



## CONTRIBUTIONS REGARDING THE OPTIMIZATION OF PHYSICAL TRAINING IN HIGH SCHOOL BASKETBALL

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### Abstract

*Aim.* It is supposed that the application of a physical training program over 10 weeks can improve the capacity and will positively influence the course at high school basketball player.

*Methods.* We proposed that this research be in the form of experiment and implement a system of general and specific exercises in order to develop physical training of high school basketball player.

*Results.* Results obtained by statistical calculation performed demonstrates that the program applied was efficient, being structured methodical, with a good selection and dosing of exercises used.

*Conclusions.* Following physical training program conducted over the 10 weeks of Decebal High School basketball team in Constanta, statistical calculations of initial and final testing enables us to say that basketball players have physical training significantly improved. Player performance of initial and final testing increased growth standing at a significance level of  $p < 0.005$ . These data show an improvement in the performance of players from all samples, which makes the program can be effectively used to the physical, and in particular the driving force capacity, speed, and their combinations.

*Key Words:* high school basketball, experiment, physical training, 10 weeks.

### Introduction

Basketball is popular performance it pursues the efforts of all involved in preparing junior teams.

Driving qualities are "qualities of body, resulting in the ability to perform certain actions motion indices strength, speed, skill and strength."

Driving qualities were defined as "qualities of movements" and were addressed in the context of the driving ability of man as one of its basic components. (Dragnea, Teodorescu, 2002)

Motor skills is a quality essential muscle activity expressed through acts conditional on the morphological structure motive and mental capacities. (Gevat, Larion, Popa, 2007)

Speed is man's ability to perform the movements in a short time. In terms cinematic speed is a dimension of space-time relationships ( $V = S / T$ ). Any movement is carried out in a determined time and space, including human movements. (Predescu, Ghitescu, 2001)

A basketball player quickly move smoothly, explosives and effortlessly around the land, while others tend to rush their actions in an improper time. Speed is crucial but just as crucial is to be used and when.

Accelerating the movement is not easy but it

is possible for a player to become more efficient and explosive movement. It can achieve this by dividing action and then doing it separately.

When these parties will unite the action will be improved. Using every part of the whole movement can increase power by eliminating weaknesses.

This improvement can be achieved through plyometric training (<http://sportsmedicine.about.com/od/sampleworkouts/a/Plyometrics.htm>).

Strength is the ability of the body to make efforts to win, maintenance or disposal in relation to external or internal resistance, by contraction of one or more muscles. (Stanculescu, 2009)

The concept of force is determined by the force of muscle contraction in his dealings with the motion at rest and specific driving actions. (Predescu Negulescu, 1994)

The main manifestation is the force as a matter of speed. The terms most commonly used for force-velocity are "explosive force". It is the individual's ability to engage in the effort, in a short time, a greater number of neuromuscular units. (Predescu, Ghitescu, 2001)

Plyometric exercises and the difficulty to

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match driving skills acquired.

Variety of these exercises will help prevent boredom and fatigue that can occur during exercise. Choosing the optimal intensity requires a great deal of attention. Plyometric exercises require extremely body and therefore must follow an appropriate program with exercises gradually moving from the mild to the most difficult (Negrea, Negrea, Teodor, 2010).

Strength in speed or detention regime is a combination of quality basic motive found in many branches of sport. Manno (1996) asserts that "force-velocity athlete is characterized by the ability to overcome resistance with a high shrinkage rate". A key part of the methods used is to greatly increase execution speed by engaging a larger number of muscle fibers in simultaneous action.

During the game plays a very important expansion. This manifestation of force is defined as the ability of muscle groups to develop maximum force in the shortest possible time.

Combined motric abilities play an important role in the game of basketball. Analytical presentation of the development of each driving qualities required by the general training objectives, which did not disappear from workout economy. But considerable increase in the specific role of training required by increasing the number of international sports competitions and implicitly of the national training of specialized content and methodology in accordance with the needs competition.

Any motor gesture involves competition, and especially in preparing a mixture in an amount difficult to distinguish from strength, stamina, speed, flexibility and skill.

Everything depends on the orientation of the direction of training, then selection means dosage - load (force), rapidity of movements (speed), length and number of repetitions performed within it (strength). Size inverse relationship between the strength, speed and durability makes these metrics are generally medium or variations (plus-minus) insignificant compared to the average.

Most of the movements are very complex sport and as such the role of force necessary to be considered as the main mechanism in the execution of movements of skill and action sports.

Force development is not only to be strong. On the contrary, the purpose of force development is to serve the specific needs in a particular sport (more perhaps for any other sports game in basketball), to develop specific force or its combination, to increase

the performance of athletes at the highest level possible.

Except in the speed, cyclic sports are characterized as endurance sports. This means that the resistance is either dominant or a very important role in every sport. On the other hand, can often be associated acyclic sports speed-power. However, basketball is more complex, requiring speed, power and resistance.

### Methods

The research was conducted in representative basketball team Lyceum Decebal Constanta. Venue of the research was in Lyceum Decebal court, equipping the hall allowing the experiment properly.

Subjects were 10 components representative basketball team Lyceum Decebal Constanta. These subjects were undergoing training to improve physical training over a period of 10 weeks, with 2 workouts per week. This team is comprised of boys aged between 16 and 19 years.

I focused on the development of physical preparation of the players, because we felt that this aspect is deficient, physical training constituted the basis on which other components of training.

Samples were measured performance of the entire team at the beginning of the training and also at the end they were:

- Criss cross
- Vertical jump
- 30 m speed,
- long jump

Each sample was supported twice by the subjects maintaining only the best performance in the initial and final tests.

The population was characterized by values central tendency estimate, so in our research mention mean and standard deviation below the formula  $\bar{x} \pm Ds$  and coefficient of variation that reflects the homogeneity of the group of subjects.

Differences between populations values were obtained by applying T test dependent (correlated) low volume. Differences were considered significant for the following thresholds of significance:  $p < 0.05$ ;  $p < 0.01$ ;  $p < 0.005$ ;  $p < 0.0005$ .

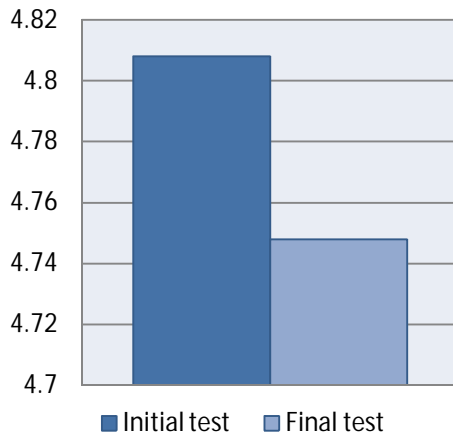
### Results

After applying the two tests, analysis and interpretation of results emerged following tables and graphs.

Table 1. Table of statistical data at the speed of 30 m sample

Speed of 30 m		
	Initial test	Final test
X	4,808	4,748
DS	0,185	0,200
Cv	3,85%	4,21%
t	4,196	
p	p<0,005	

Chart 1. Graphical representation of averages obtained at the speed 30 m

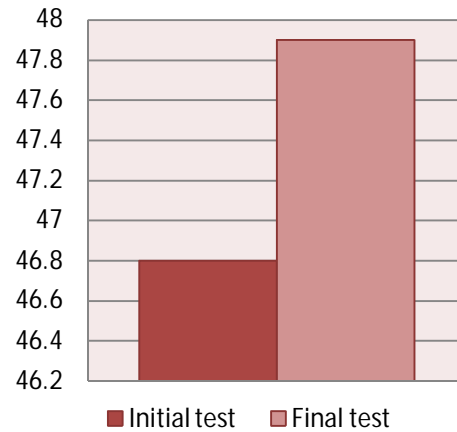


Looking at Table 1, we see that the speed at 30 m sample, statistical calculation of average performances between the initial and final testing, shows a value of "t" of 4,196 (significant difference,  $p < 0.005$ ). Coefficient of variation values below 10% indicate a high homogeneity.

Table 2. Table of statistic data on the vertical jump test

Vertical jump		
	Initial test	Final test
X	46,8	47,9
DS	5,514	5,131
Cv	11,78%	10,71%
t	4,714	
p	p<0,005	

Chart 2. Graphical representation of averages obtained at vertical jump

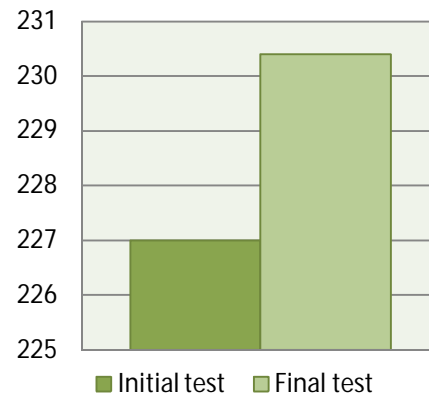


The vertical jump test, as shown in the table 2 statistical calculation results of the initial and final testing within the team, shows a value of "t" of 4,714 (significant difference,  $p < 0.005$ ). The values of the coefficient of variation between 10% and 20% indicates an average batch homogeneity subjects.

Table 3. Table of statistical data to prove the long jump

Long jump		
	Initial test	Final test
X	227	230,4
DS	10,176	9,312
Cv	4,48%	4,04%
t	5,205	
p	p<0,0005	

Chart 3. Graphical representation of averages obtained in long jump

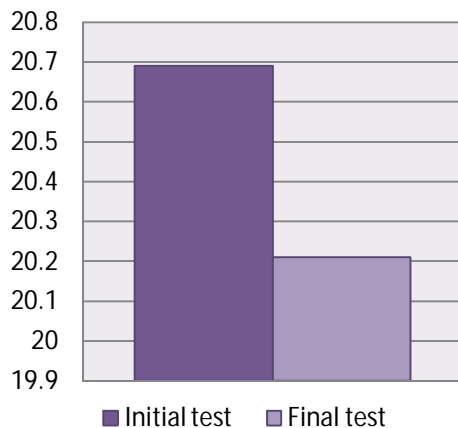


To test the long jump, as can be seen from Table 3, the statistical calculation of average performances of the initial testing and the final one in the whole team, shows a value of "t" of 5,205 (significant difference,  $p < 0,0005$ ). Coefficient of variation values below 10% indicate a high homogeneity of the group of subjects for this sample.

Table 4. Table of statistical data to the "criss cross" test

Criss cross		
	Initial test	Final test
X	20,693	20,218
DS	0,851	0,544
Cv	4,11%	2,69%
t	4,466	
p	$p < 0,005$	

Chart 4. Graphical representation of averages obtained at the "criss cross"



The analysis of Table 4, we can see that the "criss cross" test statistical calculation of the performance of the entire team of the initial and final testing, shows a value of "t" of 4,466 (significant difference,  $p < 0.005$ ). Coefficient of variation values, below 10%, shows a high homogeneity of the experimental group.

### Discussion

In the opinion of specialists, a very important role in preparing athletes is assigned catităților-speed force, because a high level of driving these qualities contribute urgently to increase sports performance (Vittori, 1996).

Development speed to basketball, using different methods of training using exercises that combine resistance to external factors with normal conditioning. (Predescu, Ghitescu, 2001)

Player performance between initial and final testing increased, which is revealed in graphs and tables, the increase stood at a significance level of  $p < 0.005$ .

These data show an improvement in the performance of players at all the evidence, which makes the program to be used effectively in physical development, and in particular the driving force capacity, speed and combinations thereof.

### Conclusion

Following physical training program conducted over the 10 weeks of the basketball team Lyceum Decebal Constanta, statistical calculations of initial and final testing enables us to say that basketball players have improved significantly physical training.

Actual basketball game became very athletic and physical training should be the starting point in preparation.

By then it will depend on other components of training, players can not have the same effectiveness throughout a match. Given that the two teams will be well prepared in terms of technical and tactical, physical training will always do all the difference.

Therefore most matches in the national championships are balanced in the first match, the difference being made in the second half, one reason being a better physical training.

Physical training is highlighted and balanced matches in tense endings of parties when mental preparation plays an important role. Much more lucid and more effective is a player who is physically higher, knowing that physical training and psychological preparation positive influence.

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