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**ANALYSIS OF PASSES PERFORMED  
BY FOOTBALL WORLD CUP WINNERS  
DURING THE FINAL MATCHES IN 1970-2010****Ihor CHORNOBAY, Olha MATVIYAS***Lviv State University of Physical Culture***АНАЛІЗ ВИКОНАННЯ ПЕРЕДАЧ М'ЯЧА ЧЕМпіОНАМИ СВІТУ З ФУТБОЛУ 1970 – 2010 РОКІВ.** Ігор ЧОРНОБАЙ, Ольга МАТВІЯС. *Львівський державний університет фізичної культури*

**Анотація.** Аналіз техніко-тактичних дій футбольних команд свідчить про високу варіативність показників передач м'яча [1, 2, 3, 4, 5 та інші], у зв'язку з чим, необхідно систематично накопичувати базу даних цих показників [1]. Серед опрацьованих літературних джерел ми не виявили наукових праць, де б порівнювалися показники виконання передач м'яча (коротких, середніх, довгих) чемпіонами світу у фінальних матчах 1970 – 2010 років. Мета дослідження полягає у визначенні розбіжностей кількісних та якісних показників виконання передач м'яча переможцями фінальних матчів чемпіонатів світу (ЧС) з футболу 1970 – 2010 років. Аналіз передач м'яча проводився за допомогою відеозаписів фінальних матчів ЧС 1970 – 2010 років. Установлено, що переможці ЧС виконували у фінальних матчах від 282 до 560 передач м'яча (брак виконання 11,78 – 26,95 %), у тому числі 160 – 318 коротких передач (брак 4,1 – 20,68 %); 65 – 184 середніх (брак 10,32 – 27,69 %); 36 – 85 довгих (брак 30,1 – 60,0 %). Найбільше коротких передач м'яча виконала збірна Іспанії 2010 року (318), середніх – збірна Бразилії 1994 року (184), довгих – збірна Франції 1998 року (85).

**Ключові слова:** передачі, брак, команда, чемпіонати світу.

**Setting of the problem.** A great number of practical and scientific workers have gone into details of technical and tactical actions in particular the passes performed by the football world cup winners [1, 2, 3, 4, 5 and so on]. The analysis of pass performance indices shows a great range of their variants and, therefore it is necessary to systematize them [1]. Passes are the largest part of technical and tactical actions performed during players' competitive activity [2]. Our research has been carried out according to the Scientific and Research Theme of the Department of Football in Lviv State University of Physical Culture in terms of 2011-2015. The united Department theme is 'Scientific and Systematic Principles of Footballers Training Improvement System in Terms of Competitive Activity Peculiarities' included to the General plan of Scientific and Research Work in the field of Physical Education and Sport of the National Department of Ukraine.

**Library resources.** The analysis of football passes in competitive activity of teams during the Euro-2004 showed that they take up over 50% of total number of all tactical and technical actions of skilled footballers [3]. In average top teams performed from 340 to 575 various ball passes during a game with a shortage from 22,4% to 36,5%. The correlation of various passes during a match is as follows: short passes – 50,4%; middle passes – 30,4%; long passes – 19,2% [3].

On exploring technical and tactical actions of "Karpaty Lviv" football team, O.V. Solomonko and I.J. Karpa stated in 2009 that passes have taken the largest number of technical and tactical ball actions in the general activity of footballers – 34,7% [2]. According to O.V. Solomonko and I.J. Karpa 2010, the average number of ball passes performed by players of "Karpaty Lviv" football team during a match is 270 (being changed from 345 to 200 passes); the coefficient of performance shortage – 30% (being changed from 14,2% to 31%) [2].

To the researches mind [4], expressed after the analysis of team's ball control during the 18<sup>th</sup> World Cup in Germany, the great number of passes is not a key point for winning. However, Spain, the present champion of the world and Europe, perform plenty of passes [5].

Having analyzed the competitive activity indices among teams participated in World Cup 1990 and 1994 finals, the author [1] suggests estimating the number of short, middle, long passes by points. A team that performed 200-210 short passes, 130-133 middle passes, 26-28 long passes ones

gains 1 or 2 points only. The average number of points (5 or 6) is given to a team accomplished 250-270 shorts, 144-147 middle, 34-36 long passes. A team that performed 340-350 short passes, 155-157 middle passes, 42-43 long passes deserves the highest estimation [1]. The paper presents the technical and tactical actions indices of the World Cup winners in the period from 1930 to 2002 [6].

According to the data [7], during the World Cup 1998 football teams of France, Brazil, Croatia, and Netherlands performed 88, 81, 75, 95 (accordingly) one-touch passes [7]. The winners of the World Football Cups in 1970-2010 performed from 95 (the national team of Brazil, 1994) to 31 one-touch passes during a final match (the national team of Italy, 1982) [8].

Having studied the library resources we couldn't find any scientifically based papers where comparison of football passes performance indices during final games among the World Cup winners in 1970 – 2010 would have been done.

The results of our research are expected to show the differences in football passes (short, middle, long) indices performed by the World Cup team-winners during eleven final matches and to promote further defining of technical and tactical action parameters of various (nations and years) world champions.

**The aim of our research** is to define the quantities and qualities differences in indices of passes accomplishing (short, middle, long) performed by the World Cup winners in 1970 – 2010.

**The tasks of the research.**

1. To define the quantity and quality indices of passes accomplishing (short, middle, long, and one-touch) performed by the World Cup winners in 1970 – 2010 on the basis of library resources and World Cup final matches video-records for further improvements of skilled footballers' training.

2. To define the differences in indices of passes accomplishing performed by the World Cup winners in 1970 – 2010.

**Methodology.**

1. Library resources analysis.

2. Technical and tactical actions analysis (video-records of matches).

3. Mathematical statistics.

4. Summing up the results of researches.

The research was carried out by using Hi-Tech video, computer, video-cassettes, DVD with records of the World Cup final matches 1970 – 2010. The analysis of passes accomplishing was done due to the "VLK media player" program.

**The research results.** The analyses of the football World Cup final matches video-records in 1970 – 2010 showed that largest number of passes (560) among all teams-winners was performed during normal playing time by football team of Brazil at the final match in 1994 (table 1).

The least number of passes (282) belongs to Brazil as well during the final game in 2002. The indices of other World Cup winners are within 480 – 317 passes (from 1970 to 2010).

The lowest percentage of passes shortage – 11.78% during playing time of Brazil team was observed in 1994 (table 1). The Brazil team's highest percentage of passes shortage – 26.95% was recorded in the final of 2002. The indices of other teams' shortage of passes are within 12.56% – 23.9%.

The largest number of short passes – 318 was performed by football team of Spain during the normal playing time at the final of the World Cup 2010 (table 1). The least number of short passes – 160 belongs to France in 1998. The indices of other teams' short passes are within 292 – 163.

The lowest percentage of short passes shortage – 4.1% was recorded at the final of the World Cup 1994 and belongs to Brazil (table 1). The highest percentage of short passes shortage – 20.68% was recorded in the final of 2002 and belongs to Brazil as well. The indices of other teams' shortage of short passes are within 5.43% - 11.9%.

The largest number of middle passes – 184 was performed by football team of Brazil during the normal playing time at the final of the World Cup 1994. The least number of middle passes – 65 belongs to Brazil as well in 2002. The indices of other teams' middle passes are within 146 – 89.

The lowest percentage of middle passes shortage – 10.32% and 10.37% was recorded at the final of the World Cup 1994 and 1970 accordingly and belongs to Brazil. The highest percentage of

middle passes shortage – 27.69% was recorded in the final of 2002 and belongs to Brazil as well. The indices of other teams' shortage of middle passes are within 23.14% - 12.35%. The largest number of long passes – 85 was performed by football team of France during the normal playing time at the final of the World Cup 1998. The least number of long passes – 36 belongs to Argentina in 1978. The indices of other teams' long passes are within 84 – 43.

Table 1

**Quantity and quality indices of passes performed by the Football World Cup winners during normal playing time in 1970 – 2010**

Team, year	Number of passes				Shortage of passes (%)			
	total	short	middle	long	total	short	middle	long
Brazil 1970	382	184	135	63	12.56	5.43	10.37	38.1
FRG 1974	317	163	92	62	17.66	7.97	18.47	41.93
Argentina 1978	339	176	127	36	22.1	10.2	13.4	44.4
Italy 1982	392	207	117	68	15.3	9.7	12.8	36.8
Argentina 1986	420	197	140	83	15.0	8.6	15.0	30.1
FRG 1990	432	224	146	62	14.8	8.9	13.7	38.7
Brazil 1994	560	292	184	84	11.78	4.1	10.32	41.66
France 1998	360	160	115	85	23.9	11.9	13.9	60.0
Brazil 2002	282	174	65	43	26.95	20.68	27.69	51.16
Italy 2006	339	190	89	60	15.33	7.89	12.35	43.33
Spain 2010	480	318	108	54	16.25	7.23	23.14	55.55

The lowest percentage of long passes shortage – 30.1% was recorded at the final of the World Cup 1986 and belongs to Argentina. The highest percentage of long passes shortage – 60.0% was recorded in the final of 1998 and belongs to France. The indices of other teams' shortage of long passes are within 36.8% - 55.55%.

During overtime in finals the team of Brazil accomplished the largest number of passes – 160 (with the lowest percentage of passes shortage – 10.62%) in 1994 (table 2). The least number of passes – 53 with the highest percentage of passes shortage – 30.18% (overtime).

Table 2

**Quantity and shortage indices of short, middle, long passes during extra playing time in 1970 – 2010**

№ п.п.	Team, year	Passes Number, Shortage (%)			
		Short	Middle	Long	Total
1.	Argentina 1978	35	8	10	53
2.		14.28	50.0	70.0	30.18
3.	Brazil 1994	103	34	23	160
4.		3.88	14.70	34.78	10.62
5.	Italy 2006	51	38	24	113
6.		11.76	18.42	50.0	22.12
7.	Spain 2010	82	39	17	138
8.		6.09	10.25	52.94	13.04

**Discussion of the results.** The largest number of football passes among all teams-winners of the World Cup in 1970 – 2010 during normal playing time was performed by the team of Brazil – 560 (in 1994) and the team of Spain – 480 (in 2010). The least number of passes (282) belongs to Brazil in 2002, which having chosen the tactics of defensive team play (5 defenders, 2 defensive midfielders), as the second number with long passes forward to the trio of “star attackers” won in the 2002 final using the mistakes of their rival [5].

The number of high indices of passes performed by world champions during final matches is observed. In particular, about all teams, except the team of Argentina – 36 long passes in 1978 performed more than 43 long passes, that is estimated as a high index according to H.A.Lysenchuk's

method 2004 [1]. Additionally, the team of Argentina – 1978 owned the least percentage of long passes shortage – 30.1%.

The high index of the number of middle passes during the normal playing time (184) belongs to the team of Brazil – in 1994. FRN 1990 has got the average index – 146 middle passes, as for other teams, their indices are lower than average and low ones. The least percentage of middle passes shortage was recorded during the matches of Brazil 1994 and Brazil 1970 and was 10.32% and 10.37% accordingly.

The team of Spain has got the high index and average index of short passes during the normal playing time in the final match of the World Cup 2010 (318 passes at low indices of passes shortage); Brazil has got an average index – 292 passes (in 1994). The least percentage of short passes during a match (4.1%) belongs to the team of Brazil in 1994.

**Conclusions.** The analysis of library recourses and video-records of the final World Cup football matches during the period from 1970 to 2010 showed that the World Cup winners performed within 282 – 560 passes (shortage 11.78% – 26.95%); including 160 – 318 short passes (shortage 4.1% – 20.68%); 65 – 184 middle (shortage 10.32% – 27.69%); 36 – 85 long passes (30.1% – 60.0%).

During the final matches almost every winner exposed high indices of long passes – 43 and more (according to the method [1]) and middle passes – Brazil 1994; short passes – Spain 2010 and Brazil 1994 (with low percentage of shortage). The shortage of passes increased during the final matches' overtime.

**Perspective investigations.** Defining the quantity and quality indices of football passes performed by the World Cup winners, European Cups, Championships of other continents, Ukrainian Prime League, and junior teams.

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### АНАЛИЗ ВЫПОЛНЕНИЯ ПЕРЕДАЧ МЯЧА ЧЕМПИОНАМИ МИРА ПО ФУТБОЛУ 1970 – 2010 ГОДОВ

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**Аннотация.** Анализ технико-тактических действий футбольных команд свидетельствует о высокой вариативности показателей передач мяча [1, 2, 3, 4, 5 и др.], в связи с чем, необходимо систематически накапливать базу данных этих показателей [1]. Среди обработанных

литературных источников мы не обнаружили научных работ, где бы сравнивались показатели выполнения передач мяча (коротких, средних, длинных) чемпионами мира в финальных матчах 1970 – 2010 годов. Цель исследования состоит в определении различий количественных и качественных показателей выполнения передач мяча победителями финальных матчей чемпионатов мира (ЧМ) по футболу 1970 – 2010 годов. Анализ передач мяча проводился с помощью видеозаписей финальных матчей ЧМ 1970 – 2010 годов. Установлено, что победители ЧМ выполняли в финальных матчах от 282 до 560 передач мяча (брак выполнения 11,78% – 26,95%), в том числе 160 – 318 коротких передач (брак 4,1 – 20,68%) 65 – 184 средних (брак 10,32 – 27,69%), 36 – 85 длинных (брак 30,1 – 60,0%). Больше коротких передач мяча выполнила сборная Испании в 2010 г. (318), средних – сборная Бразилии в 1994 г. (184), длинных – сборная Франции в 1998 г. (85).

**Ключевые слова:** передачи, брак, команда, чемпионаты мира.

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**Annotation.** The analysis of pass performance indices shows a great range of their variants and, therefore it is necessary to systematize them [1]. Having studied the library resources we couldn't find any scientifically based papers where comparison of football passes performance indices during final games among the World Cup winners in 1970 – 2010 would have been done. The aim of our research is to define the quantities and qualities differences in indices of passes accomplishing (short, middle, long) performed by the World Cup winners in 1970 – 2010. The research was carried out by using Hi-Tech video, computer, video-cassettes, DVD with records of the World Cup final matches 1970 – 2010. The analyses of the football World Cup final matches video-records in 1970 – 2010 showed that World Cup teams-winners from 282 to 560 ball passes (shortage 11,78 – 26,95%); short passes – 318–160 (shortage 4,1 – 20,68%); middle passes – 184 – 65 (shortage 10,32 – 27,69%); long passes – 85 – 36 (shortage – 30,1 – 60,0%).

The analysis of football passes in competitive activity of teams during the Euro-2004 showed that they take up over 50% of total number of all tactical and technical actions of skilled footballers [3].

**Key words:** passes, shortage, team, world championships.

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