

Improving The Methods Of Training And Selection Of Female Handball Players

Andrei Bitang^{1*}, Rodica Lucian², Ilia Iosif¹, Corina Ramona Dulceanu¹, Gyongyi Osser¹,

Narcis Julien Herlo¹, Claudiu Octavian Bulzan¹, Gabriel Roberto Marconi¹, Caius Calin

Miuța¹, Osser Brigitte¹, Viorel Bitang¹.

¹ Aurel Vlaicu University of Arad, Faculty of Education Physics and Sport, E. Dragoi Street

no. 2 Arad, Romania,

² Inspectorate School Arad County, Arad, C. Coposu street no.26, Romania.

Correspondence: bitswimm@yahoo.com

Abstract

The theory and methodology of physical education and sports is the science that studies the laws of physical education and sports. Handball is a means of physical education, because it contributes to improving health, harmonious physical development, the development of motor and mental qualities, as well as the acquisition of motor skills. In order to achieve high results, it is necessary to practice it within sports teams in which the training work must be well planned and carried out on a scientific basis. The road to the heights of sports mastery is difficult, requires a lot of work and very careful and, above all, continuous training. However, mastery is achieved faster than in other sports games. The purpose of this work is to develop and experimentally implement a training program that includes proprioceptive means, oriented towards optimizing the means of training and selection of players for the game of handball, juniors III, in order to maximize the use of performance skills. The results obtained in the physical assessment are very good, which indicates that, in the physical training and selection process, means and exercise structures appropriate to the children's age were used.

Keywords: motor qualities, methods, means, physical training, program.

Introduction

The game of handball is in a continuous development , recording a dynamic of improvement continue , whether it is words about activity Competition or the training one , there is always one more element much or may little absolutely innovative , the game being update and permanently adapted to the parameters superiors , thus improving and FORWARD continuously (Alexe Nicu, 2002).

primary reason why I chose this topic consists in the fact that one of the trends Actuator is introduction into the framework training programs for some means specific , with character proprioceptive , having as its objective A better index specific neuromuscular coordination and static balance and dynamic from an early age early (Bompă Teodor O., 2001).

From a theoretical point of view, the work highlights proprioceptive means for the purpose of optimizing the means of training and selecting players for the game of handball, juniors III, women's handball (Bota Ioan. Maria Bota, 1987).

The present work aims to develop and experimentally implement a training program that includes proprioceptive means, oriented towards optimizing the means of training and selection of players for the game of handball, juniors III, in order to maximize the performance skills (Cârstea G., 1993).

Each sport branch has a specific content of general physical training, an aspect determined by the factors necessary for practicing the sports branches, namely the dominant motor qualities, the necessary motor skills and habits. (Simion G. Stănculescu G., Mihăilă I., 2011, P.119).

Defensive play requires superior physical training. This is due to the fact that the rhythm of the game is set by the attacking team, and the defending team must adapt to this rhythm. Another factor that supports this idea is that the ball moves faster than the players (Cârstea, Gh., 1999) .

The factors underlying handball training are (Colibaba, DE, Bota, I., 1998) :

- *physical training* - general and specific;
- *technical training* - learning, consolidating and improving technical elements;
- *tactical preparation* - execution of technical elements in conditions of collaboration with teammates and opposition from opponents, in order to obtain superior performance;
- *psychological preparation* – approaching the competition in optimal psychological conditions;

- *theoretical and methodological training* – acquiring specific knowledge and information regarding the rules of the game, organizing competitions, the history of the handball game, exercise hygiene, recovery after exercise.

These factors, which influence each other, are directly related to the degree and level of training of each team (Dragnea A., Bota A., (1999) .

The theory and practice of sports training show us that (Dragnea Adrian, 2006) :

- learning, consolidating and perfecting technical elements requires a large volume of activity;
- the intensity of effort is the factor that favors the body's adaptation to specific physical demands;
- The complexity of the means used contributes to the specific training of players, which is achieved by transposing them into conditions as close as possible to those of the game.
- The game of handball requires players to move correctly on the court, to be precise in handling the ball in order to collaborate with partners in a limited and crowded space, through simple and complex movements, with and without the ball, executed with great skill and speed.
- Handball requires players to have technical and tactical knowledge and skills, equally for both attack and defense.
- The technique of the handball game is composed of the following elements: movements, catching, catching and passing the ball, dribbling (driving) the ball, deceptive movements (slits), defensive game technique.

The individual tactical elements of the handball game are: marking and marking, marking being of two types, direct and indirect, penetrating, overcoming and recovering the ball.

In the game of handball, tactics involve strategies and game plans used by the team to gain an advantage over their opponents (Dragnea A. Teodorescu-Mate S., 2002).

The most important elements of tactics in handball include:

- *Defense system* : The team can opt for different types of defense, such as individual or zonal defense. This depends on the characteristics and skills the players on the team and the tactics opponents ;

- *Offensive system* : the team can use different attacking strategies to score goals, such as combination play, fast counterattacks or positional attacks. It is important for players to be coordinated and work together to overcome the opponents' defense;
- *Set plays*: teams can use pre-prepared plays to create scoring opportunities, such as free kicks, plays from the edge of the field, or combinations of passes and movements;
- *Player rotation* : the coach decides how to rotate his players on the field to maintain the balance between attack and defense, as well as to manage the team's physical resources;
- *Adaptability*: During the match, the team must be able to adapt to changes on the field and adjust tactics according to the opponents' evolution or any problems encountered during the game.

Motor skills, also called physical skills, are not acquired during an individual human existence (Gheorghe, C., 2000). The game of handball is based on all four motor skills, which manifest themselves under certain characteristics (Tudor, V.,1999) :

- speed of execution, movement, and reaction;
- general and specific skill;
- general, specific resistance, and resistance in terms of strength, speed, and skill;
- explosive strength in the upper and lower limbs (detenta).

The main motor quality that dominates in the game of handball is resistance in different regimes, more precisely: in the regime of strength, speed, technique (skill).

Methods

The hypothesis

By developing and using a modern system for optimizing the training and selection of handball players, as well as programming training activities based on specific forms of training and specific directions of action, they will contribute to achieving superior sports results.

Work methodology

This work was carried out in the following stages:

- a) The general stage – consisting of two parts:
 - establishing the theme and objectives as well as the working methodology;
 - formulating the hypothesis.
- b) The particular stage – the previously formulated hypotheses are demonstrated, concretely acting on the objectives through the use of working methods and techniques.
- c) Conclusions stage – the desired result from scientific research is obtained, which will represent agreement based on truth or disagreement, in case of error.

Therefore, this work was carried out in the form of an experiment taking place in the “Arad Municipality” and the Bujac neighborhood, respectively, within the “High School with a Sports Program”. This experiment was carried out under the supervision of the handball coach of the “Inoan Arad Sports Club” in the 2023-2024 academic year.

The subjects participating in this experiment were 6th grade students from the middle school cycle, 10 boys and 10 girls.

Period and date of the experiment

The experiment was carried out in the form of tests, namely: initial and final testing.

Therefore:

1. Initial testing was carried out in November 2023;
2. The final testing took place in March 2024.

Following the tests carried out, some aspects were analyzed, and the results obtained were processed and interpreted statistically.

The exercises I used for the development of movement speed, explosive strength of the lower limbs and joint mobility as well as their dosage, were the following:

Developing 5 and 10 m running speed (exercises distributed on Mondays, Wednesdays and Fridays):

- Variable distance sprint:
 - 5-10 m; 2 x (4 x 5m) – 1' break between repetitions and 2'-3' between sets;
 - 2 x (4 x 10m) – 1' break between repetitions and 2'-3' between sets;

Developing explosive strength of the lower limbs (exercises distributed on Mondays, Wednesdays and Fridays):

- Jump squats :
 - 4 x 15 repetitions – 1'30" break between repetitions;
- Jumping over obstacles :
 - 3 repetitions – 1'30" break between repetitions.

Developing mobility of the hip and ankle joint (exercises distributed on Mondays, Wednesdays and Fridays):

- Peak climbs ;
 - 4 x 15 reps – 1' break between reps
- Hyperextensions on the ground;
 - 4 x 15 repetitions – 1' break between repetitions and 2 ' between sets.

Research methods use in the development Job

The following research methods were used in the development of the paper (Gagea A., 2010) and (Ștefan Tudos, 2000):

- Bibliographic study;
- Observation method;
- Morpho-functional measurements ;
- Assessing the level of motor training ;
- Experimental method ;
 - Statistical and mathematical method of data processing.

Results

Statistical data performance represents the result of research in which a test variable is found to be the mediating factor through which an independent variable influences a dependent variable.

The results that were obtained from the experiment are entered in the tables below and are also represented graphically.

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Table 1.

Anthropometric evaluation - initial testing

Subjects	Year Birthday	Sex Female	ANTHROPOMETRIC EVALUATION – Initial testing				
			Waist	Weight	Bust	Wingspan	Length
							STATES lower
1	2008	F	153	42	70	153	90
2	2009	F	143	35	63	140	85
3	2009	F	157	37	67	147	98
4	2008	F	148	44	76	139	90
5	2009	F	145	40	72	134	88
6	2008	F	160	39	69	155	100
7	2009	F	139	48	81	130	82
8	2009	F	155	46	80	146	95
9	2008	F	140	35	62	135	83
10	2008	F	162	43	64	156	102
Arithmetic mean			150.2	40.9	70.4	143.5	91.3
amplitude			23	13	19	26	20
Standard deviation			35.8900172	8.63347	15.3845	33.4542	20.6522

Coefficient of variability	33.5731277	31.7302	32.1963	33,171	32.7028
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Table 2.

Anthropometric evaluation-final testing

Subjects	Year Birthday	Sex Female	ANTHROPOMETRIC EVALUATION – Final testing				
			Waist	Weight	Bust	Wingspan	Length
							STATES lower
1	2008	F	158	45	80	157	96
2	2009	F	149	40	67	145	89
3	2009	F	163	42	72	151	103
4	2008	F	154	50	85	144	97
5	2009	F	150	44	74	138	93
6	2008	F	167	48	73	158	105
7	2009	F	144	52	87	135	90
8	2009	F	161	52	81	152	103
9	2008	F	150	43	67	139	92
10	2008	F	168	54	75	162	110
Arithmetic mean			156.4	47	76.1	148.1	97.8
amplitude			24	14	20	27	21
Standard deviation			37.2819736	10.04261752	16.6329	34.4238	22.0989
Coefficient of variability			33.5363312	31.89292401	32.2062	33.1267	32.6936

Analyzing the results in Table 1-2, during the 2 tests, respectively the initial and final, the results obtained for waist measurement, we found that at the end of the school year, following the results obtained in the final test, there was an increase in terms of waist than in the initial test.

And from the point of view of body weight, the results in Table 1 show that during the 2 tests, respectively the initial and the final one, the results obtained for the measurement are within the parameters.

Analyzing the results in Table 1-2 during the 2 tests, respectively the initial and final one, the results obtained for the bust measurement showed an increase in the final test compared to the initial test.

The results in Table 1-2, during the 2 tests, respectively the initial and the final one, the results obtained for measuring the span and length of the lower limbs showed an increase in them.

Table 3.

Physical assessment – Initial testing

PHYSICAL EVALUATION - Initial testing							
Subjects	Year Birth day	Sex female	50m sprint flat (start from top)	Standing long jump	Endurance running 600m	DISPOSAL sheep's balls	Mobility of the scapulohumeral joint (rotating helmet)
1	2008	F	10.5	128	3.12	12	78
2	2009	F	9.8	150	3.25	17	80
3	2009	F	9.9	140	3.17	13	92
4	2009	F	9.6	142	3.15	16	85
5	2008	F	9.7	138	3.10	18	83
6	2009	F	11.5	130	3.19	20	87
7	2008	F	10.7	148	3.09	22	91
8	2009	F	11.1	135	3.06	15	90
9	2008	F	12.6	153	3.11	14	88
10	2008	F	10.9	155	3.21	19	79
Arithmetic mean			10.63	141.9	3,145	16.6	85.3
amplitude			3	27	0.19	10	14
Standard deviation			2.26322947	32.7881	0.81835	3.32077	20.1993
Coefficient of variability			31.8670284	33.0323	35,127	30.8986	33.4226

Table 4.*Physical evaluation – Final testing*

PHYSICAL EVALUATION - Final testing							
Subjects	Year Birthsd ay	Sex femal e	50m	Standi ng long jump	Enduran ce running 600m	DISPOS AL horse balls	Mobility of the scapulohume ral joint (rotating helmet)
			sprint flat (start from top)				
1	2008	F	9.6	132	3.8	18	86
2	2009	F	9.4	154	3.21	24	84
3	2009	F	9.1	144	3.13	20	96
4	2009	F	9.2	146	3.11	21	89
5	2008	F	9.3	142	3.6	25	87
6	2009	F	8.9	134	3.15	27	94
7	2008	F	7.8	152	3.5	29	99
8	2009	F	9.7	140	3.2	22	94
9	2008	F	9.8	160	3.7	19	93
10	2008	F	7.9	162	3.17	26	85
Arithmetic mean			9.07	146.6	9.07	23.1	90.7
amplitude			2	30	2	11	15
Standard deviation			2.045737 27	33.4253	2.045737 27	4.61076	21.3952
Coefficient of variability			32.66227 53	32.8284	32.66227 53	30.9838	33.3635

Analyzing table no. 3 -4, during the 2 tests, respectively the initial and the final one, the results obtained regarding the 50m speed running (50m sprint), the results had a positive evolution, as follows:

- from an average of 10.63 at the initial test, 9.07 at the final test, a decrease of 1.56 resulted between the initial and final test.

Analyzing the results in table no. 3-4, during the 2 tests, respectively the initial and the final one, the results obtained regarding the standing long jump , the results had a positive evolution, as follows:

- at an average of 141.9 at the initial testing, 146.6 at the final, resulting in an increase of 4.7 between the initial and final testing.

Analyzing the results obtained in table no. 3-4, during the 2 tests, respectively the initial and the final one regarding the results achieved in the 600m endurance running test , the results had a positive evolution, as follows:

- the study, from an average of 3.145 at the initial testing, 9.07 at the final one, resulted in an increase of 5.92 between the initial and final testing.

Analyzing the results in Table No. 3-4, during the 2 tests, respectively the initial and the final one, the results achieved in the ball throwing test , the results had a positive evolution, as follows::

- The study, from an average of 16.6 at the initial testing, 23.1 at the final, resulted in an increase of 6.5 between the initial and final testing.

Analyzing the results obtained in table no. 3-4, during the 2 tests, respectively the initial and the final results obtained for measuring the mobility of the scapulohumeral joint , the results had a positive evolution, as follows:

- The experiment, from an average of 85.3 at the initial testing, 90.7 at the final, resulted in an increase of 5.4 between the initial and final testing.

Conclusions

Following the study, we identified the following aspects:

- the implementation of the physical training process is conditioned by several determining factors, these being:
- health status;
- physical development;
- motor skills and mental qualities.
- improving performance in the game of handball is closely linked to increasing the training factor and not only that, and learning, consolidating and perfecting technical elements is achieved through a large volume of activity.

Therefore, through the research tests, the following parameters were evaluated: body structure, lower and upper limb strength, specific energy. Therefore, in the anthropometric evaluation, for the 5 samples, high results were obtained with major differences between the two tests, initial and final.

The results obtained in the physical evaluation are very good, which denotes the fact that, in the physical training and selection process, means and exercise structures appropriate to the age of the children were used. The physical evaluation provided very good results also because the physical training focused on the most valuable technical-tactical methods of the handball game.

In conclusion, the main purpose of this research was to determine the effect of training on the physical preparation of a group of junior handball players II. At the same time, applied physical training contributes significantly to improving the sports performance of handball players, and the purpose of the experiment was achieved through this physical and technical-tactical preparation.

Therefore, following the experiment and the results obtained, we found that the most important thing in teaching children is to ensure good physical, technical and tactical preparation. Concluding the results obtained in this scientific paper, we can say that its working hypothesis has been confirmed.

References

- Alexe, N. (2002). Encyclopedia of physical education and sport in Romania (Vol. 1). Bucharest: Publishing House Aramis.
- Bompa Teodor O. (2001) - Training Theory and Methodology, 2nd Edition. TANA Publishing House, Bucharest ;
- Bota Ioan. Maria Bota (1987) - Handball. Sport Turism Publishing House, Bucharest;
- Cârstea G. (1993). Theory and methodology of physical education and sports, Universul Publishing House, Bucharest;
- Cârstea Gheorghe (2000) - Theory and Methodology of Physical Education and Sports, AN-DA Publishing House, Bucharest;
- Cârstea, Gh., (1999), Physical Education - Theoretical and Methodological Foundations, Petru Maior Publishing House, Bucharest;
- Colibaba, DE, Bota, I., (1998), Sports Games, Theory and Methodology, Aldin Publishing House, Bucharest;
- Dragnea A., Bota A., (1999). Theory of motor activities, Didactic and Pedagogical Publishing House, Bucharest;
- Dragnea A. Teodorescu-Mate S. (2002). Sports Theory. FEST Publishing House, Bucharest;
- Dragnea Adrian (2006) - Physical Education and Sports - Theory and Didactics, FEST Publishing House, Bucharest;
- Gagea A. (2010), Scientific research treaty in physical education and sports, Discobolul Publishing House, Bucharest;
- Simion G., Stănculescu G., Mihăilă I., (2011) – Training sportsman , Systematic concept, Ed. Ovidius University Press, Constanța;
- Ștefan Tudos, (2000), Elements of applied statistics, Bucharest, Globus Publishing House;
- Tudor, V. (1999) - Conditional, coordinative and intermediate capacities - components of motor capacity, RAI-Coresi Publishing House, Bucharest;