

## THE ROLE OF VIDEO ANALYSIS ON THE ACCURACY OF THE PASS OF THE ATHLETES WHO PRACTICE THE VOLLEYBALL GAME

*Onesim Florin<sup>1</sup>*

<sup>1</sup>*Stefan cel Mare University of Suceava*

**Summary:** In this paper we tried to highlight the fact that the means obtained through video analysis can be defining in the qualitative increase of two-handed passes in the game of volleyball. The results obtained after the pedagogical approach confirmed the fact that the hypothesis from which it was started is valid and that the experiment was a success. The value of t control is better than t table.

**Keywords:** volleyball, passing in the game of volleyball, video analysis, experiment;

### ***Introduction:***

The progress that computers and their adjacent technology have made in recent years is indisputable and is noticeable by [3,6]. He states that the use of video analysis is an alternative to cinematography because the degree of accuracy conferred by video analysis is much higher.

The author [4] states that the notion of processing images and video elements arose due to the human need to be replaced by a machine that is able to perform the visual functions of any living thing. "Image processing holds the possibility of developing the ultimate machine that could perform the visual functions of all living beings".

[1,8] considers that in biomechanical analysis measurement errors are very important in the accuracy of subsequent results. The absolute error characterizes the quality of the measurement result and is given by the difference between the real value and the result obtained by measurement. The relative error is more significant and represents the ratio between the absolute error and the measured quantity (percent.) [2]

Specialists [5] 2002 p. 4 highlight the fact that the analysis of short movements gives thousands of samples to be collected, and to make a quantitative analysis must measure all biomechanical variables and run in a

computer capable of making large numerical calculations. Instead, they define qualitative analysis as "systematic observation and introspective judgment of the quality of human movement in order to provide the most appropriate intervention to improve performance." [7]

**Hypothesis:**

We started from the premise that by implementing in the game of volleyball the means characteristic of video analysis we will obtain results with greater accuracy in the pass with two hands from above and respectively the pass with two hands from below.

**Work tasks:**

Following this work we want:

- Analysis of the specialty literature regarding the new methods and means used;
- Assessment of the level of physical training and the quality of the procedures two-handed pass from above and two-handed pass from below;
- Theoretical and experimental argumentation and verification of the effectiveness of the proposed means;

**The methods** used in the experiment are: literature review, experimental method, graphical and tabular method, t-student.

**Material-method**

The research was conducted between August 2013 and June 2014 on a sample  $n = 15$  athletes gr. CSS experiment Nicu-Gane Fălticeni,  $n = 15$  athletes gr. control LPS Piatra-Neamț

The research consisted in the implementation in the preparation of the experiment group, during the experiment, a series of different means that resulted from the careful study of the experiment group through the video means.

Each technical process was divided into 5 phases:

1. fundamental position,
2. moving towards the ball
3. contact with the ball
4. the work of the arms

5. the work of the other segments and the completion of the procedure / accuracy.

Table 1. The results of the two tests regarding the level of the execution technique of the procedure “Pass with two hands from above in zone 2 of the ball thrown by the coach” respectively „ Pass with two hands from below in zone 2 of the ball thrown by the coach between the control group (n = 15) and the experiment group (n = 15)

TEAM	PHASE 1				PHASE 2				PHASE 3				PHASE 4				PHASE 5				TOTAL MISTAKES			
	Fundamental position				Moving to the ball				Contact with the ball				The work of the arms				The work of the other segments, the completion of the procedure /				CSS Nicu-Gane		LPS Piatra-Neamț	
	CSS Nicu-Gane		LPS Piatra-Neamț		CSS Nicu-Gane		LPS Piatra-Neamț		CSS Nicu-Gane		LPS Piatra-Neamț		CSS Nicu-Gane		LPS Piatra-Neamț		CSS Nicu-Gane		LPS Piatra-Neamț		CSS Nicu-Gane		LPS Piatra-Neamț	
	I.T.	F.T.	I.T.	F.T.	I.T.	F.T.	I.T.	F.T.	I.T.	F.T.	I.T.	F.T.	I.T.	F.T.	I.T.	F.T.	I.T.	F.T.	I.T.	F.T.	I.T.	F.T.		
Pass with both hands from above in zone 2 of the ball thrown by the coach	6	4	6	5	6	4	5	5	50	3	4	3	6	4	5	5	6	5	6	5	306	235	291	242
Pass with both hands from the bottom in zone 2 of the ball thrown by the coach	4	4	4	4	6	5	6	5	63	4	6	58	6	4	5	5	6	4	6	5	299	241	290	268

Analyzing the samples provided to us by the technical equipment, we managed to find the exercises necessary for the development of the deficient area. We implemented these exercises during the training and gradually the results were observed.

To a large extent these exercises are not new but are well structured and applied where needed. We find exercises for physical development, for the development of motor qualities, for precision, technical development, etc.

**Research results:**

At the beginning of the pedagogical approach, we performed an initial test where, broken down into the five phases, we quantified the mistakes. Then at the end of the experiment we performed the final test and recorded the following results

Below I present the final statistical results obtained by both groups following the final test at the technical procedure "Pass with two hands from above in zone 2 of the ball thrown by the coach"

The value increase of the arithmetic mean for the two tests in the experiment group is 14.2, the control group obtaining 10.8.

From the analysis of the dispersion indicators we find that the standard deviation in the experimental group is more valuable  $\sigma = 6.59$  than the obtained by the control group  $\sigma = 7.56$ .

The average error characteristic of the experiment group is  $\pm m = 2.95$ , better than that obtained by the control group  $\pm m = 3.39$ .

Coefficient of variability of the experiment group at the final test  $Cv=14.1$  compared to the control group that obtained  $Cv=15.6$ .

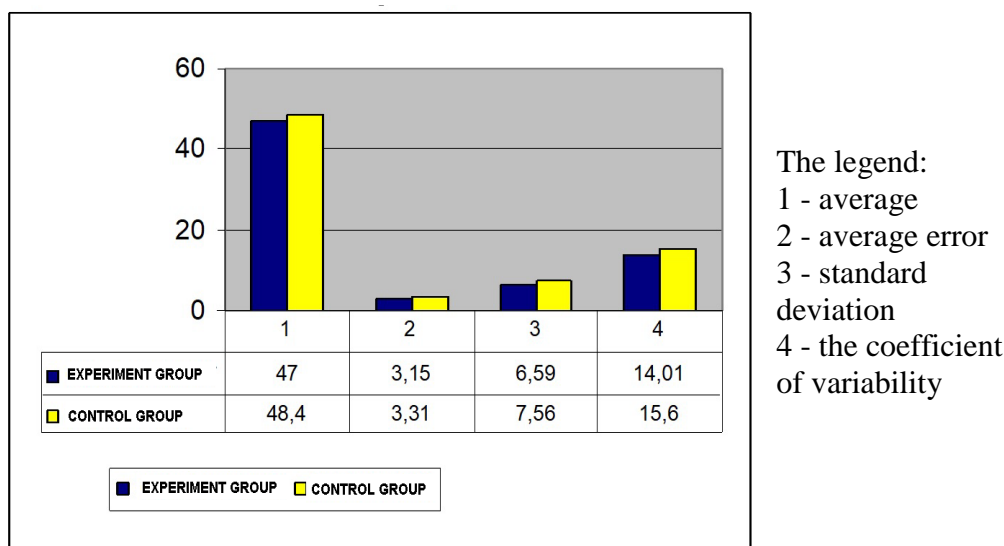


Figure 1 Comparative results obtained by the two groups at the final test the procedure "Pass with two hands from above in zone 2 of the ball thrown by the coach"

Below I present the final statistical results obtained by both groups following the final testing of the technical procedure "Pass with two hands down in zone 2 of the ball thrown by the coach".

The value increase of the arithmetic mean for the two tests in the experiment group is 11.6, the control group obtaining 4.4.

Table 2, Parallel on the results obtained by the two groups at the final test

<b>N</b> <b>R</b>	<b>1 Pass with both hands from above in area 2 of the ball thrown by the coach</b>													
	<b>2 Pass with both hands from the bottom in zone 2 of the ball thrown by the coach</b>													
	<b>X</b>				<b>± m</b>				<b>σ</b>				<b>C<sub>v</sub></b>	
	<b>E</b>		<b>M</b>		<b>E</b>		<b>M</b>		<b>E</b>		<b>M</b>		<b>E</b>	<b>M</b>
	<b>I.T.</b>	<b>F.T.</b>	<b>I.T.</b>	<b>F.T.</b>	<b>I.T.</b>	<b>F.T.</b>	<b>I.T.</b>	<b>F.T.</b>	<b>I.T.</b>	<b>F.T.</b>	<b>I.T.</b>	<b>F.T.</b>	<b>I.T.</b>	<b>F.T.</b>
<b>1</b>	61,2	47	59,2	48,4	3,15	2,95	3,31	3,39	7,04	6,59	7,39	7,56	14,01	15,6
<b>2</b>	59,8	48,2	58	53,6	3,11	2,35	3,05	2,69	6,94	5,26	6,81	6,02	10,91	11,23

Legend

E - Experiment group    M – witness group    I. T. – initial testing F. T. – final test     $\bar{x}$  - arithmetic mean  
 ± m – average error                      C<sub>v</sub> - coefficient of variability    σ – standard deviation

From the analysis of the dispersion indicators we find that the standard deviation in the experimental group is more valuable  $\sigma = 5.26$  than the one obtained by the control group  $\sigma = 6.02$ .

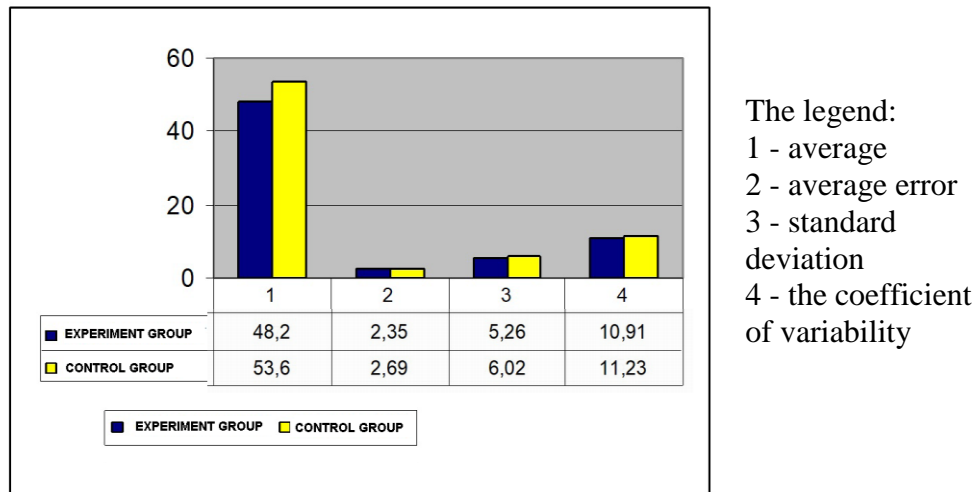


Figure 2 Comparative results obtained by the two groups at the final testing of the procedure "Pass with two hands from the bottom in zone 2 of the ball thrown by the coach"

### **Conclusions:**

Analyzing comparatively the results obtained by the two groups at the final test we can see that at all stages of the process the experiment group obtains better results, which shows that the means used in the experiment were favorable.

The hypothesis from which it started proved to be viable, both the objectives and the tasks were successfully fulfilled, consequently it is necessary to implement this method in the daily use of volleyball coaching teachers.

### **References:**

- 1., [1] Budescu, E., Iacob, I., Bazele biomecanicii în sport, Editura Universității Al. I. Cuza, Iasi 2005
2. [2] Constantin, V., Prelucrarea și analiza imaginilor, Editura Printech, București, 1999
3. [3] Dragnea, A. Antrenamentul sportiv , Editura Didactică și pedagogică , bucurești , 1996
4. [4] Jain, A., K., Fundaments of the digital image Procesing Prentice , Hall, Englewood Cliffs NJ, 1989
5. [5] Knudson, D., V., Morrison C., M., Qualitative analzsis of human movement (2 nd. Ed.) Champain, IL Human kinetics 2002
6. [6] Triboi, V., Păcuraru, A., Teoria și metodologia antrenamentului sportiv, Editura PIM, Iași 2013
7. [7] Tschiene O. Ciclul anual de pregătire. In: Revista Sportul de performanță, Nr. 253, București, 1986, 20-23
8. [8] Zota A., Melinte V. Unele aspecte privind dezvoltarea anatomo-funcțională a calităților motrice la elevi. Bucuresti, În: Revista de Educație Fizică și Sport. Nr. 11, p. 59-65

**Rezumat:**

În aceasta lucrare am încercat să scot în evidență faptul că mijloacele obținute prin intermediul analizei video pot să fie definitorii în creșterea calitativă a paselor cu două mâini din cadrul jocului de volei. Rezultatele obținute în urma demersului pedagogic au confirmat faptul că ipoteza de la care s-a plecat este validă și că experimentul a fost un succes. Valoarea lui  $t$  control este mai bună decât  $t$  tabelar.

**Cuvinte cheie:**

Volei, pasa în jocul de volei, analiza video, experiment;