STATISTICAL APPROACHES CONCERNING THE OPTIMIZATION OF THE COMPLETION IN FOOTBALL

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Abstract
This research reflects methods and means for to increase the efficiency of the completion in football. The purpose of this research consists in to reflect the necessity of the consolidation and the improvement concerning the shooting at goal, for the optimization the results of the team in the game of footbal. The research has as subjects the players of (17-18) years who are components from F.C. Otelul Galati team. The methods of the research used are: the statistical methods, the scientifical documentation and observation method. The statistical analysis reflects the increase of the efficiency regarding the completion in football for the players from F.C. Otelul Galati team, because the results of the research were positive, the progress between the initial and final tests being visible.
Key words: *optimization, training, shooting, completion, football.*

INTRODUCTION
The trainings regarding the technical and tactical procedures used in the optimization concerning the completion at the level of the teams, must to contain methods and means of development in analogous conditions of the football game. In these trainings we must to use varied exercises that shape, intensity and complexity for the modeling of the actions regarding the completion in football. Today, it uses the shooting from various positions or situations: from individual actions of penetrating in enemy system; from direct free kicks and fixed phases; from fast executions. The rationalization of the main means in the training regarding the actions of completion supposes the increase of the efficiency concerning the preparation of the footballers of (17-18) years and the bringing of some new items into the definition and implementation of this vital factor of the football, named completion. The state of the art in this domain is represented by the essential research belongs to (Cojocaru V., 2000) who elaborated methods and means for to optimize the completion, respectively to improve the shooting at goal in football [1].

AIM
The aim of the research consists in to reflect the necessity of the consolidation and the improvement concerning the shooting at goal, for to increase the efficiency of the game. The improvement of the shooting at goal from at distance or the shooting at goal in general, has as objectiv the enrollment of score.

HYPOTHESIS
This paper has the next hypothesis: we suppose that the individual technical deficiences constitute a brake on the efficiency concerning the shooting on the space of the goal.

MATERIAL AND METHODS
The research it carried out on the period 2013-2014 at F.C. Otelul Galati and in research we included the footballers of (17-18) years. In the aim of the achievement concerning this paper, we used the next research methods: the scientifical documentation, the statistical method and the observation method.
In this research, we achieved the nexts tests exercises concerning the optimisation of the finalisation in football:
1) From 30 m distance of goal, the leadership of the ball up to the line that marks the quads of 16 m, then it shoots the ball at goal;
2) From 30 m distance of goal, the leadership of the ball through 5 milestones (the distance between milestones is 3 m) and then it shoots at goal;
3) There are 5 balls in outside the line of 16 m. The footballer's going to shoot in each balls and he will send at the goal with the right leg. After each shot at the goal, the player dodges a milestone which is at 3 m distance face to balls;
4) From inside the penalty box of 16 m, at a distance of 10 m face to goal, it strikes the ball with the head, ball which is offered by the teammates from centering;
5) The achievement of a free kicks from 18 m distance, with panel placed at distance;
6) From the line that marks a distance of 16 m, the ball offered by teammates must be hit in volley;
7) In outside the line of 16 m, the footballer will shoot in goal with the lefts leg 5 balls. After each execution, the player rounds a milestone placed at a distance of 3 m face to balls;

8) In outside the line of 16 m, the footballer stands with the skin face to goal, while he receives balls from the right side and then he will sends with leg these balls straight in goal, from return.

RESULTS OF THE RESEARCH

TESTS FOR OPTIMISATION THE COMPLETION IN FOOTBALL

Table 1 Initial tests for F.C. Otelul Galati team

No.	Name and firstname	Exercise no. 1	Exercise no. 2	Exercise no. 3	Exercise no. 4	Exercise no. 5	Exercise no. 6	Exercise no. 7	Exercise no. 8
1.	*C. B.*	9	8	9	8	8	8	6	8
2.	B. A.	8	9	9	9	7	9	6	7
3.	*B. I.*	7	8	9	9	7	6	7	7
4.	*G. A.*	7	8	8	9	6	8	7	8
5.	*M. A.*	8	7	9	8	7	9	5	6
6.	*P. C.*	6	7	7	9	6	7	9	7
7.	*S. D.*	7	8	8	8	7	8	6	9
8.	*Ş. A.*	8	7	8	9	7	9	7	8
9.	T. V.	8	8	9	8	7	7	5	7
10.	A.S.	8	8	8	9	8	8	7	7
$\bar{x}$		7,6	7,8	8,4	8,6	7	8,2	6,5	7,4

Table 2 Intermediates tests for F.C. Otelul Galati team

No.	Name and firstname	Exercise no. 1	Exercise no. 2	Exercise no. 3	Exercise no. 4	Exercise no. 5	Exercise no. 6	Exercise no. 7	Exercise no. 8
1.	*C. B.*	9	8	9	9	10	10	8	9
2.	*B. A.*	9	10	10	10	8	10	8	9
3.	B. I.	9	9	11	9	8	9	8	9
4.	G. A.	8	10	9	11	7	10	9	8
5.	M. A.	10	9	11	10	9	9	7	8
6.	P. C.	8	9	9	11	8	9	9	9
7.	S. D.	9	10	10	10	8	10	7	10
8.	Ș. A.	8	9	10	11	7	11	9	10
9.	T. V.	10	8	9	9	9	9	7	8
10.	A.S.	10	10	10	11	8	9	9	9
$\bar{x}$		9	9,2	9,8	10,1	8,2	8	9,6	8,9

Table 3 Final tests for F.C. Otelul Galati team

No.	Name and firstname	Exercise no. 1	Exercise no. 2	Exercise no. 3	Exercise no. 4	Exercise no. 5	Exercise no. 6	Exercise no. 7	Exercise no. 8
1.	*C. B.*	12	11	12	12	11	12	10	9
2.	*B. A.*	11	12	12	13	10	12	9	12
3.	B. I.	11	11	13	12	9	11	9	10
4.	G. A.	11	13	12	12	10	13	9	11
5.	M. A.	13	11	13	11	12	11	10	11
6.	P. C.	10	12	11	14	10	10	13	10
7.	S. D.	12	13	11	13	9	13	9	13
8.	Ș. A.	11	12	14	12	10	12	11	12
9.	*T. V.*	12	11	12	11	11	11	9	11
10.	A.S.	12	11	12	11	10	13	9	12
$\bar{x}$		11,5	11,7	12,2	12,1	10,4	11,8	9,8	12,1

If we analyse the tables no. 1-3¸ we observe that:
1) The exercise number 1: the initial average is 7,6.; the intermediate average is 9.; the final average is 11,5. The progress between the initial and final average is 3,9 successful.
2) The exercise number 2 : the initial average is 7,8; the intermediate average is 29,2; the final average is 11,7. The progress between the initial and final average is 3,9 successful.
3) The exercise number 3: the initial average is 8,4; the intermediate average is 9,8; the final average is 12,2. The progress between the initial and final average is 3,8 successful.
4) The exercise number 4: the initial average is 8,6; the intermediate average is 10,1; the final average is 12,1. The progress between the initial and final average is 3,5 successful.
5*) The exercise number 5:* the initial average is 7; the intermediate average is 8,2; the final average is 10,4. The progress between the initial and final average is 3,4 successful.
6) The exercise number 6: the initial average is 8,2; the intermediate average is 8; the final average is 11,8. The progress between the initial and final average is 3,6 successful.
7) The exercise number 7: the initial average is 6,5; the intermediate average is 9,6; the final average is 9,8. The progress between the initial and final average is 3,3 successful.
8) The exercise number 8: the initial average is 7,4; the intermediate average is 8,9; the final average is 12,1. The progress between the initial and final average is 4,7 successful.

For to made a forecast concerning the averages of the driving levels, we must to establish the type of function reflected by the values. In this sense, we apply the method of the coefficients for to study the variation, the real method of selection for the best model of tendency and we consider the year from the middle of the series for each factor, as origin of calculation, while through the achievement of the substitution $\sum_{i=-m}^{m} t_i = 0$.

● In the case of the X factor = *the exercise number 1*:

- if we formulate the null hypothesis H_0*:* which mentions the assumption of the existence for the trend model concerning the *X* factor as being the function $x_{t_i} = a + b \cdot t_i$, then *a* and *b* parametres of the adjusted linear function, can be calculated by means of the linear regression:

$$S = \sum_{i=1}^{n} (x_i - x_{ti})^2 = \min \Leftrightarrow S = \sum_{i=1}^{n} (x_i - a - bt_i)^2 = \min$$

$$\begin{cases} \dfrac{\partial S}{\partial a} = 0 \\ \dfrac{\partial S}{\partial b} = 0 \end{cases} \Rightarrow \begin{cases} 2\sum_{1=1}^{n} (x_i - a - bt_i)(-1) = 0/(-\dfrac{1}{2}) \\ 2\sum_{1=1}^{n} (x_i - a - bt_i)(-t_i) = 0/(-\dfrac{1}{2}) \end{cases} \Rightarrow \begin{cases} na + b\sum_{i=1}^{n} t_i = \sum_{i=1}^{n} x_i \\ a\sum_{i=1}^{n} t_i + b\sum_{i=1}^{n} t_i^{\,2} = \sum_{i=1}^{n} x_i t_i \Rightarrow \\ \sum_{i=1}^{n} t_i = 0 \end{cases}$$

$$a = \frac{\begin{vmatrix} \sum_{i=1}^{n} x_i & \sum_{i=1}^{n} t_i \\ \sum_{i=1}^{n} x_i t_i & \sum_{i=1}^{n} t_i^{\,2} \end{vmatrix}}{\begin{vmatrix} n & \sum_{i=1}^{n} t_i \\ \sum_{i=1}^{n} t_i & \sum_{i=1}^{n} t_i^{\,2} \end{vmatrix}} = \frac{\begin{vmatrix} \sum_{i=1}^{n} x_i & 0 \\ \sum_{i=1}^{n} x_i t_i & \sum_{i=1}^{n} t_i^{\,2} \end{vmatrix}}{\begin{vmatrix} n & 0 \\ 0 & \sum_{i=1}^{n} t_i^{\,2} \end{vmatrix}} = \frac{\sum_{i=1}^{n} x \sum_{i=1}^{n} t_i^{\,2}}{n\sum_{i=1}^{n} t_i^{\,2}} \, i = \frac{\sum_{i=1}^{n} x_i}{n} \qquad b = \frac{\begin{vmatrix} n & \sum_{-m}^{m} x_i \\ \sum_{-m}^{m} t_i & \sum_{-m}^{m} x_i t_i \end{vmatrix}}{\begin{vmatrix} n & \sum_{-m}^{m} t_i \\ \sum_{-m}^{m} t_i & \sum_{-m}^{m} t_i^{\,2} \end{vmatrix}} = \frac{\begin{vmatrix} n & \sum_{-m}^{m} x_i \\ 0 & \sum_{-m}^{m} x_i t_i \end{vmatrix}}{\begin{vmatrix} n & 0 \\ 0 & \sum_{-m}^{m} t_i^{\,2} \end{vmatrix}} = \frac{n\sum_{-m}^{m} x_i t_i}{n\sum_{-m}^{m} t_i^{2}} = \frac{\sum_{-m}^{m} x_i t_i}{\sum_{-m}^{m} t_i^{2}}$$

Table 4. The estimates of the values for the coefficients of variation in the case of the adjusted linear function, in the hypothesis concerning the linear evolution of the *X* factor = the exercise number 1

The test	The exercise number 1 (x_i)	LINEAR TREND				
		t_i	t_i^2	$t_i x_i$	$x_{t_i} = a + bt_i$	$\lvert x_i - x_{t_i} \rvert$
Initial	7,6	-1	1	-7,6	7,416666667	0,183333333

Intermediate	9	0	0	0	9,366666667	0,366666667
Final	11,5	1	1	11,5	11,31666667	0,183333333
Total	28,1	0	2	3,9	28,1	0,733333333

If we calculate the statistical data for to adjust the linear function, we will obtain for *a* and *b* parameters, the values:

$$a = \frac{28{,}1}{3} = 9{,}366666667 \quad \text{and} \quad b = \frac{3{,}9}{3} = 1{,}95$$

Hence, the coeficient of variation for the adjusted linear function is:

$$v_I = \left[\frac{\sum_{i=-m}^{m} \left| x_i - x_{t_i}^I \right|}{n} : \frac{\sum_{i=-m}^{m} x_i}{n} \right] \cdot 100 = \frac{\sum_{i=-m}^{m} \left| x_i - x_{t_i}^I \right|}{\sum_{i=-m}^{m} x_i} \cdot 100 = \frac{0{,}73333333}{28{,}1} \cdot 100 = 2{,}61\%$$

- in the situation of the alternative hypothesis H_1: which specifies the assumption of the existence for the trend model concerning the *X* factor, as being the quadratic function $x_{t_i} = a + b \cdot t_i + ct_i^2$, then *a*, *b* and *c* parameters of the adjusted quadratic function can be calculated by means of the system:

$$\begin{cases} n \cdot a + c \sum_{i=-m}^{m} t_i^2 = \sum_{i=-m}^{m} x_i \\ b \cdot \sum_{i=-m}^{m} t_i^2 = \sum_{i=-m}^{m} t_i \cdot x_i \\ a \cdot \sum_{i=-m}^{m} t_i^2 + c \sum_{i=-m}^{m} t_i^4 = \sum_{i=-m}^{m} t_i^2 \cdot x_i \end{cases}$$

Consequently,

$$a = \frac{\sum_{i=-m}^{m} t_i^4 \cdot \sum_{i=-m}^{m} x_i - \sum_{i=-m}^{m} t_i^2 \cdot \sum_{i=-m}^{m} t_i^2 \cdot x_i}{n \cdot \sum_{i=-m}^{m} t_i^4 - (\sum_{i=-m}^{m} t_i^2)^2};$$

$$b = \frac{\sum_{i=-m}^{m} t_i \cdot x_i}{\sum_{i=-m}^{m} t_i^2}; \qquad c = \frac{n \cdot \sum_{i=-m}^{m} t_i^2 \cdot x_i - \sum_{i=-m}^{m} t_i^2 \cdot \sum_{i=-m}^{m} x_i}{n \cdot \sum_{i=-m}^{m} t_i^4 - (\sum_{i=-m}^{m} t_i^2)^2}$$

Table 5. The estimates of the values for the coefficient of variation in the case of the adjusted quadratic function, in the hypothesis concerning the parabolic evolution of the *X* factor = the exercise number 1

The test	The exercise number 1 (x_i)	PARABOLIC TREND				
		t_i^2	t_i^4	$t_i^2 \cdot x_i$	$x_{t_i} = a + bt_i + ct_i^2$	$\left\| x_i - x_{t_i} \right\|$
Initial	7,6	1	1	7,6	7,6	0
Intermediate	9	0	0	0	9	0
Final	11,5	1	1	11,5	11,5	0
Total	28,1	2	2	19,1	28,1	0

In this way, if we calculate the statistical data for to adjust the quadratic function, we will obtain for *a*, *b* and *c* parameters, the next values:

$$a = \frac{2 \cdot 28{,}1 - 2 \cdot 19{,}1}{3 \cdot 2 - (2)^2} = 9;$$

$b = \frac{3{,}9}{2} = 1{,}95$; $c = \frac{3 \cdot 19{,}1 - 2 \cdot 28{,}1}{3 \cdot 2 - (2)^2} = 0{,}55$

So, the coeficient of variation for the adjusted quadratic function has the value:

$$v_{II} = \left[\frac{\sum_{i=-m}^{m} \left| x_i - x_{t_i}^{II} \right|}{n} : \frac{\sum_{i=-m}^{m} x_i}{n} \right] \cdot 100 = \frac{\sum_{i=-m}^{m} \left| x_i - x_{t_i}^{II} \right|}{\sum_{i=-m}^{m} x_i} \cdot 100 = \frac{0}{28{,}1} \cdot 100 = 0\%$$

- in the case of the alternative hypothesis H_2: which describes the supposition of the existence for the trend model regarding the *X* factor as being the exponential function $x_{t_i} = ab^{t_i}$, then *a* and *b* parameters of the adjusted exponential function, can be calculated by means of the next system:

$$\begin{cases} n \cdot \lg a = \sum_{i=-m}^{m} \lg x_i \\ \lg b \cdot \sum_{i=-m}^{m} t_i^2 = \sum_{i=-m}^{m} t_i \cdot \lg x_i \end{cases} \Rightarrow \quad \lg a = \frac{\sum_{i=-m}^{m} \lg x_i}{n} \quad \text{and} \quad \lg b = \frac{\sum_{i=-m}^{m} t_i \cdot \lg x_i}{\sum_{i=-m}^{m} t_i^2}$$

Table 6. The estimates of the values for the coefficient of variation in the case of the adjusted exponential function, in the hypothesis concerning the exponential evolution of the *X* factor = the exercise number 1

The test	The exercise number 1 (x_i)	EXPONENTIAL TREND					
		$\lg x_i$	t_i	$t_i \lg x_i$	$\lg x_{t_i} = \lg a + t_i \cdot \lg b$	$x_{t_i} = ab^{t_i}$	$\left\| x_i - x_{t_i} \right\|$
Initial	7,6	0,880813592	-1	-0,880813592	0,875309189	7,504282746	0,10
Intermediate	9	0,954242509	0	0	0,965251313	9,231054457	0,23
Final	11,5	1,06069784	1	1,06069784	1,055193437	11,35516468	0,14
Total	28,1	2,895753941	0	0,179884248		28,09050188	0,47

Consequently, if we calculate the statistical data for to adjust the exponential function, we will obtain for *a* and *b* parameters, the values:

$\lg a = \frac{2{,}895753941}{3} = 0{,}965251313$

$\lg b = \frac{0{,}179884248}{2} = 0{,}089942124$

Accordingly, the coeficient of variation for the adjusted exponential function has the next value:

$$v_{\exp} = \left[\frac{\sum_{i=-m}^{m} \left| x_i - x_{t_i}^{\exp} \right|}{n} : \frac{\sum_{i=-m}^{m} x_i}{n} \right] \cdot 100 = \frac{\sum_{i=-m}^{m} \left| x_i - x_{t_i}^{\exp} \right|}{\sum_{i=-m}^{m} x_i} \cdot 100 = \frac{0{,}47}{28{,}1} \cdot 100 = 1{,}67\%$$

We observe that:

$v_{II} = 0\% < v_{\exp} = 1{,}67\% < v_I = 2{,}61\%$

Therefore, the path follows by the *X* factor, the exercise number 1, is a parabolic model of shape $x_{t_i} = a + b \cdot t_i + ct_i^2$.

If we forecast the level concerning *the exercise number 1,* in a period *t+1* which there is after the final test, we obtain the value

$x_{t_i} = a + b \cdot t_i + ct_i^2 = 9 + 1{,}95 \cdot 2 + 0{,}55 \cdot 2^2 = 15{,}1$

successfuls.

Table 7. The estimates of the values for the coefficients of variation in the case of the adjusted linear function, in the hypothesis concerning the linear evolution of the averages for the exercises no. 2-8

Tests	The phase of the test	The average $\bar{x}$	LINEAR TREND							
			t_i	t_i^2	$t_i x_i$	$x_{t_i} = a + bt_i$	$\lvert x_i - x_{t_i}\rvert$	$a = \frac{\sum_{i=1}^{n} x}{n}$	$b = \frac{\sum_{i=1}^{n} t_i x_i}{\sum_{i=1}^{n} t_i^2}$	v (%)
Exercise number 2	Initial	7,8	-1	1	-7,8	7,616666667	0,18	9,566666667	1,95	2,54
	Intermed	9,2	0	0	0	9,566666667	0,37			
	Final	11,7	1	1	11,7	11,51666667	0,18			
	Total	28,7	0	2	3,9	28,7	0,73			
Exercise number 3	Initial	8,4	-1	1	-8,4	8,233333333	0,17	10,13333333	1,90	2,20
	Intermed	9,8	0	0	0	10,133333333	0,33			
	Final	12,2	1	1	12,2	12,033333333	0,17			
	Total	30,4	0	2	3,8	30,399999999	0,67			
Exercise number 4	Initial	8,6	-1	1	-8,6	8,516666667	0,08	10,26666667	1,75	1,07
	Intermed	10,1	0	0	0	10,26666667	0,17			
	Final	12,1	1	1	12,1	12,01666667	0,08			
	Total	30,8	0	2	3,5	30,80000001	0,33			
Exercise number 5	Initial	7	-1	1	-7	6,833333333	0,17	8,533333333	1,70	2,62
	Intermed	8,2	0	0	0	8,533333333	0,33			
	Final	10,4	1	1	10,4	10,23333333	0,17			
	Total	25,6	2	2	3,4	25,6	0,67			
Exercise number 6	Initial	8,2	-1	1	-8,2	7,533333333	0,67	9,333333333	1,80	9,54
	Intermed	8	0	0	0	9,333333333	0			
	Final	11,8	1	1	11,8	11,13333333	11,8			
	Total	28	0	2		28	20			
Exercise number 7	Initial	6,5	-1	1	-6,5	6,983333333	0,48	8,633333333	1,65	7,45
	Intermed	9,6	0	0	0	8,633333333	0,97			
	Final	9,8	1	1	9,8	10,28333333	0,48			
	Total	25,9	0	2	3,3	25,9	1,93			
Exercise number 8	Initial	7,4	-1	1	-7,4	7,116666667	0,28	9,466666667	2,35	3,98
	Intermed	8,9	0	0	0	9,466666667	0,57			
	Final	12,1	1	1	12,1	11,81666667	0,28			
	Total	28,4	0	2	4,7	28,4	1,13			

Table 8. The estimates of the values for the coefficients of variation in the case of the adjusted quadratic function, in the hypothesis regarding the parabolic evolution of the averages for the exercises no. 2-8

Tests	The phase of the test	The average $\bar{x}$	PARABOLIC TREND								
			t_i^2	t_i^4	$t_i^2 \cdot x_i$	$x_{ti} = a + bt_i + ct_i^2$	$\lvert x_i - x_{t_i}\rvert$	a	b	c	v (%)
Exercise number 2	Initial	7,8	1	1	7,8	7,8	0	9,2	1,95	0,55	0
	Intermed	9,2	0	0	0	9,2	0				
	Final	11,7	1	1	11,7	11,7	0				
	Total	28,7	2	2	19,5	28,7	0				
Exercise number 3	Initial	8,4	1	1	8,4	8,4	0	9,8	1,90	0,50	0
	Intermed	9,8	0	0	0	9,8	0				
	Final	12,2	1	1	12,2	12,2	0				
	Total	30,4	2	2	20,6	30,4	0				
Exercise number 4	Initial	8,6	1	1	8,6	8,6	0	10,1	1,75	0,25	0
	Intermed	10,1	0	0	0	10,1	0				

	Final	12,1	1	1	12,1	12,1	0				
	Total	30,8	2	2	20,7	30,8	0				
Exercise number 5	Initial	7	1	1	7	7	0	8,2	1,70	0,50	0
	Intermed	8,2	0	0	0	8,2	0				
	Final	10,4	1	1	10,4	10,4	0				
	Total	25,6	2	2	17,4	25,6	0				
Exercise number 6	Initial	8,2	1	1	8,2	8,2	0	8	1,8	2	0
	Intermed	8,0	0	0	0	8,0	0				
	Final	11,8	1	1	11,8	11,8	0				
	Total	28	2	2	20	28	0				
Exercise number 7	Initial	6,5	1	1	6,5	6,5	0	9,6	1,65	-1,45	0
	Intermed	9,6	0	0	0	9,6	0				
	Final	9,8	1	1	9,8	9,8	0				
	Total	25,9	2	2	16,3	25,9	0				
Exercise number 8	Initial	7,4	1	1	7,4	7,4	0	8,9	2,35	0,85	0
	Intermed	8,9	0	0	0	0	0				
	Final	12,1	1	1	12,1	12,1	0				
	Total	28,4	2	2	19,5	19,5	0				

Table 9. The estimates of the values for the coefficients of variation in the case of the adjusted exponential function, in the hypothesis concerning the exponential evolution of the averages for the exercises no. 2-8

Tests	The phase of the test	The average $\bar{x}$	EXPONENTIAL TREND								
			t_i	$\lg x_i$	$t_i \lg x_i$	$\lg x_{t_i} = \lg a + t_i \cdot \lg b$	$x_{t_i} = ab^{t_i}$	$\|x_i - x$	$\lg a$	$\lg b$	V (%)
Exercise number 2	Initial	7,8	-1	0,892094602	-0,892094602	0,886643801	7,7027144	0,10	0,97468943	0,088045629	1,67
	Interm.	9,2	0	0,963787827	0	0,97468943	9,4338600	0,23			
	Final	11,7	1	1,068185862	1,068185862	1,062735059	11,554072	0,15			
	Total	28,7	0	2,924068291	0,176091259		28,690646	0,48			
Exercise number 3	Initial	8,4	-1	0,924279286	-0,924279286	0,919581458	8,3096256	0,09	1,000621731	0,081040272	1,41
	Interm.	9,8	0	0,991226075	0	1,000621731	10,014326	0,21			
	Final	12,2	1	1,086359831	1,086359831	1,081662003	12,068742	0,13			
	Total	30,4	0	3,001865192	0,162080545		30,392694	0,43			
Exercise number 4	Initial	8,6	-1	0,934498451	-0,934498451	0,928097429	8,4741750	0,13	1,004028119	0,07593069	1,95
	Interm.	10,1	0	0,991226075	0	1,004028119	10,093182	0,29			
	Final	12,1	1	1,086359831	1,086359831	1,079958809	12,021504	0,18			
	Total	30,8	0	3,012084357	0,15186138		30,588861	0,60			
Exercise number 5	Initial	7	-1	0,84509804	-0,84509804	0,839347428	6,9079220	0,09	0,925315077	0,085967649	1,60
	Interm.	8,2	0	0,913813852	0	0,925315077	8,3782009	0,18			
	Final	10,4	1	1,017033339	1,017033339	1,011282726	10,263198	0,14			
	Total	25,6	0	2,775945231	0,171935299		25,549321	0,41			
Exercise number 6	Initial	8,2	-1	0,913813852	-0,913813852	0,883894538	7,6541072	0,55	0,962928615	0,079034077	9,00
	Interm.	8,0	0	0,903089987	0	0,962928615	9,1818166	1,18			

	Final	11,8	1	1,071882007	1,071882007	1,041962692	11,014447	0,79			
	Total	28,0	0	2,888785846	0,158068155		27,850371	2,52			
Exercise number 7	Initial	6,5	-1	0,812913356	-0,812913356	0,839647195	6,9126918	0,41	0,928803554	0,089156359	8,26
	Interm.	9,6	0	0,982271233	0	0,928803554	8,4879645	1,11			
	Final	9,8	1	0,991226075	0,991226075	1,017959913	10,422212	0,62			
	Total	25,9	0	2,786410664	0,178312719		25,822869	2,14			
Exercise number 8	Initial	7,4	-1	0,869231720	-0,86923172	0,860358873	7,2503483	0,15	0,967135698	0,106776825	2,68
	Interm.	8,9	0	0,949390006	0	0,967135698	9,2711946	0,37			
	Final	12,1	1	1,082785370	1,08278537	1,073912523	11,855299	0,24			
	Total	28,4	0	2,901407096	0,21355365		28,376842	0,76			

Table 10. The reflection of the models concerning the trends of the values for the calculated averages in the case of the tests regarding the optimization of the completion in football

Tests	The method concerning the coeficients of variation	The model of the trend
Exercise number 1	$v_{II}=0\%<v_{\exp}=1{,}67\%<v_I=2{,}61\%$	$x_{t_i}=a+b\cdot t_i+ct_i^2$ (parabolic trend)
Exercise number 2	$v_{II}=0\%<v_{\exp}=1{,}67\%<v_I=2{,}54\%$	$y_{t_i}=a+b\cdot t_i+ct_i^2$ (parabolic trend)
Exercise number 3	$v_{II}=0\%<v_{\exp}=1{,}41\%<v_I=2{,}20\%$	$z_{t_i}=a+b\cdot t_i+ct_i^2$ (parabolic trend)
Exercise number 4	$v_{II}=0\%<v_I=1{,}75\%<v_{\exp}=1{,}95\%$	$\omega_{t_i}=a+b\cdot t_i+ct_i^2$ (parabolic trend)
Exercise number 5	$v_{II}=0\%<v_{\exp}=1{,}60\%<v_I=1{,}70\%$	$\lambda_{t_i}=a+b\cdot t_i+ct_i^2$ (parabolic trend)
Exercise number 6	$v_{II}=0\%<v_{\exp}=9{,}00\%<v_I=9{,}54\%$	$\alpha_{t_i}=a+b\cdot t_i+ct_i^2$ (parabolic trend)
Exercise number 7	$v_{II}=0\%<v_I=1{,}65\%<v_{\exp}=8{,}26\%$	$\beta_{t_i}=a+b\cdot t_i+ct_i^2$ (parabolic trend)
Exercise number 8	$v_{II}=0\%<v_I=2{,}35\%<v_{\exp}=2{,}68\%$	$\xi_{t_i}=a+b\cdot t_i+ct_i^2$ (parabolic trend)

Table no. 11 The forecasts concerning the evolutions of the values for the averages calculated in the case of the tests regarding the optimization of the completion in football

Tests	The forecasts of the averages (t+1 period)
Exercise number 1	$x_{t_i}=a+b\cdot t_i+ct_i^2=9+1{,}95\cdot 2+0{,}55\cdot 2^2=15{,}1$
Exercise number 2	$y_{t_i}=a+b\cdot t_i+ct_i^2=9{,}2+1{,}95\cdot 2+0{,}55\cdot 2^2=15{,}3$
Exercise number 3	$z_{t_i}=a+b\cdot t_i+ct_i^2=9{,}8+1{,}9\cdot 2+0{,}5\cdot 2^2=15{,}6$
Exercise number 4	$\omega_{t_i}=a+b\cdot t_i+ct_i^2=10{,}1+1{,}75\cdot 2+0{,}25\cdot 2^2=14{,}6$
Exercise number 5	$\lambda_{t_i}=a+b\cdot t_i+ct_i^2=8{,}2+1{,}70\cdot 2+0{,}5\cdot 2^2=13{,}6$
Exercise number 6	$\alpha_{t_i}=a+b\cdot t_i+ct_i^2=8+1{,}80\cdot 2+2\cdot 2^2=19{,}6$
Exercise number 7	$\beta_{t_i}=a+b\cdot t_i+ct_i^2=9{,}6+1{,}65\cdot 2+(-1{,}45)\cdot 2^2=7{,}1$

Exercise number 8	$\xi_{t_i} = a + b \cdot t_i + ct_i^2 = 8,9 + 2,35 \cdot 2 + 0,85 \cdot 2^2 = 17$

CONCLUSIONS

- The research conducted at F.C. Otelul Galati team confirmed the efficiency concerning the methods and means used in trainings for to optimize the completion in football, because the results were positive, the progress between the initial and final tests being visible.
- In trainings, the following aspects should be focused: the quality of the passings in the previous phase of the shooting at goal; the fast in the execution concerning the shooting at goal; the preparation of the individual actions concerning the ingress; the preparation for the shooting at goal from stationary phases; the leadership of the ball in high-speed mode [1].

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