sports activity). In Table 3, it was found that there was no significant difference in any of the variables between the groups of young football players.

Table 3. Motivation for sports training in young professional football players.

			First league (Mean±SD)	Second league (Mean±SD)	t	p
Participant Motivation Questionnaire (PMQ)	Sport success	Like to compete	4.89±0.48	4.83±0.45	.624	.534
		Want to play at a higher level	4.96±0.20	4.94±0.24	.300	.765
		Like the rewards	4.83±0.67	4.89±0.40	-.438	.663
		Like the sport challenge	4.94±0.25	4.86±0.43	.974	.335
	Social status	Want to be popular	3.96±1.10	4.11±0.83	-.705	.483
		Want to gain status	4.81±0.68	4.71±0.67	.625	.533
	Friendship	Like to meet new friends	4.43±0.90	4.51±0.61	-.502	.617
		Like the teamwork	4.74±0.53	4.89±0.32	-1.490	.140
		Like being on a team	4.91±0.35	4.83±0.51	.904	.369
		Like the excitement	4.77±0.43	4.83±0.45	-.639	.524
	Physical health	Want to be healthy	4.98±0.15	4.91±0.28	1.227	.226
		Want to stay in shape	5.00±0.00	4.91±0.28	1.785	.083
		Get rid of excessive energy	4.17±1.09	3.91±1.15	1.028	.307
	Sport activity	Wished of group training	4.77±0.56	4.94±0.24	-1.947	.056
		Wished of friendly games	4.13±1.08	4.09±1.22	.165	.870
		Wished of official games	4.89±0,37	4.97±0.17	-1.261	.212

Legend: Mean - Arithmetic mean; SD - Standard deviation; t - t test value; p - Statistical significance; * - Significant difference.

Discussion

This study examined the difference in the level of preparation, training, and motivation for athletic training during the Covid-19 pandemic in young professional soccer players as a function of competition level. There is no difference between the groups of soccer players in terms of the type of preparation (physical, technical, tactical, psychological). There are also no differences between the groups in the motivation variables. Only two of the seven variables on the frequency of training showed differences. Second-division players reported a significantly higher frequency of explosive strength (.024) and ball skills training (.027) than first-division players, while there was no difference in the presentation of other types of training (aerobic, agility/coordination, flexibility, isometric

strength, repetitive strength).

In modern soccer, there is a need for quantification of data, especially in the morphological, motor (Gardašević, Bjelica, & Vasiljević, 2016; Katanić, Nikolić, Ilić, Stanković, & Vitasović, 2021; Versic, Modric, Katanic, Jelicic, & Sekulic, 2022), and psychological domains (Bjelica, 2008), as well as in the technical and tactical parts (Adambekov, 2014; Katanić, Stanković, & Prvulović, 2019; Stanković et al., 2020). In this context, the authors emphasize the general sports preparation of soccer players, which includes physical, technical, tactical, and psychological preparation (Bompa, 1999; Koprivica, 2013). In this work, there was no difference in the level of self-assessed sports preparation between groups, but these data cannot be considered consistent because sports preparation was assessed based on self-assessments. Although there is a difference between elite and lower-ranked soccer players in physical preparation (Gissis et al., 2006; Trecroci et al., 2018; Trecroci, Longo, Perri, Iaia, & Alberti, 2019), technical (Janković, Leontijević, Sofronijević, 2015), tactical (Janković et al., 2015; Janković, Leontijević, & Tomić, 2016), and psychological preparation (Ward & Williams, 2003; Lilić, Aleksić, & Radivojević, 2013).

In terms of physical preparation, young elite soccer players showed better performance in vertical jumps, changes of direction with 90° turns, i.e., tests of explosive strength and agility, than sub-elite players (Gissis et al., 2006; Trecroci et al., 2018; Trecroci, Longo, Perri, Iaia, & Alberti, 2019; Katanić, Ilić, Stojmenović, & Vitasović, 2021). The results of the Gissis et al. (2006) study suggest that young elite soccer players differ from sub-elite and young soccer players in terms of strength and speed characteristics such as maximal isometric strength, force-time curve characteristics, cadence, vertical jump, and sprint performance.

In terms of technical and tactical preparation of soccer players, it was found that there are significant variations and differences in the performance of teams and individual players in terms of technique and tactics (Janković, Leontijević, & Sofronijević, 2015; Janković, Leontijević, & Tomić, 2016). Significant differences are shown in the extent of application of technical-tactical elements by higher-ranked teams compared to lower-ranked teams (Janković, Leontijević, & Sofronijević, 2015).

It was also found that elite football players (of different age groups) differed significantly from players of a lower level of competition in psychological characteristics, especially in their perceptual and cognitive abilities, which enabled them to receive, process, and integrate contextual information more efficiently and that this was one of the main factors for their greater success (Ward & Williams, 2003; Lilić, Aleksić, & Radivojević, 2013).

Although it has been confirmed that there is a difference in the level of sports preparation between young elite and sub-elite football players, this difference was not present in our study. The main reason for this is that our study was a self-assessment in which players of different levels assessed their level of physical, technical, tactical, and psychological preparation in approximately the same way.

When looking at the representation of specific types of training, it was found that lower-ranked football players had higher scores in the representation of explosive strength (.024) and ball skills exercises (.027) during Covid-19 pandemic, while no difference was found in other exercises (aerobic, agility/coordination, flexibility, explosive strength, isometric and repetitive exercises, and ball skills exercises). It is well known that explosive power is one of the most important motor characteristics in athletes (Prvulović, Martinović, Kostić, & Katanić), and ball drills lead to increased performance in various technical skills (Waldron & Worsfold, 2010; Katanić, Ilić, Stojmenović, Stanković, & Vitasović, 2020). So this is one of the reasons why sub-elite football players develop these skills. However, because no study has examined the differences between young football players according to competition level during the pandemic, it is not easy to verify our results. Since this is not a true evaluation but a self-assessment subject to subjective feelings, we must take these results with caution.

The motivational structures are divided into five factor dimensions: 'Sporting Success', 'Social Status', 'Friendship', 'Physical Health', and 'Sporting Activities', and is in line with previous studies that mostly found a 5- to 8-factor basic structure (Fabrigar, Wegener, MacCallum, & Strahan, 1999; Katanic et al., 2022).

It should be noted that there was no difference in any of the dimensions ("Sporting Success," 'Social Status," 'Friendship," 'Physical Health," and "Sporting Activities") in terms of training motivation. Thus, this work showed that there was no difference in training motivation between elite and sub-elite young football players during the Covid-19 pandemic. On a Likert scale of 1to 5, the mean scores for both groups and each dimension were above 4, except for the elite players' social status, which was 3.96 (almost 4). This means that the motivation for training among the young football players of the elite and the sub-elite was very high under the given conditions. It was found that young football players from these areas (Serbia and Montenegro) are significantly more motivated by an intrinsic desire to achieve their sports competencies than their Russian peers (Mladenovic & Marjanovic, 2011). Also in Malcic's (2012) research, the results showed that intrinsic motivation is the main driver for sports participation. As for the structure of motives, health is the most important, followed by love for sport, then success, friendship, popularity and good looks. Bačanac, Lazarević and Arunović (1994), on the other hand, state that the most important thing is: "to get to a higher level', 'competitions', then "to be in good physical condition', "to practice", "to do something to learn'. Motivation in sports manifests itself through perseverance and persistence. Perseverance in sport is influenced by biological, psychological, sensory, and situational factors (Abernethy, Hanrahan, Kippers, Mackinnon, & Pandy, 2012). It is also important to set goals and strive to achieve them because each goal achieved increases motivation and vice versa.

Limitations

Although this study has several limitations, the most important one is that the level of sports preparation and the presentation of the different types of training were assessed using a questionnaire, and since it is a self-assessment, the results may be based on a subjective feeling and not on a realistic assessment. In this regard, the proposal for further research should investigate these parameters with optimal measurement tools. Another limitation arises from the fact that the athletes answered the questionnaires electronically, i.e. someone could have influenced their answers.

Conclusion

The difference between elite and sub-elite young football players was found only in the frequency of the type of exercise in two variables, while there were no differences between the groups in the other variables of training frequency, level

of preparation, and motivation in sports training. It was also established that despite the Covid-19 situation, the motivation for sports training among young football players was at a high level. In addition to the mentioned limitations, the strength of this study refers to the fact that this is the first study that assessed the possibilities for sports training during the Covid-19 pandemic among young football players in Bosnia and Herzegovina.

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Conflict of interest
The authors declare that there is no conflict of interest

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