

Jovan Gardasevic¹,
Dusko Bjelica¹

PREPARATION PERIOD AND ITS IMPACT ON THE BALL CONTROL WITH U16 SOCCER PLAYERS

PRIPRAVE IN NJIHOV UČINEK NA OBVLADOVANJE ŽOGE PRI NOGOMETAŠIH U16

ABSTRACT

The main aim of the research was to identify a level of quantitative changes of the ball control with U16 soccer players under the influence of the programmed soccer training of six weeks a summer preparation period. The training programme covered 44 training units. The research was made on a sample of 120 soccer players. For the assessment of ball control the three tests were used: horizontal ball rebounding from a wall 20s, dribbling speed of the ball in slalom and juggling alternating with both feet in a square space of 1x1 m. In the area of comparative statistics, used t-test for big paired samples. Based on the numerical values of the t-test it can be concluded that there are statistically significant differences in all three variables to estimate the ball control. In this research the authors were guided by the fact that this kind of training program in preparation period, where dominates the situational model training is very effective in terms of raising the ball control with U16 soccer players, because the model that is used in this training period abounds in exercises in which dominates the ball control, in straight line and with changes in direction. The obtained results can be directed towards innovation plans and programs in the preparation period, and the adaptation of the same needs of the respective population.

Key words: soccer, preparation period, ball control

¹University of Montenegro, Faculty for Sport and Physical Education, Niksic, Montenegro

Corresponding Author:

Jovan Gardasevic
University of Montenegro
Faculty for Sport and Physical Education
Narodne omladine bb, Niksic, Montenegro
Phone: +382 67 518 677
E-mail: jovan@ucg.ac.me

IZVLEČEK

Glavni cilj raziskave je bil ugotoviti raven kvantitativnih sprememb v obvladovanju žoge pri nogometaših U16, ki so opravili programirani nogometni trening v obdobju šesttedenskih poletnih priprav. Program treninga je obsegal 44 vadbenih enot. Raziskava je bila opravljena na vzorcu 120 nogometašev. Za oceno obvladovanja žoge smo uporabili tri teste: 20-sekundno horizontalno odbijanje žoge od stene, hitrost preigravanja žoge v 'slalomu' ter žongliranje izmenično z obema nogama znotraj kvadrata, velikega 1 x 1 m. V okviru primerjalne statistike smo uporabili t-test za dva velika odvisna vzorca. Na podlagi številčnih vrednosti t-testa lahko zaključimo, da pri oceni obvladovanja žoge obstajajo statistično značilne razlike v vseh treh spremenljivkah. V raziskavi smo avtorji upoštevali dejstvo, da je tovrsten program treningov med pripravami, kjer prevladuje situacijski model, zelo učinkovit glede izboljšanja obvladovanja žoge pri nogometaših U16, kajti model, uporabljen v tem treningu, obsega zelo veliko vaj, v katerih prevladuje obvladovanje žoge v ravni liniji in s spreminjanjem smeri. Pridobljeni rezultati se lahko s pridom uporabijo za pripravo inovativnih načrtov in programov za obdobje priprav ter za prilagoditev ustreznih potreb te populacije.

Ključne besede: nogomet, priprave, obvladovanje žoge

INTRODUCTION

Soccer is the most popular sport in the world, with close to 270 million participants (Akbari, Sahebozamani, Daneshjoo, & Amiri-Khorasani, 2018). Soccer is a sport that is characterized by numerous and varied complex dynamic kinesiology activities that are characterized by a large number of cyclic and acyclic movements (Gardasevic, Bjelica, & Vasiljevic, 2017). Soccer consists of various types of movements and actions like tackling, jumping, sprinting and kicking (Reilly, Williams, Nevill, & Franks, 2000; Amiri-Khorasani, Osman, & Yusof, 2009). The high specificity of loading, decision making under pressure of opponents (Hulka, & Weisser, 2017) in all four moments of play, possession of the ball, the opponent's possession of it, the transformation after winning the ball and the transformation after losing the ball depends on the ability of players to perform certain movements of varying intensity, in different directions and the different sections of the field (Gardasevic, Bjelica, & Corluka, 2018). They must have developed basic and specific motor abilities (Gardasevic, & Vasiljevic, 2017). Level of adaptations and time to reach at degree of adaptation according to training objectives are determining type of training which coaches may choose (Amani, Sadeghi, & Afsharnezhad, 2018). One of the specific motor skills, which should be at a high level, is a ball control.

The ball control is considered as the very important ability of the soccer player. A soccer player with good ball control is the one who is able to perform complex situational-motor actions coordinated in a certain space and in time period as short as possible (Corluka et al., 2018).

The main objective of this study was to determine the level of quantitative changes of the ball control with U16 soccer players, under the influence of a programmed soccer training which included one preparatory period of forty-two days.

MATERIALS AND METHODS

This was a longitudinal study with an aim that in the two time-varying points determine quantitative changes of the ball control in soccer players (15 years \pm 6 months) under the influence of programmed training process, which included a summer preparation period for the competition season in a unique cadet league of Montenegro and the cadet league middle region of Montenegro. The training program lasted 42 days and was carried out on the auxiliary soccer field of FC Sutjeska-Niksic. The training program included 44 trainer units, within which 8 friendly matches were played.

For data processing only the results of those respondents who have undergone a complete program of work and who have joined the initial and final measurement are taken. This study included a sample of 120 young cadet soccer players of 4 teams, all from Niksic. Parents of all participants signed a consent form, which was in accordance with the Helsinki Declaration. Before programmed work all respondents had passed medical check-ups to make sure they could access the training process. When selecting the instruments (tests) it was taken into account that they meet the basic metric characteristics, which means the appropriate age and objective material and spatial conditions. For the assessment of the ball control, the following tests were used: 1. Horizontal ball rebounding from a wall 20s (HBRW); 2. Dribbling speed of the ball in slalom (DSBS); 3. Juggling alternating with both feet in a square space of 1x1 m (JASS).

Considering that these are cadet age players (15-years±6 months), in a sensitive period of psychophysical development, program is tailored specifically to their age, taking into account the time spent in the previous training process. Time structure of the training ranged from 60 to 120 minutes, depending on the goals and objectives of the training unit and it was divided into 3 phases: 1. Introductory-preparatory part (25-30% of the duration of training); 2. The main part (60-65% of the duration of the training); 3. The final part (up to 10% of the duration of training)

In the introductory-preparatory part of the training the emphasis was on raising the operating temperature in children. As a tool, various elementary games with a ball were used that enabled work on the elementary basics of technique and tactics, also the various polygons with exercises the ball control were used. A variety of games and exercises to increase joint mobility and strengthen muscles also applied at this stage.

At the first stage of the main part of the training the intensity is slightly increased compared to the warm-up phase and the training program was implemented through a variety of ball games. With a game method, the respondents were taught and practiced soccer skills through a large number of repetitions. At the second stage of the main part of the training the players mostly had a free game on two goals that allowed them creative activities and highlight of individual, imagination, independent thinking and hard work, applying the elements that teach by the method of the game from the first stage of the main part, and thus strengthening the willing quality. At this stage of the training the intensity was the greatest. At the final part of the training the task was lowering the physiological curve to an optimum level, and low-intensity activities were used: stretching and relaxation exercises, competitive game of penalty kicks, free kicks.

Data obtained from the survey were analysed using descriptive and comparative statistics. In the area of descriptive statistics for each variable both in the initial and the final state central and dispersion parameters were processed as well as measures of asymmetry and flatness. The hypothesis of normal distribution of results was tested on the basis of Kolmogorov and Smirnov test. In the area of comparative statistics, to determine differences in the variables used to estimate the ball control at the start (initial state) and at the end (final state) of the training program in the preparation period, we used the discriminative parametric procedure Student's t-test for large dependent samples.

RESULTS AND DISCUSSION

In Tables 1 and 2 are shown the basic descriptive statistical parameters of variables for estimations of the ball control in the initial and final measurement, where the values of central and dispersion tendency were calculated: arithmetic mean (Mean), standard deviation (Std.D.), standard error of arithmetic mean (Std.E.), the coefficient of variation (CV%), minimum (Min) and maximum (Max) values, the range of results (Range), the curvature coefficient Skewness (Skew) and elongation Kurtosis (Kurt), as well as the values of Kolmogorov and Smirnov test (K-S).

First the central and dispersive parameters of variables for assessing the ball control in the initial state were analysed (Table 1).

Table 1. Central and dispersive parameters of variables for assessing the ball control in the initial state

No	Variables	Mean	Std.D.	Std.E.	CV%	Min	Max	Range	Skew	Kurt	K-S
1	HBRWI	12.21	2.63	0.24	21.55	7	18	11	0.03	-0.53	0.35
2	DSBSI	12.11	1.20	0.11	9.90	10.10	16.10	6	1.27	2.90	0.11
3	JASSI	52.92	20.72	1.89	39.15	23	147	124	1.70	5.34	0.07

Notes: HBRWI - Horizontal ball rebounding from a wall 20s initial state; DSBSI - Dribbling speed of the ball in slalom initial state; JASSI - Juggling alternating with both feet in a square space of 1x1 m initial state.

By analysing the central and dispersion parameters of variables for assessing the ball control in the initial state-values of Kolmogorov and Smirnov test shows that the results are normally distributed. By the value of the coefficient of variation a variable Dribbling speed of the ball in slalom - DSBSI belong to homogenous set. Positive values of skewness in variable DSBSI show the inclination of the result to the better, because in the variable where the time is measured positive skewness says that the results are tilted to the side of the better, and the value of the kurtosis show a greater sharpness of the curve, but within the limits of normal elongation. By the value of the coefficient of variation and the range of results a variable Horizontal ball rebounding from a wall 20s - HBRWI, indicate a certain dispersion of results, however according to Peric (2006), that value of the coefficient of variation still belongs to an extremely homogeneous set. The value of the skewness show slight inclination of the curve to the worse results, while the negative kurtosis show of the mild roundness of the distribution of the results, but statistically insignificant. Juggling alternating with both feet in a square space of 1x1 m - JASSI, has a large deviation of the results from the mean that is shown by standard deviation, there is a large range, and there are large differences between the minimum and the maximum results. It can be concluded that the test was quite difficult, perhaps too heavy for this age of the soccer player.

Central and dispersive parameters of variables for estimation of the ball control in the final measurement showed the following values (Table 2).

Table 2. Central and dispersive parameters of variables for estimation of the ball control in the final measurement

No	Variables	Mean	Std.D.	Std.E.	CV%	Min	Max	Range	Skew	Kurt	K-S
1	HBRWF	15.78	2.25	0.21	14.28	11	21	10	0.33	-0.17	0.04
2	DSBSF	11.77	1.14	0.10	9.65	9.98	15.43	5.45	1.04	2.10	0.14
3	JASSF	65.06	22.86	2.09	35.14	35	180	145	2.22	8.94	0.12

Notes: HBRWF - Horizontal ball rebounding from a wall 20s final measurement; DSBSF - Dribbling speed of the ball in slalom final measurement; JASSF - Juggling alternating with both feet in a square space of 1x1 m final measurement.

By analysing the central and dispersive parameters of variables for estimation of the ball control in the final stage-it may be noted that the values of arithmetic means are in all three variables at a higher level than in the initial state. There is still a slightly higher range of results for the variable Juggling alternating with both feet in a square space of 1x1 m - JASSF, which again shows that this test is too heavy for this sample of the soccer players.

To determine the statistical significance of differences in arithmetic means (partial quantitative changes) of variables for estimation of the ball control, the t-test was applied to for large dependent

samples. The values of t-test were on the level of significance (Sig.) from 0.01 ($p \leq 0.01$) in all the variables for the evaluation of the ball control. The differences of arithmetic means of the initial and the final measurement of variables for evaluating the ball control are shown in Table 3.

Table 3. The values of t-test between the arithmetic means of the initial and the final measurement of variables for evaluating ball control

Pairs	Variables	Mean	Std.Dev.	Std.Er.	Correlation	t-test	Sig.
Pair 1	HBRWI	12.21	2.63	0.24	0.89	-32.26	0.00
	HBRWF	15.78	2.25	0.21			
Pair 2	DSBSI	12.11	1.20	0.11	0.99	27.47	0.00
	DSBSF	11.77	1.14	0.10			
Pair 3	JASSI	52.92	20.72	1.89	0.97	-22.54	0.00
	JASSF	65.06	22.86	2.09			

Based on the results gained, it can be noted that there are statistically significant differences in all variables for estimation of the ball control, and therefore can be said that there was statistically significant positive partial effects of the training program in the preparation period, and the t-test values were significant at the reliability level $p < 0.01$ for all variables for estimation of the ball control.

CONCLUSIONS

The aim of this study was to, based on the training work program of forty-two (42) days, determine the level of transformation of the ball control with U16 soccer players, under the influence of a scheduled soccer training that included one preparatory period. This study included a sample of 120 young cadet soccer players of 4 teams, all from Niksic, competing in a unique Montenegrin cadet league and in the middle region league of Montenegro. On the basis of the obtained parameters it can be concluded that the statistically significant partial quantitative effects (changes) in all the variables for estimation of the ball control obtained as a result of the training program applied in the preparation period. The method of work that has been applied in this training program abounds with exercises dominated by movements with ball in various directions, players are often found in unexpected situations, so that the positive transformations are not unexpected.

Based on the results of t-test for large dependent samples, with the variables for estimation of the ball control the statistically significant differences were determined in all pairs of variables between the initial and final states, at the level of statistical significance (significance), $p < 0.01$. It can be concluded that the training program of work in preparation period has led to the positive transformation in all variables that were estimating, by the structure of a hypothetical setting of the models, the ball control. In this research, the authors were guided by the fact that such a training program of work in preparation period is a very efficient way of working in terms of raising the level of the ball control with cadet soccer players. The authors conclude that the summer period of 42 days, at cadet soccer players, with such training work program, is optimal for lifting the ball control to the level required for the competition. The gained results can be directed towards innovation of plans and programs of work in the preparation period, and

adjusting the same to the needs of the talented players, because European top-level soccer clubs are continually looking for the most talented players.

ACKNOWLEDGMENTS

The authors want to thank the players of soccer clubs and coaches for their cooperation.

REFERENCES

- Akbari, H., Sahebozamani, M., Daneshjoo, A., & Amiri-Khorasani, M. (2018). Effect of the FIFA 11+ programme on vertical jump performance in elite male youth soccer players. *Montenegrin Journal of Sports Science and Medicine*, 7(2), 17-22. doi: 10.26773/mjssm.180903
- Amani, A.R., Sadeghi, H., & Afsharnezhad, T. (2018). Interval training with blood flow restriction on aerobic performance among young soccer players at transition phase. *Montenegrin Journal of Sports Science and Medicine*, 7(2), 5-10. doi: 10.26773/mjssm.180901
- Amiri-Khorasani, M., Osman, N.A.A., & Yusof, A. (2009). Biomechanical responds of instep kick between different positions in professional soccer players. *Journal of Human Kinetics*, 22(1), 21-27. doi: 10.2478/v10078-009-0019-0
- Corluka, M., Bjelica, D., Vasiljevic, I., Bubanja, M., Georgiev, G., & Zeljko, I. (2018). Differences in the morphological characteristics and body composition of football players of hsc zrinjski mostar and fc siroki brijeg in bosnia and herzegovina. *Sport Mont*, 16(2), 77-81. doi: 10.26773/smj.180614
- Gardasevic, J., Bjelica, D., & Corluka, M. (2018). The impact of the preparation period on endurance at football players U16. *Sport Mont*, 16(1), 21-24. doi: 10.26773/smj.180204
- Gardasevic, J., & Vasiljevic, I. (2017). The effects of the training in the preparation period on the coordination transformation with football players U16. *Kinesiologia Slovenica*, 23(3), 12–17.
- Gardasevic, J., Bjelica, D., & Vasiljevic, I. (2017). The strength of kicking the ball after preparation period with U15 football players. *Sport Mont*, 15(2), 39-42.
- Hulka, K., & Weisser, R. (2017). The Influence of the Number of Players on Workload during Small-Sided Games among Elite Futsal Players. *Montenegrin Journal of Sports Science and Medicine*, 6(1), 45-48.
- Reilly, T., Williams, A.M., Nevill, A., & Franks, A. (2000). A multidisciplinary approach to talent identification in soccer. *Journal of sports sciences*, 18(9), 695-702. doi: 10.1080/02640410050120078