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Original article

STUDY ON THE LEVEL OF SPECIFIC PHYSICAL TRAINING IN JUNIOR II HANDBALL PLAYERS

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Abstract

Aim. Currently, there is a general concern to streamline and modernize the strategies that lead to the achievement of specific motor skills in handball players that can be quantified with the help of some indicators of verification and measurement (tests and trials specific to this age category – juniors II).

The entire training base for improving the general and specific motor capacity of female junior II handball players involves numerous concerns and complex ways of acting, essentially the decisive factor being realized from their performance program.

Methods. The application of some training (preparation) programs that contain mostly plyometric exercises, which are practiced according to extremely elaborated programs, during training at the level of junior II handball players, will lead to an increase in the specific strengths of some technical-tactical gestures that the handball game comprises. The muscle training programs with a predominant content of plyometric exercises, were designed according to the technical-tactical gestures component of the handball game, with well-planned calculated effects on all training periods, specific to the physical training process.

Results. Muscle training at the level of junior handball players II in Romania has sufficient deficiencies in practical applicability reflected on handball performances at the national level. This is confirmed by the conception and practical application of plyometric programs, personal contribution, through the comparison of the results partially obtained on the experimental sample, with those of the control sample, undergoing training according to the traditional concept.

Conclusion. The planning of muscle training programs through plyometric exercises has a crucial role in the effects that are expected to be manifested in certain percentages within the competition.

Keywords: handball, specific physical training, plyometrics.

Introduction

In modern handball, a high-performance sport, „the activity of handball players is approached as a team, maintaining the presence of many specialists: coaches, physical trainers, physical trainers, physiotherapists, psychologists, nutritionists, doctors, etc.” (Mihăilă, 2006).

„In modern sports training, the improvement of specific and general motor capacity by using plyometrics is achieved through a complex, systemic process” (Mihăilă, 2004).

„The goal is to find certain training (preparation) programs that contain mostly plyometric exercises, which are practiced according to carefully developed programs” (Bompa, 2003), during junior II handball training, leading to an increase in the specific strength of some technical-tactical gestures that are part of the handball game.

The objectives of the experimental investigations are to identify the models of muscle training programs with a predominant content of plyometric exercises designed on technical-tactical gestures, components of the handball game, with the aim of optimizing the explosive force specific to cadet handball players and the choice of general and specific physical tests and tests for cadet handball players, which do not convey the image on the level of their specific physical training.

Hypothesis: if the training of the junior II handball game is reorganized on the basis of the planning and programming of simple plyometric means, within the training lessons, both the level of muscle training specific to this category of players will improve, as well as the homogenization of the competitive game in the attack and defense phases.

Methods

The primary purpose of this experimental process is to provide a clear argument for the importance of the use of plyometrics in improving specific physical training in junior II handball players. I present initial preliminary examples of the expected consequences of training on actions and motor acts specific to the game of handball.

Practically, in this experiment, the goal is to find certain training (preparation) programs that contain mostly plyometric exercises, which are practiced according to carefully developed programs, during training at the level of junior

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II handball, leading to an increase in the specific strength of some technical-tactical gestures that are part of the handball game.

Theme: strength + technique

Objective: To develop specific strength in the lower limbs.

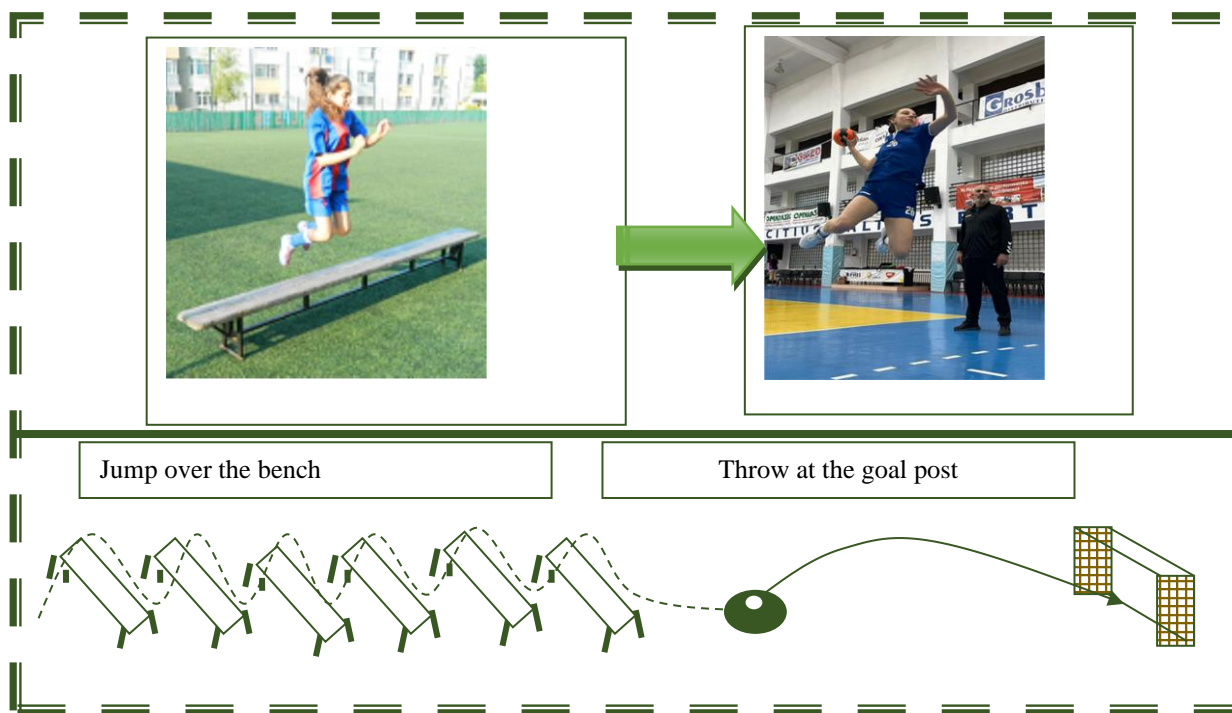


Figure 1. Specific physical training program model

Number of players: 16 players

Description: Jumps from two feet to two feet over the bench + throw at the goal.

Dosage: 3 sets X 6 jumps over the gymnastic bench + 5 throws at the goal.

Variants:

- jumping from one leg to another over the gymnastic bench + throw at the goal.
- jumping on one leg over the gymnastic bench + throw at the goal

Methodical indications:

- the body is kept in a vertical position and the knees are bent forward;
- landing is done on the front part of the foot;
- the arm swing is done.

Results

The experimental group comprised juniors from the Sports Program High School, Slatina, corresponding to their age level.

The control group also consisted of juniors of the same age who worked according to the regular practice schedule.

Following the statistical processing of the data, the statistical calculation performed separately for each control group led us to the following conclusions:

1. For P_1 , $t=12,936$

a) We find this value at a significance threshold of less than 0.01; therefore, the difference being very significant, the null hypothesis is rejected, so that we can state a probability of over 99%.

b) In this sample, by analyzing the results obtained from the coefficient of variability, we found that the two groups are homogeneous, with values below 10%.

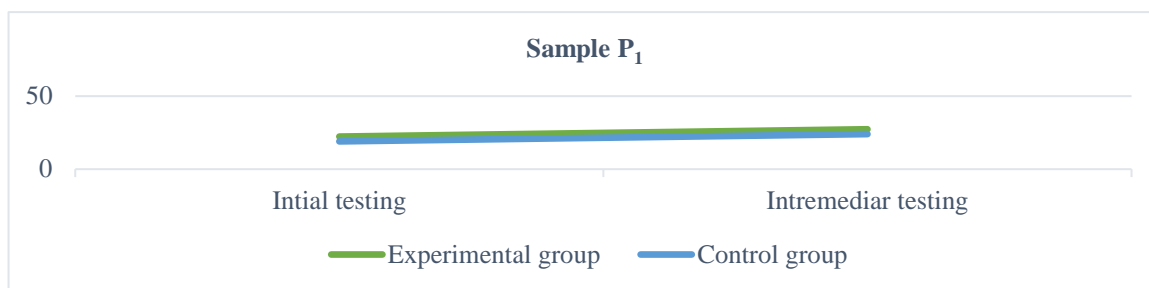


Figure 2. Graph of average results obtained at sample P1

1. For $P_2, t=6,111$

a) In this sample, we found for the threshold of significance $t=6.111$, a confidence percentage of 98 - 99%, chance acting only in a percentage of 1-2% on the results obtained by the experimental group.

b) Having in the experimental group $C_v=11,230$ and in the control group $C_v=10,380$ we can say that both groups are relatively homogeneous.

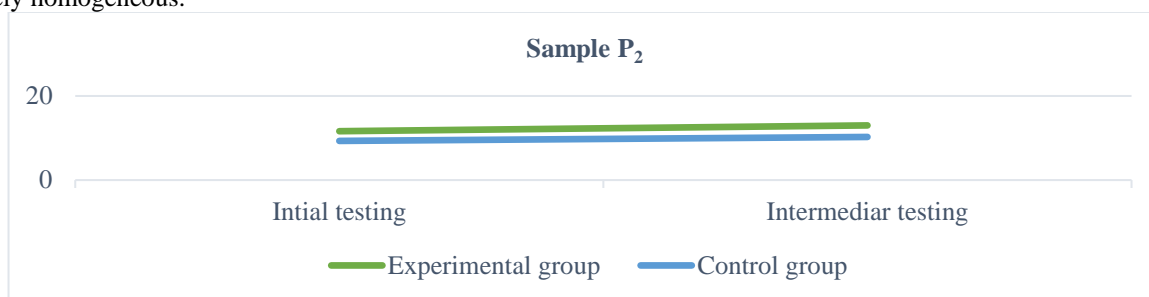


Figure 3. Graph of average results obtained at sample P2

2. For $P_3, t=11,678$

a) From Fischer's table, corresponding to a number of 15 (n-1) subjects and at a significance threshold of less than 0.01, it can be seen that the speed at exits and withdrawals between 6 m and 9 m, in the experimental group is superior to that in the control group.

b) The coefficient of variation leads us to state that the two groups are homogeneous.

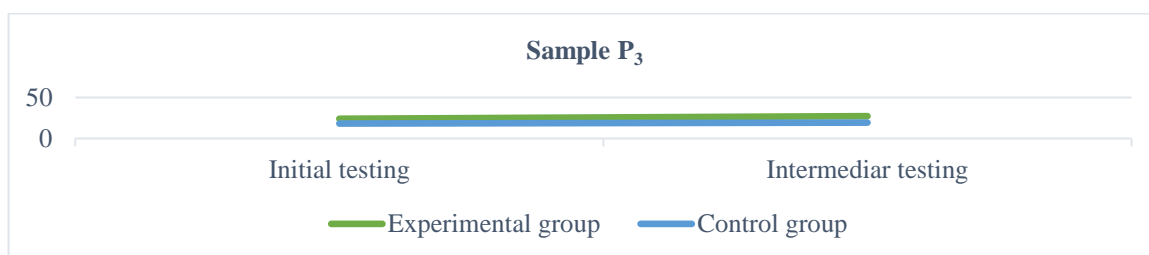


Figure 4. Graph of average results obtained at sample P3

3. For $P_4, t=7,619$

a) For this value of "t" we have the threshold of significance between 0.05 - 0.02. As such, in the application of the means chosen by us, it leads after a sufficiently long time to insignificant differences with a risk factor of 10 - 20%. This means that the existing difference is also due to the set of applied procedures.

b) In this sample, by analyzing the two results of the coefficient of variability, it is found that the two groups are homogeneous.

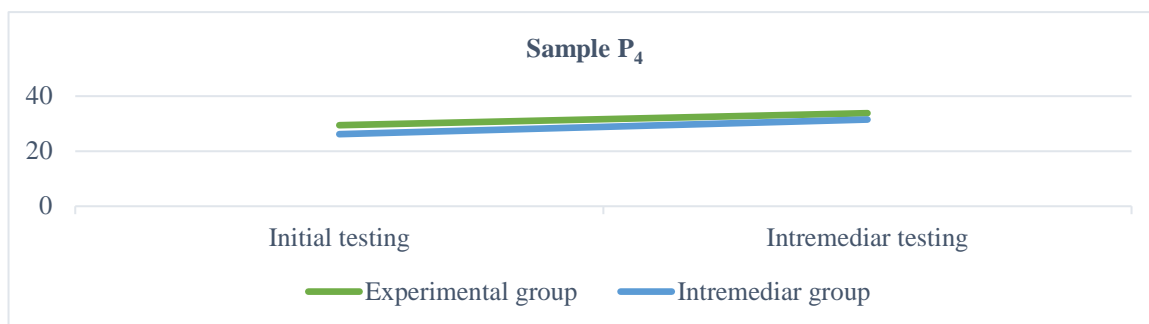


Figure 5. Graph of average results obtained at sample P₄

4. For P₅, t=11,403

- We find this value at a significance threshold of less than 0.01, so the difference is very significant and it can be stated with a probability of 99% that the speed of movement in this sample has increased a lot.
- Since the coefficient of variability does not exceed 10%, we can deduce that the two groups are homogeneous.

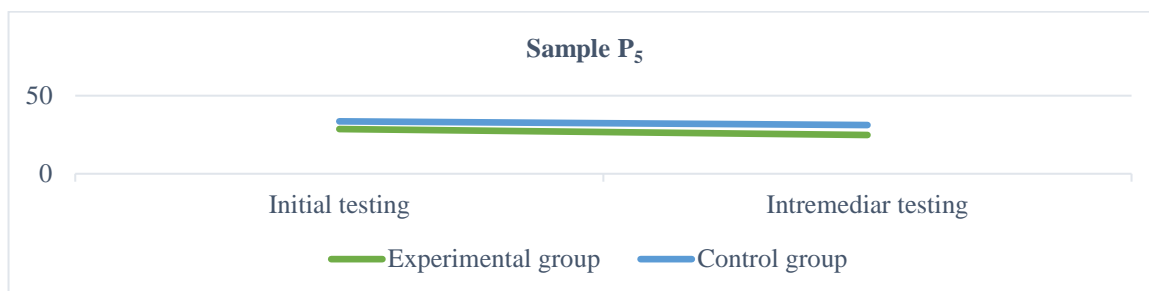


Figure 6. Graph of average results obtained at sample P₅

5. For P₆, t=10,667

- We find the value of "t" in the significance range between 0.01 -0.02. The specific hypothesis is accepted, chance acting only in a percentage of 1-2% giving a confidence percentage of 95-97% to the set of means applied.
- Analyzing the coefficient of variability, we deduce that the groups are homogeneous.

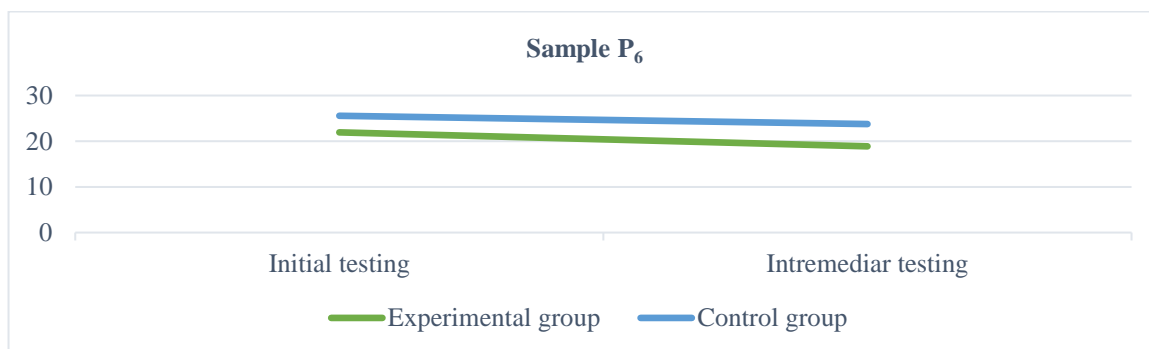


Figure 7. Graph of average results obtained at sample P₆

6. For P₇, t=9,581

- We find the value of "t" in the significance range between 0.01 -0.02. Chance acts in a percentage of 1-2% giving a confidence percentage of 95-97% to the set of means applied.
- Analyzing the coefficient of variability that does not exceed 10%, we deduce that the groups are homogeneous.

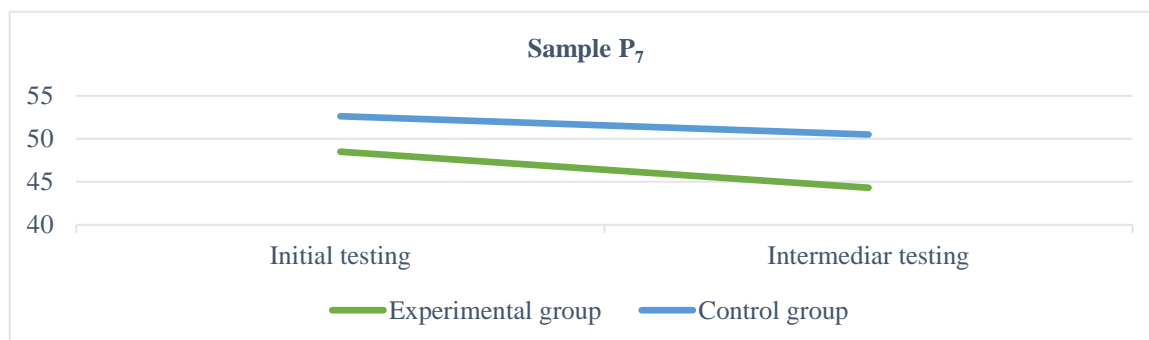


Figure 8. Graph of average results obtained at sample P₇

Discussions

In the game of handball, we consider the individualization of training or work on moments and areas of the field to be necessary due to the following factors: the fundamental requirements of the game of handball at the level of junior handball players, the demands of the game model, the particularities of the junior player, the level of training and the competition in which she participates, specific game tasks, conditions imposed by the technical management, accidents and illnesses, aspects also specified by Mihăilă, (2006); Simion, Mihăilă, & Stănescu, (2011).

Conclusions

We consider the muscle training programs with a predominant content of plyometric exercises, designed to transfer the explosive force in the technical-tactical gestures specific to junior II handball players (the ideal age considered by the specialists in the field, for the application of plyometric platforms specific to sports games), as having a qualitative importance on improving the specific strength capacity and implicitly the technical-tactical capacity of the game. The planning of muscle training programs through plyometric exercises had a particularly important role on muscle training through plyometric exercises, with exercise structures having appropriate dosages, specific to the technical-tactical acts and actions that are components of the handball game.

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