STATE UNIVERSITY OF PHYSICAL EDUCATION AND SPORT OF REPUBLIC OF MOLDOVA

In manuscript form

C.Z.U.: 796.31:796.015+796.032(043)

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TECHNICAL-TACTICAL TRAINING OF PERFORMANCE FEMALE HANDBALLISTS IN AN OLYMPIC CYCLE

Specialty: 533.04. Physical education, sports, kinetotherapy and recreation

Summary

of the PhD thesis in education sciences

Chisinau, 2023

The thesis was elaborated within the Department of Sports Games of the State University of Physical Education and Sport of the Republic of Moldova

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Doctorate Committee for public defense

of the doctoral thesis in education sciences with the theme: **"Technical-tactical training of performance female handballists in an Olympic cycle",** author -**VEREJAN Galina**

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The defense will take place on December 27, 2023, at 14:30 at the **DOCTORATE COMMITTEE FOR PUBLIC DEFENSE** of the doctoral thesis

meeting within the State University of Physical Education and Sport of the Republic of Moldova. Address: Chisinau, 22, Andrei Doga str., Small Senate Hall (room 105).

The doctoral thesis and summary can be consulted at the SUPES Library and on the ANACEC website.

The summary was sent on _____ 2023.

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CONTENTS

CONCEPTUAL GUIDELINES OF THE RESEARCH

Actuality and importance of the theme. In the current stage of performance handball evolution, an increase in the technical-tactical mastery of the players is observed, which allows the successful application of complex game schemes in attack and defense at each stage of training.

In this way, the referee sequences of play are less attested, even in performance teams where it is aimed, that by improving skill the number of technical mistakes will be reduced together with the increase in the pace and speed of the game, the conditions that must be respected throughout the technical-tactical training of the Olympic cycle.

The improvement of technical training has generated the appearance of great finesse combinations, involving an increasing number of acrobatic elements made near and above the goal space, a fact which in turn determined the increase in the efficiency and spectacularity of the game [10,11.15].

The acceleration of the increasing performances worldwide pace, specific to the current period, causes changes in the main fields of sports activity. The Olympic Games, World Championships, continental and national competitions require a higher quality training in strict accordance with the competition models specific to the respective branches and events .

Currently, performance handball is at a high stage of development, which requires specialists in the field to carry out in-depth studies in all aspects. The continuous evolution of the game of handball causes both theorists and practicing specialists to study and update especially the aspects related to the content of the game. Knowing these aspects is especially necessary for the correct organization of the training process. Where it is necessary to focus especially on finishing actions, and within the latter on passing the ball to the player who ends by throwing at the goal, passing which we called the decisive one [5,13].

The game of handball is in a continuous evolution, registering a continuous progressive dynamic.

In both competitive and training activities, innovative elements always occur, more or less absolute, the game is constantly updated and adapted to higher parameters, thus continuously improving and progressing.

The competition at the top is fierce and everyone carefully searches and selects means and solutions to improve the game and the training process, also trying to surprise others and conquer victories [5, p. 282].

These concerns are related to the main trends and development directions of modern handball, which represent the effectiveness of any technical-tactical activity, which condition the good functioning of all body systems [10,14].

Some specific features that characterize the technical-tactical training of performance female handballists currently refer to:

1. Increasing the speed of actions and amplifying the tempo of the game.

2. Individual technique towards perfection and maximum efficiency; at speed and under pressure from the opponent.

3. The maximum improvement of specialization in the position associated with the development of mobility and the ability to act effectively in two or three other positions.

4. The diversification of technical-tactical elements, the mobility of the game and the organic interaction of all elements.

5. Psychomotor, general and special physical training, at a high level, especially oriented towards the development of speed in strength mode.

NOTE: At the end of these observations, regarding the development trends of the game, we should emphasize that there are many other elements and details that should be noted and studied because it is quite likely that they will influence the manifestation in the game and implicitly in the training process of all future teams.

In view of what has been stated, in the further research it is planned to contribute to the improvement of the training system for women's performance handball players for a long period, such as the 4-year Olympic cycle, studying the technical-tactical aspects, examining a series of peculiarities their specifics, all in turn, contributing to the centralized training of the National team of the Republic of Moldova for participating in European, World and Olympic size competitions.

The purpose of the work consists in perfecting the training system for the period of an Olympic cycle (4 years) in order to train performance female handball players technically and tactically.

Thus, the establishment of the complex of technical-tactical actions, both in planning and in the implementation of the multi-year training process, will contribute to the establishment of a comprehensive training system for female handball players in order to participate in the most responsible sports forms.

In order to achieve the goal, the following **objectives** are treated**:**

1. The study on the theoretical-scientific and practical approaches in order to essentialize the technical and tactical dimensions of training female handball athletes for a period of 4 years.

2. The configuration of the experimental methodology regarding the determination of the effective and necessary technical-tactical elements of modern handball, as well as the possibilities of their interaction, in order to achieve the highest results.

3. Appreciation of the efficiency of the developed experimental methodology and its argumentation for determining the optimal approach regarding the technical-tactical training of performance female handball players in an Olympic cycle.

4. Theoretical-experimental argumentation of the technical-tactical training program for female handball players for the 4-year Olympic cycle.

In the meaning of the description the **hypothesis** intended for research, it turns out that the development and practical use of a modernized system of technical-tactical training of performance female handball players and programming training activities on specific forms of training and on specific directions of action will contribute to achieving high results within participation in various sports competitions.

Synthesis the methodology and the justification of the research methods in solving the basic problems of the enquiry was achieved through the following research methods:

- the analytical study of the current training process of world-renowned schools in order to train high-performance female athletes, all of which are exposed in periodic connection, the results of various researches, characterized from a theoretical, conceptual, practical-methodical point of view, etc.;
- study on the documentary aspect provided by the International and National Handball Federation, the competition regulations, preparation programs for competitions, the design of training activities in specialized schools for children and youth, as well as private clubs, the national handball team and other specialized organizations;
- sociological investigation, questioning, interviewing and studying the opinions of coaches, practitioners and theoreticians, as well as the opinions of other specialists (psychologists, physiologists, doctors, physiotherapists, nutritionists, etc.) about the modernized way of technical-tactical training, to be carried out with performance female handball players in an Olympic cycle;
- establishing/highlighting the forms of technical-tactical training of female handball players depending on the specifics of the game, which the "Handball" discipline imposes on them to master, taking into account the bio-psycho-motor development factors of the female body at this age, a fact that to record the specific testing modules on the directions provided for research;
- the development of models that determine the level of development/training of female handball players in coincidence with the requirements of the event and ensuring a correct development of the body from the physiological, morpho-functional and mental aspects point of view ;

- the permanent registration of changes in the training and development of sportswomen on the established tests, which determine the approach of record keeping, checking and control over the fulfillment of the scheduled activities;
- ensuring training programs with modifying design variants in order to maintain the vector of increasing results in case of detecting deviations from the established program.

In view of the above, it is intended to achieve high results in the technical-tactical training of performance female handball players subject to a coherent planning on separate forms of training and their interaction, a fact that ensures effective results in sports competitions of any scope.

Scientific novelty and originality resides in the elaboration, argumentation of the implementation technology of the technical-tactical training program of performance female handball players for the period of the 4-year Olympic cycle.

Scientific results obtained that contributed to the solution of the important scientific problem sums up: results in the theoretical-scientific foundation of the technology effectiveness of perfecting sports training by implementing the content of the technical-tactical training program of the performance female handball players in the advanced training groups and sports mastery of training for four-year Olympic cycle.

Theoretical significance of paper is determined by the main issues that highlight the directions and trends of developing women's handball in accordance with the requirements determined by the International Handball Federation that complement and expand the technical-tactical and motor training of performance female handball players in the advanced training groups and sports mastery of training for four - year Olympic cycle.

The applicative value of the work denotes the possibility of applying sports training technology in practice by streamlining the technical-tactical training system that can influence the achievement of superior parameters in the training process in various stages of sports mastery in a 4-year Olympic cycle.

Implementation of scientific results. The results of the research were implemented within the Specialized Handball Sports School No. 2, in the Sports School for Children and Youth in Ialoveni and SUPES in the educational plans for the specialties: 1000.1 Sports Training, 0114.16 Physical Education, 1001.1 Kinetotherapy and Operational Therapy for the first cycle students of the Faculties of Physical Education and Sports, Department of Continuous Professional Training and Staff Requalification.

THESIS CONTENT

1. THEORETICAL-SCIENTIFIC AND PRACTICAL APPROACHES REGARDING THE DESIGN OF THE TECHNICAL-TACTICAL TRAINING OF PERFORMANCE FEMALE HANDBALLISTS SHOWN IN THE SPECIALIZED LITERATURE..(basic content of chapter 1)

Theoretical-conceptual and methodological fundamentals of the training process in the "HANDBAL" event

Handball has evolved internationally, gaining a predominant character of strength. The general criterion in determining the level of training a player and the team as a whole is the execution force and the number of shoots into the goal. This model is subordinated to physical and technical training, in close correlation with the force of throw execution, with tactical training, with actions in attack and defense [15, p. 26].

Among the many and varied technical procedures, those that can be applied in the game, in conditions of speed and confrontation with the opponent, must be mastered. Combinations and tactical schemes in attack, carried out at maximum speed, in the form of varied actions, full of unforeseen situations, as well as counterattacks intercepted by defenders, require complex specialized training, which also includes the development of intellectual qualities, such as thinking and the ability to anticipate game situations [1,2].

The sporting value of a handball player resides, for the most part, in the qualities he possesses. The sphere of qualities also includes the motor potential of the player, based on which the skills and abilities required by the development to a higher level of the technical-tactical content, specific to the different positions in the team, are shaped and perfected.

Each player of a team in defense and moving into the attack phase, must watch for the launch of the counterattack as soon as possible, which must be used whenever the opportunity arises. It must be achieved without giving the opponent a chance to retaliate. In some situations, the exit of a player in the counterattack must be carried out, even before the completion of the action by the player of the opposing team [6,16].

The players who must initiate the counterattack are the extremes, especially those on the opposite side of the opponent's attacking action and the runners, in no case the central players in defense. In order to initiate a counterattack, the players must know well the forms of achieving it, with one point, with two points, directly or through an intermediary. In many situations, the ball cannot be passed to the counterattack points, as they are marked by the opponent. This does not involve stopping the players, but continuing to run towards the opponent's goal, in order to cause difficulties for the opponent who retreats in defense [7,8].

The tops of the counterattack will be sustained by the players in the 2nd line (9 meters) who also move from defense to attack, precisely in order not to give the opponent time to organize, in this case, the ball will be taken from defense in the attack, through quick, short, confusing passes and in a sustained rhythm of running. This action is also called sustained counterattack, and its completion is done from a distance or by a player who has entered the opponent's semicircle. In this case, the players on the semi-circle have a double task: to stand out permanently and, at the same time, to execute screens for the players in the second line, that is, their blocking [15, p. 36].

The game head or one of the players who noticed the failure of the counterattack or the sustained counterattack stops the game, in order to organize the attack. In this phase, the players must occupy the positions they hold in the team and consistently carry out the positional attack, characterized by an intense, precise and fast movement of the ball.

As a result of the permanent and successive movements of the players from 9 meters, the rapid movement of the ball, the defenders are obliged to always move in the field and be very attentive, which leads to a decrease in energy and vigilance, this being the moment of passing from one phase to another of the attack, namely the attack in the system, which requires a precise placement in the field, depending on the time of the system (with one or two pivots) and the tactics adopted by the team [7,8,13].

Taking into account the defense system, which the respective team opts for, they must act with one or two pivots, in circulation or positionally. Attention has the primary role in this case as well, being recommended to use the optimal means of individual or collective tactics, coordinated with a lot of maximum intelligence. If the attempt to score a goal has failed, the organization phase must follow without giving up possession of the ball. In the event of an attack in the system, the individual action must be executed quickly, showing safety, especially when it constitutes the finalizing element of a collective action [15,18].

In situations where they are dispossessed of the ball, the first action of the player is to fill in the defense, done at full speed. The folding is carried out with the face towards the own goal up to the middle of the field and with the back towards the goal, in the second half of it, watching at the same time the actions of the opposing team.

The launch of the counterattack can be stopped by the player in the immediate vicinity of the opposing goalkeeper or the intermediate player, but in strict accordance with the rules of the game. If, after the counterattack was launched, the defenders failed to complete the retraction, the temporary zone is used, involving 2, 3 or 4 players, who try to defend in front of the semicircle, until they all withdraw [10,12].

Actions in the temporary zone also apply if all the players have retreated to the semi-circle, but are acting in other zones than those allocated in the team's defense system.

In this situation, the players must estimate the optimal time to organize the defense phase. This can be done during the match, between two close defenders or during a stoppage of play between other defenders. Taking into account the type of attack system adopted by the opponent, the defending team must act in the system and apply, depending on the situation, the forms of defense in the area, man to man or combined.

Each team must also know at least two defense systems, which they can apply depending on the game situation created. Regardless of the system used, the defense must be fast, flexible and decisive [14,17].

Each player is responsible for an attacker whose actions must be countered very carefully. The defender who attacks the player in possession of the ball must be assisted in defense by at least one nearby teammate, this constituting the collective play in defense.

Characteristics of technical-tactical training aspects of performance female handball players

All the teams in the first echelon of world handball value use collective tactical means with great skill, precision and safety, such as: simple and double crossing; blockages, exits from blockage; the screen; the covering; the basic tactical combinations between two and three players etc.

Tactical combinations between two and three players are used at the right time, with the aim of creating supernumerary ratios in favor of the forward team and the emergence of clear goal kick situations.

The individual action must be subordinated to the idea of the collective game of attracting two defenders to the respective attacker, which leads to the emergence of a supernumerary ratio in other areas of the attack. This does not exclude capitalization by capturing individual actions of overtaking the direct opponent and scoring goals from such actions [6, p. 332].

Certain technical procedures, which in the past were the preserve of exceptional players, today can be performed safely and efficiently by more and more players.

The ultimate leap goal shots in order to increase the angle of throwing, drop shots on the side of the shooting arm, jump shots on the shooting leg, next to the hip or rising shots, and the many engagement passes of pivots and wings from ground passes, passing dribbling or goal shots, the technical procedures that create favorable situations for an acrobatic game, made above the semicircle, all these today have become quite accessible to many players [12,13].

The explanation of these rapid developments is the improvement of teaching-learning methods, of those for consolidating and perfecting motor skills and training players in study programs of "early specialization".

Acceleration in all phases of the attack is practiced by the overwhelming majority of teams.

Game speed is one of the essential factors of progress in handball, which increases the spectacularity of the game, together with the improvement of technique and tactics. The individual defense game has acquired an athletic, tough character and requires a total physical commitment [8,9].

The movement of the defenders in the field illustrates an obvious progress, but without diminishing the speed of reaction and execution, they reached the necessary parameters for all players to correctly counter the attacking actions of the opponents.

The individual technique required to correctly achieving marking, blocking shots at goal and clearing the ball from a balanced hold has improved considerably. But compared to the technique specific to the attacking game, the defender's technique, although progressing, is still lagging behind.

Position specialization is determined by the need to obtain optimal efficiency of each player's actions depending on the level of physical development, his motor and mental qualities, his technical-tactical mastery and, finally, his intelligence [7,11].

The manifestation of intellectual qualities in the organization and conduct of game actions is of indisputable importance. Handball players are putting into practice more and more theoretical knowledge about tactics and game strategy, which proves that for achieving success in today's handball, thinking has an extremely important role.

The main directions of activity for the technical-tactical training of performance handball players include the following:

- the development of a modern concept of the game, which takes into account all the innovations that have appeared locally or internationally and which is in accordance with the spirit of sports competition;

- the rigorous scientific planning of the training process in order to systematically acquire the content of the game concept and to acquire the ability to apply the respective concept within it;

- ensuring an appropriate competitive calendar;

- improving the technical-tactical skills;

- improving general and special physical training by increasing the volume, intensity and complexity of efforts;

- the relatively simultaneous approach to all training factors, depending on the periods and stages of preparation, which will contribute to the optimization of the athletes' training process;

- increasing the weight given to individual and collective training for the defense game;

- the even more accentuated specialization of the players on the positions, against the background of a multilateral and complete training, which implies an increase in the number of individualized trainings;

- increasing the weight of the players' theoretical training in order to practice an effective collective game;

- the intensification of work aimed at motivating the players, at stimulating their concerns for the expansion of the intellectual and moral horizon [11,12,13].

Intensification of the activity of promoting the knowledge and dissemination of handball for all in order to thoroughly acquire the rules of the game by all participants in the competitions.

2. RECONDITIONING THE TECHNICAL-TACTICAL TRAINING OF PERFORMANCE FEMALE HANDBALLISTS IN SETTING THE SPORTS TRAINING METHODOLOGY IN AN OLYMPIC CYCLE (basic content of chapter 2)

Methodology and Research organization

The methodology of sports training in women's handball is aligned with the requirements of modern training, restructured according to the demands of scientific research. The research methodology in the pedagogical experiment, in an Olympic cycle, is much more complex, more rigorous and differentiated from one training stage to another. Scientific research methods gave birth to the experimental method, which represents a set of rational procedures carried out in three fundamental stages [4. p, 68]:

1) pre-testing performance female handball players, through which the level of motor and technical-tactical capacities was assessed, at the beginning of each annual macrocycle during an Olympic cycle;

2) organization of the technical-tactical training process of performance female handball players in four advanced training stages and sports mastery;

3) post-testing, which allowed to measure the progress of psychomotor and technical-tactical skills, after each annual macrocycle of the Olympic cycle.

The designed objectives were achieved based on the following research methods: the research of the theoretical-conceptual, methodological and practical essences presented in the specialized literature; the pedagogical observation method; the conversation method (the interview); the method of testing motor and technical-tactical capacities; testing the modeling of technical-tactical training; the pedagogical experiment method; the statistical-mathematical

method of processing the collected data; comparative method based on statistical data; graphical and tabular method [3,9].

The following tests were used as technical-tactical tests:

1. Passing the ball in pairs from the spot for 30 s. (no. of repetitions). On pairs of players with similar training level or with identical positions, passes from the spot with the ball are executed. Transmissions are performed with an upper hand for 30 seconds [10,11].

2. Passing the ball in pairs from the run (s). On pairs of players of close values or identical positions, away passes are executed with the handball. The distance between the players is 5 m. It starts from the 6 m line of the semicircle and stops the timer when the last player has reached the 6 m semicircle from the opposite side of the court [10,11].

3. Dribling 30 m. (s). 30 m. is measured along the handball court in a straight line. The athlete must cover the 30 m that separates the start line from the finish line, driving the ball in multiple dribbles in a regular manner. The result is recorded in seconds and tenths of seconds. 2 repetitions will be performed, taking into account the best result [10,11].

4. Dribbling 30 m. between the goalposts (s). Along the handball court, 7 goalposts with a height of 1.5-1.8m are placed in a straight line as follows: the first goalpost is placed at a distance of 6m from the starting line, and the last at 6 m. before the finish line; between these two goalposts, on a distance of 18 m., remaining between the first and the last goalpost, the other 5 goalposts are placed, at a distance of 3 m. from each other (thus, between the 7 goalposts, 6 distances of 3 m each are formed). The athlete must cover the 30 m that separates the start line from the finish line, driving the ball in regular multiple dribbling between the goalposts. The athlete must control the ball at all times, from start to finish. Throwing the ball forward or moving the athlete with the ball in hand are not allowed and result in the cancellation of the run. The finish line must also be dribbled. The result is recorded in seconds and tenths of seconds. 2 repetitions will be performed, taking into account the best result [10,11].

5. Dribbling – throwing – rebounding (s). It starts from the 6 m semicircle, with the player having his front foot on the 6 m line and the handball in his hand at the start. A running dribble is performed, followed by a jump shot from the opposite 6 m semicircle, rebound (to the center of the court facing the own goal, from the center with the back). The timer stops when the player has crossed with both feet the 6 m line from which he started (enters the semicircle) [10,11].

6. Triangle - dribble - throw (s). The same triangle is drawn as in the "triangle movement" (test for goalkeepers). After a fully executed route (out and back) six sides, with movement with added steps in the fundamental position of the defender and the movement of the arms, a ball in the right circle of the triangle is taken, dribbled at full speed to the opposite side

of the field and the throw at the goal from the jump from the 6 m semicircle is executed. The timer starts at the moment of starting the movement in the triangle and stops at the moment of the execution of the shot for the jump from 6 m. [10,11].

Motor quality testing technology:

1. Speed running for 30 m. (s). The test is performed with a foot start. They start from the starting line, at the sound signal. It is timed starting with the player's first move. Time is recorded in seconds. Runs only once. [10,11].

2. Shuttle running 3 x 10 m. (s). The test will consist of three runs over a distance of 10 m., with a 30" break between runs. The athlete runs in handball shoes, starting from the top, from a distance of 1 m. back from the starting line. It is observed with rigor the 30" break, during which the athlete must go to the starting line and prepare for the next start. The timer is started upon reaching the starting line and stopped after crossing the finish line. Record all five runs and calculate the arithmetic mean. All results, including the arithmetic mean, are expressed in seconds and tenths of a second [10,11].

3. Standing long jump (cm). The test is performed on the spot, with the tips at the starting line, with a single swing of the arms. The distance from the starting line to the mark left by the player's heel is measured in centimeters. Two repetitions are performed and the best result is recorded [10,11].

4. Lifting the trunk vertically from lying on the back for 30 s. (no. of repetitions). The test is performed from the lying-down position, hands behind the back of the head, knees bent, feet on the ground. At the signal, the player performs lifting of the trunk until the knee touches the chest, returning to lying-down position. It is executed for 30" and the number of correct executions is recorded [10,11].

5. Throwing the handball in the distance (m.). The regulation handball must be used. The ball is thrown into the distance after a swing of three steps. The throw is made in front of a line drawn on the ground, which cannot be touched, crossed or stepped on before the ball has left the thrower's hand. For the run-up, the technique of the crossed step, the added step or the skipped step can be used. Two throws are made and the best result is recorded [10,11].

6. Throwing the 2 kg medicine ball from behind the head (cm). The medicine ball of 2 kg must be used, which is thrown with 2 hands behind the head, at a distance from a line drawn on the ground, a line that cannot be touched, exceeded or stepped on before the ball leaves the hands. The distance is measured in cm. [10,11].

The method of modeling technical-tactical training is a methodical procedure for optimizing the training and improvement process of performance female handball players, which structures and orders the content of technical-tactical training, in order to develop the most

appropriate models to the stages of advanced training and sports mastery, according to which the sports training is directed in an Olympic cycle. The progressive conceptual training model of performance female handball players developed by us can serve as a content orientation with the help of which the transformations of another innovative training system can be studied, for the purpose of technical and tactical improvement, in terms of rationalization of applied solutions [6,7,8].

The methodology of programming the training process of performance female handball players at the advanced training level and sports mastery within an Olympic cycle

The Progressive Conceptual Model of Training is a theoretical structure centered on the enhancement of quality required to identify, analyze, and accurately capitalize on the circuits of scientific determination of training activities performed at the system and process levels. Its main purpose is to optimize the decisions to achieve the necessary training elements in the long term in an Olympic cycle, medium, period, mesocycle and short, in a microcycle, reflected in the global training units, each concrete activity, lesson, every hour of training, by periods, 5 years of advancement, 1,2 sports mastery and 3 years of sports training.

The experimental model has a realizable architecture on several generalized levels, double macrocycle of 2 years, preparatory, competitive and transition periods. In our paper we evoked 3 models, in a perspective specific to the general theory of training.

The proposed model includes the purpose, the objectives, the basic content established for 5 years of advanced training, sports mastery year 1, 2 and 3, the integration of these desired, the development of the results by which will be measured, the evaluation criteria and performance descriptors of performance handball players (macrostructural), which defines the value orientations valid at the scale of the entire training system, Olympic cycle and macro-mesocycle.

In the development, implementation and improvement of the methodology of programming the training process, the approach of the progressive concept is promoted, **based on process**, starting from the idea that for the training of female handball players to work qualitatively and effectively. It must identify and conduct numerous related training activities. An activity that uses means and content that would orient in such a way as to allow the transition of input elements, to advanced training 5 in output elements to sports mastery 3rd year, can be considered **process**, the technical-tactical elements and the output training units from a process directly constitute training elements in the next process, by stages.

Thus, the application of a process system in quality sports training in an Olympic cycle, together with the identification and interactions of these processes, as well as their management, can be considered "approaching the progressive concept of training based on quality and

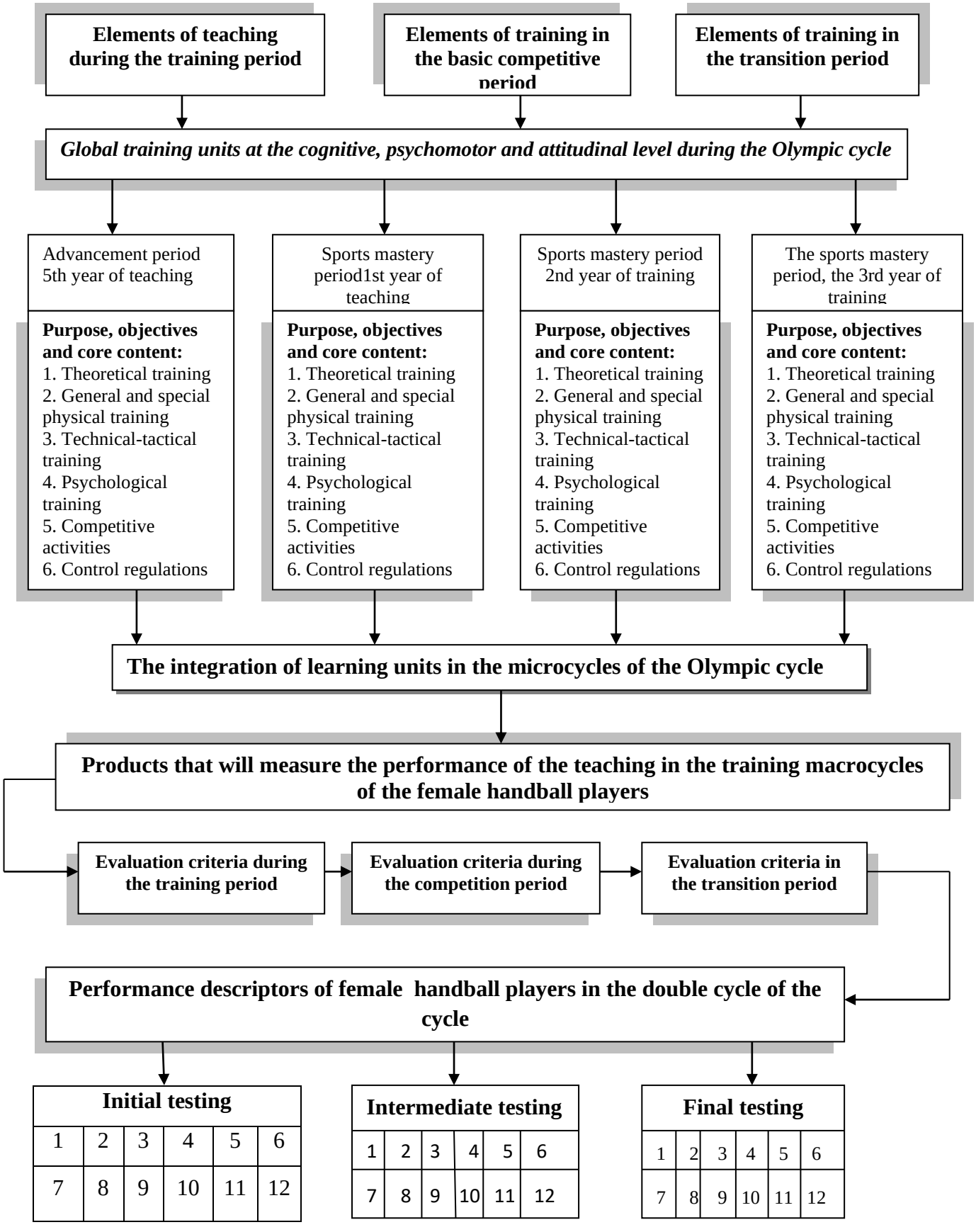

Fig. 2.1. The conceptual progressive training model of performance female handball players within an Olympic cycle

The advantage of the elaborated progressive conceptual model lies in increasing the individual and collective technical-tactical training of performance female handball players for an Olympic macrocycle in order to achieve new performances.

Also, the elaborated program is aimed at obtaining results at each stage of training in terms of psychomotor and technical-tactical training performances, including the effectiveness of the training process, continuous improvement of the basic processes of measuring physical and technical-tactical training indicators, increasing the competitiveness of female handball players, in terms of monitoring and evaluation in each stage of training, during an Olympic cycle, as basic stages in ensuring the quality of the training of performance female handball players.

The monitoring and evaluation have the role of providing information on how the progressive conceptual model of training performance female handball players is implemented within an Olympic cycle divided into training, competitive and transition periods aiming at the efficiency of the proposed objectives for the achievement of the instructional-educational process from the perspective a value system, which must be found in the training profile of performance female handball players.

The technical-tactical training requires a complex experimental methodological process which, first of all, must ensure a high degree of knowledge and mastery of the technical-tactical elements specific to modern handball.

The realization of the training process of female handball players, of the actual training, requires the realization of the established model, both from a motor point of view, as well as from a technical-tactical, theoretical and psychological point of view.

3. EXPERIMENTAL FOUNDATION OF THE EFFICIENCY OF TECHNICAL-TACTICAL TRAINING TECHNOLOGY WITHIN SPORTS TRAINING OF PERFORMANCE FEMALE HANDBALLISTS IN AN OLYMPIC CYCLE

Compatibility of the fundamental technical-tactical capability interaction of performance female handball players in an Olympic cycle

The succession and gradation of technical-tactical exercises, as well as their progression in a four-year Olympic cycle, are rigorously planned taking into account the training stages within the training periods, varying from easy execution procedures to medium and optimal ones, at the end of the Olympic cycle. In the training process, apart from pedagogical tasks, a series of psychophysiological objectives were also consciously pursued, such as the conscious learning of motor skills, the development of psychomotor qualities of motor activities: speed, strength-speed, skill etc. The realization was planned in parallel and closely linked with technical-tactical elements, developing the background of the global and integral improvement of the body functions of the female handball players, characterized by different and complex

technical procedures of alternating attack and defense phases, different pace of carrying out the training actions.

The results of the pedagogical experiment demonstrated that the acquisition of the technique of handball elements is conditioned by the formation of motor skills that constitute the content of the training process during the preparation periods of the annual training cycles. Along with the technical-tactical development, the quality indicators recorded at the end of the stages of advanced training and sports mastery are also perfected.

Achieving the objectives of the experimental model offers the possibility of: the correct choice of the technical-tactical learning units and the precise request of the learning capacities necessary to achieve them in each macrocycle of the Olympic cycle; the design of learning strategies "focusing" rigorously on the pursued "targets", which will guide the activity of performance female handball players in each stage of sports training; the continuous, formative evaluation of the results, through permanent reporting to the operational directives of the model; ensuring the progress of psychomotor and technical-tactical training indicators every year of the 4-year Olympic cycle, achieving the performance objectives.

The important thing is that the efficiency of the technical-tactical training process depends on many factors, but first of all by the training methodology - an integral part of sports training.

The methodology is a component part of the didactic technology in the training system and represents the conception of the assembly of methods and procedures that direct the training process at each stage.

The learning methods used in each multi-year training cycle are in an interdependent relationship with the learning content, constituting the very logic of organizing the stage content of the Olympic cycle. The objectives have a trend of progress compared to the control group, and at the level of the proposed content we can intervene in the case of the completion time allocated to the training activity and the degree of difficulty of the proposed sports skills, relying on the inclusion of handball-specific technologies at the sports mastery stage.

The impact of the utilization of the progressive conceptual model of technical-tactical and motor training of performance female handball players subjected to research during the pedagogical experiment

In the framework of advanced training activities and sports mastery, it was established the need to introduce some innovations in the training process, carrying out the activity according to a progressive conceptual model. Different methods and procedures, ways of organizing research activities were combined in the didactic technology project. In this

perspective, the project established by the program represents a variant solution to the problem of technical-tactical training of female handball players.

The evaluation of the results obtained through the application of psychomotor indicators, in relation to the stages of multi-year training, highlights the degree of preparation, in which each annual cycle of the Olympic cycle benefits from the potential of the methods made by the model corresponding to the annual training cycle.

Table 1. The efficiency of applying the psychomotor training progressive concept model of performance female handball players in an Olympic cycle

No.	Parameters tested		Experimental group		Control group		Difference	Ranking
			Initial Indicators	Final indicators	Initial indicators	Final indicators		
1	Speed running 30 m. (s)	$\overline{X}$	5,52	4,33	5,69	4,92	0,42	IV
		dif.	1,19		0,77			
2	*Shuttle running 3 x 10 m. (s).*	$\overline{X}$	8,38	6,69	7,93	7,49	1,25	III
		dif.	1,69		0,44			
3	*Throwing the handball in the distance (m.).*	$\overline{X}$	15,21	36,36	26,33	30,08	17,40	I
		dif.	21,15		3,75			
4	*Throwing the 2 kg medicine ball from behind the head (cm)*	$\overline{X}$	384,78	406,36	381,00	396,83	5,75	II
		dif.	21,58		15,83			
5	*Standing long jump (cm).*	$\overline{X}$	195,86	208,42	194,35	209,58	2,67	WE
		dif.	12,56		15,23			
6	*Lifting the trunk vertically from lying on the back for 30 s*	$\overline{X}$	17,14	22,00	16,00	19,92	0,94	IV
		dif.	4,86		3,92			

When capitalizing on the model, a series of rules emerging from the theory and practice of their use in the training of performance female handball players were taken into account: it should be focused on a fundamental progressive concept; to be organized in a logical scheme from one macrocycle to another, during an Olympic cycle without interruption; to ensure the

possibility of training codification in the training, competition and transition periods in each annual sports training macrocycle; to use all the graphic training procedures that can ensure the quality of the training.

The objective of the control tests was to evaluate the performance level of the basic capabilities designed in the progressive conceptual model of training and in the annual experimental training plan of female handball players. The test results demonstrate a progressive representation of the obtained indicators.

The full utilization of the psychomotor training of the female handball players, their effective participation in the acquisition of technical-tactical performances is presented in Table 1.

The results of the experiment, as well as the practice of sports training, highlight the fact that the 1st, 2nd and 3rd year sports mastery subjects with a high strategic efficiency and biopsychomotor availability are primarily based on the parameters of throwing the handball ball in a distance, being productive of the rank 1 (Table 1), having initial indicators 15.21 m and final 36.36 m, with a difference of 21.15 m, compared to the control group 3.75 m.

On rank II, the role of performances is highlighted by the parameters of throwing the medicine ball 2 kg from behind the head and shuttle running the 3x10 m.

The full utilization of the technical-tactical training of the female handball players, their effective participation in the acquisition of technical-tactical performances is presented in Table 2.

The quantitative and qualitative analysis of the results of the experiment highlights that throwing the ball, as a dynamic task, in the case of some efforts requires a maximum force that depends on the number of muscle fibers that can be activated simultaneously during sports training in the microcycles of the Olympic cycle.

The running speed, parameters 1 and 2, depends on the existing ratio between the load and the available force. It depends on the speed of reaction to throwing the ball, the speed of contraction, the ability to coordinate, shuttle running, explosive muscle power, in the case of increasing the intensity of physical effort in each macrocycle, including resistance, in the framework of increasing the duration of training and competitive effort.

The situation of applying the progressive conceptual model of psychomotor training of performance female handball players acted on the technical-tactical training of female handball players. On rank 1 is placed parameter 1 (Table 2) *Passing the ball in pairs from the spot for 30 s. (no. of repetitions)*. In the experimental group, a difference of 2.79 s was obtained in the initial and final testing, in the control group 1.74 repetitions , initial 10.67, final 12.41 repetitions for 30

s. On rank 2 is placed – dribbling– throwing – rebounding and the third place triangle – dribble – throw (Figure 2).

Table 2. The efficiency of applying the model of the progressive concept of technical-tactical training of performance female handball players in an Olympic cycle

No.	Parameters Tested		Experimental group		Control group		Difference	Ranking
			Initial indicators	Final indicators	Initial indicators	Final indicators		
1	*Passing the ball in pairs from the spot for 30 s. (no. of repetitions*	$\overline{X}$	10,71	13,50	10,67	12,41	1,05	I
		dif.	2,79		1,74			
2	*Passing the ball in pairs from the run (s).*	$\overline{X}$	5,16	5,07	5,36	5,48	0,03	WE
		dif.	0,09		0,12			
3	*Dribbling 30 m.*	$\overline{X}$	5,34	4,89	5,38	5,10	0,17	IV
		dif.	0,45		0,28			
4	*Dribbling 30 m. between the goalposts (s).*	$\overline{X}$	6,25	6,09	6,41	6,39	0,14	IN
		dif.	0,16		0,02			
5	*Dribbling – throwing – rebounding (s).*	$\overline{X}$	12,44	12,26	13,26	12,66	0,45	II
		dif.	0,18		0,63			
6	*Triangle - dribble - throw (s).*	$\overline{X}$	12,49	12,22	12,57	12,61	0,23	III
		dif.	0,27		0,04			

Figure 3.14 shows the effectiveness of applying the model of the progressive concept of technical-tactical training of performance female handball players in an Olympic cycle. The training process in advanced year 5 most of the learning activities are focused on technical training and general physical training. The performance of sports training in 1st year sports mastery female handball players is based on technical and tactical training.

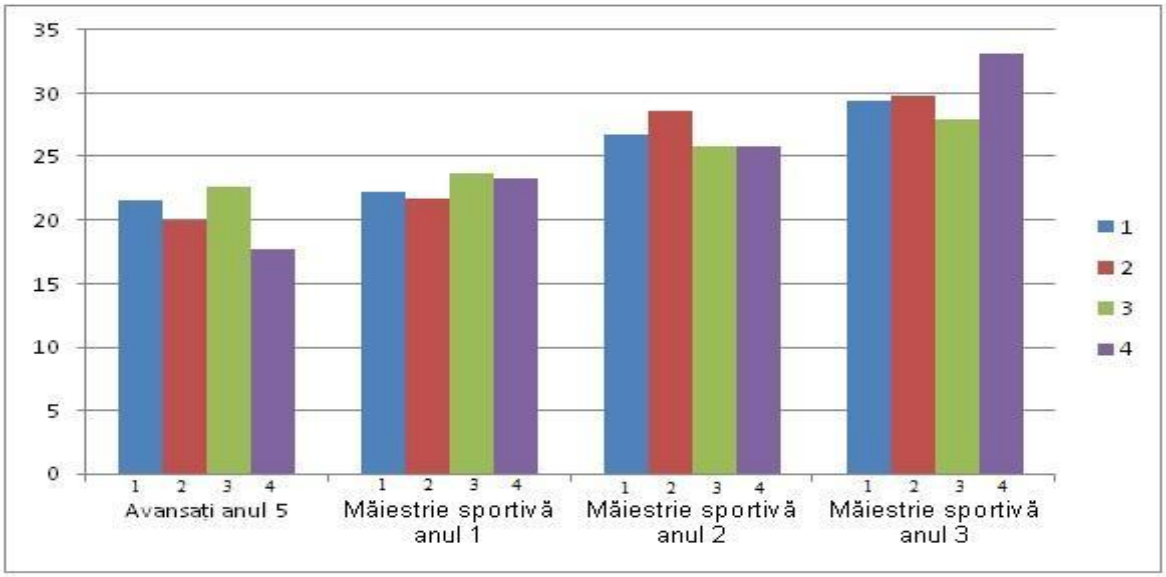

Fig. 2. The efficiency of applying the model of the progressive concept of technical-tactical training of performance female handball players in an Olympic cycle

Note: 1. General physical training 2. Special physical training

3. Technical training 4. Tactical training

The influence of experimental conditions on learning outcomes at the stage of sports mastery, 2nd year general physical training variables are closely related and an increase in technical-tactical training compared to advanced training 5th year and sports mastery 2nd year.

In the fourth phase of the pedagogical experiment, carried out during an annual macrocycle of the Olympic cycle, within the training of sports mastery 3rd year, we aimed to verify more thoroughly the influence of the type of interaction - in the form of psychomotor compatibility - preferential between general physical training , special and technical-tactical.

The data of the study demonstrate the effectiveness of the application of the progressive conceptual model, it being necessary to include, first of all, the tactical training of female handball players, increasing the elements of special physical and general physical training.

Compared to the sports mastery training 2nd year, the activity of technical training has increased.

The recorded values show that in an annual cycle, the training of the female handball players determined an essential technical-tactical change, expressed by this histogram.

The transition from one annual macrocycle to another in an Olympic cycle is related to the sports training and age of the female handball players, to the increase in high-level sports performance. The data demonstrate the extent to which technical-tactical learning processes can influence development. The effects are not the result of a biophysical transformation due to the maturation of the female handball players, but of an improvement of the methodology applied in

the technical-tactical training program of the female handball players for the period of the 4-year Olympic cycle.

GENERAL CONCLUSIONS AND RECOMMENDATIONS

1. The analysis and generalization of the informational support from the specialized literature demonstrates that the treatment of the technical-tactical training of performance female handball players in an Olympic cycle requires a scientific research focused on specific objectives structured by training levels in a four-year Olympic cycle, especially of the technical-tactical training in women's handball.

The study demonstrated that the training programs are not developed with a methodological content appropriate to the annual macrocycles, according to the requirements established by the FIH and are not adapted to the particularities of the athletes.

The problems exposed in the theoretical-scientific and practical study led to the idea of modernizing the technical-tactical training of performance female handball players and considering the global intensification of the rhythm and tempo of the game both in attack and defense, and from these considerations the technical-tactical elements turn out to be restructured in a more efficient version.

2. With a view to superior technical-tactical training of performance female handball players, the need for performance of basic and specific motor qualities is noted depending on the interests and requirements of technical-tactical training specifically for the period of an Olympic cycle. These criteria become necessary in order to intervene with a series of regulations regarding the degree of development of sportswomen for its correspondence with the technical-tactical requirements within the game activity to achieve the competition objectives. Successively in the order of the experimental approach, the existence of a relationship between the mode and the type of interaction of the motor and technical-tactical capacities in each annual macrocycle of the sports training of the Olympic cycle was highlighted.

3. In order to specify the field of scientific activity, an ascertaining experiment was carried out at the level of performance female handball players in order to highlight the forms of technical-tactical training of female handball players depending on the specifics of the game in the annual training macrocycles of the Olympic cycle, taking into account the bio-psycho-motor development factors of the female organism at this age, a fact that would record the specific testing modules in the directions provided for research. It was also developed *The conceptual progressive training model of performance female handballists within an Olympic cycle*, which includes a series of elements and units of global training at the cognitive, psychomotor and attitudinal levels during the Olympic cycle, advanced 5 th year of training, sports mastery 1st ,

2nd year and 3rd of training. This model constitutes the theoretical and practical-conceptual basis of the research.

4. Based on the progressive conceptual model, the annual experimental training plan for female handball players was designed and developed in the advanced training period 5th year, in the sports mastery training period 1st , 2nd and 3rd year, which have an essential role in creating the premises for the experimental content during the preparatory, competitive and transition period in each annual macrocycle of the Olympic cycle.

5. The experiment verified the existence of an action relationship in physical and technical-tactical training. In the group with advanced training, 5th year, 135 hours were allocated to general physical training, which constitutes 21.50% of the total amount of 628 hours for each training stage of the Olympic cycle. 29.46% of contents were allocated to female handball players for sports mastery 3rd year, more by 7.96%, compared to advanced training year 5. The contents of special physical training were increased by 9.81% as *progressive system*. Following the instructional content of technical-tactical training, the value calculated for advanced 5th year female handball players constitutes 26.60%, the tactical one 17.67% of the content. At the last stage of training, sports mastery year 3, technical training constitutes 27.89%, with an evolution of 5.29%, tactical training with an evolution of 15.51%.

6. In parallel with the psychomotor and technical-tactical training, specific elements for improving the training of female handball players were designed and realized. Preparatory games for technical-tactical improvement at the end of the 3rd year of sportsmanship were designed progressively from 21.03% to 28.72%, control and calendar games from 20.83% to 30.21%. Correspondingly, the recovery/rehabilitation time of the sportswomen's body was also increased from 14.89% to 34.57% during the 3rd year sports mastery training, based on which the structure of the experimental model of the female handball players coordination ratio between the values of motor and technical –tactical training was formed in different plans of sports mastery in the macrostructure of the Olympic cycle.

7. It was argued that following the application of the experimental programs in the macrocycles of the Olympic cycle, but also following the comparison of the initial results with the final ones, the physical and technical-tactical training indicates a progressive dynamic, which confirms that these indicators are perfectible. The calculated value of the Student's t criterion of the motor and technical-tactical capacities of the female handball players demonstrates a significant difference at $P<0.05-0.001$ compared to the control group.

8. The results of the pedagogical experiment demonstrated that the training of technical-tactical elements in the training system of female handball players offers the possibility: of the correct choice of technical-tactical learning units; the continuous formative evaluation of the

results, through permanent reporting to the directives according to the progressive model of training female handball players; ensuring the progress of indicators of the technical-tactical training of performance female handball players every year of the Olympic cycle.

Based on the research carried out and the results obtained following the application of the progressive conceptual model of technical-tactical and psychomotor training of performance female handball players subjected to research during the pedagogical experiment, the following **recommendation**can be formulated:

1. Application of the model program, for technical-tactical and psychomotor training of performance female handball players, in sports schools for children and youth, in specialized handball sports schools, as well as in high schools with a sports profile in order to achieve the highest results.
2. Improving the structure of annual training plans, training programs at each stage and the contents of the technical-tactical training of performance female handball players.
3. Optimizing the means of training performance female handball players can be achieved by using training methods based on the elements in the thesis, the coach or teacher having the possibility to change the order and character of training in relation to the current situation, depending on the stage and the accessible inventory .
4. The correlation of new elements with the already existing ones, but also the varied application of action means stimulates the interest of female handball players in training, given the fact that the results are directly proportional to the conscious and active participation of performance female handball players in training.
5. In order to give training an attractive character, it is recommended that the coach or teacher organize movement games, motor games, dynamic games, relays, competitions, in which performance female handball players practice the technical-tactile elements in as varied conditions as possible (this being possible through the implementation of the conceptual progressive model of training), a fact demonstrated by high results obtained in all tests of subjects in the experimental group.
6. Optimizing the contents of the preparatory games by using complementary games – basketball, rugby and movement games in the training periods of the annual macrocycles of the Olympic cycle.
7. The model training program with effective and necessary technical-tactical elements for modern handball, as well as their interaction possibilities, in order to achieve the highest results.

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3.1. in the works of international scientific events

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ADNOTARE

Verejan Galina: „Pregătirea tehnico-tactică a handbaliștelor de performanță într-un ciclu olimpic” – teză de doctor în științe ale educației. Chișinău, 2023.

Structura tezei: Introducere, trei capitole, concluzii generale și recomandări, bibliografie din172 titluri, 16 anexe, 133 de pagini de text de bază, 49 figuri, 14 tabele.

Cuvinte cheie: antrenament sportiv, ciclu olimpic de 4 ani, pregătire psihomotrică, pregătire tehnico-tactică, handbaliste de performanță, instruire avansată, măiestrie sportivă, eficiență, metodologie.

Scopul lucrării constă în perfecționarea sistemului de antrenament pentru perioada unui ciclu olimpic (4 ani) în vederea pregătirii tehnico-tactice a handbalistelor de performantă.

Obiectivele cercetării: 1. Studierea și generalizarea abordărilor teoretico-științifice în vederea esențializării dimensiunilor tehnice și tactice de pregătire a sportivelor handbaliste pentru o perioadă de 4 ani; 2. Elaborarea programului model de pregătire determinarea elementelor tehnico-tactice eficiente și necesare handbalului modern, precum și posibilităților de interacțiune a acestora, în vederea obținerii celor mai înalte rezultate; 3. Aprecierea eficienței metodologiei experimentale elaborate și argumentarea acesteia pentru determinarea abordării optime privind pregătirea tehnico-tactică a handbalistelor de performanță într-un ciclu olimpic; 4. Argumentarea teoretico-experimentală a programului de pregătire tehnico-tactică a handbalistelor pentru perioada ciclului olimpic de 4 ani.

Noutatea și originalitatea științifică rezidă în elaborarea, argumentarea tehnologiei de implementare a programului de pregătire tehnico-tactică a handbalistelor de performanță pentru perioada ciclului olimpic de 4 ani.

Rezultatele științifice obținute care au contribuit la soluționarea problemei științifice importante însumează: rezultante în fundamentarea teoretico-științifice a eficienței tehnologiei perfecționării antrenamentului sportiv prin implementarea conținutului programului de pregătire tehnico-tactice a handbalistelor de performanță în grupele de pregătire avansată și măiestrie sportivă de instruire pentru perioada ciclului olimpic de patru ani.

Semnificația teoretică este determinată de principalele probleme care evidențiază direcțiile și tendințele de dezvoltare a handbalului femininîn conformitate cu cerințele determinate de Federația internațională de handbal care completează și extind pregătirea tehnico-tactică și psihomotrică a handbalistelor de performanță în grupele de pregătire avansată și măiestrie sportivă de instruire într-un ciclu olimpic.

Valoarea aplicativă a lucrării denotă posibilitatea aplicării în practică a tehnologiei antrenamentului sportiv prin eficientizarea sistemului de pregătire tehnico-tactică ce poate influența la obținerea parametrilor superiori în cadrul procesului de instruire în diverse stadii de măiestrie sportivă într-un ciclu olimpic de 4 ani.

Implementarea rezultatelor științifice. Rezultatul cercetării au fost implementate în cadrul Școlii Sportive Specializate de Handbal Nr.2 , în Școala Sportivă pentru Copii și Tineret din or. Ialoveni și USEFS în planurile de învățământ la specialitățile: 1000.1 Antrenament Sportiv, 0114.16 Educație Fizică, 1001.1 Kinetoterapie și Terapie Ocupațională pentru studenții ciclului I ai Facultății Educație Fizică și Sport, Departamentul Formare Profesională Continuă și Reciclarea Cadrelor.

АННОТАЦИЯ

Вережан Галина: „Технико-тактическая подготовка профессиональных гандболисток в олимпийском цикле” - диссертация доктора педагогических наук. Кишинев, 2023.

Структура диссертации: введение, три главы, общие выводы и рекомендации, библиография – 172 источников, 16 приложений, 133 страниц основного текста, 49 рисунков, 14 таблиц.

Ключевые слова: спортивная тренировка, 4-летний олимпийский цикл, психомоторная подготовка, технико-тактическая подготовка, профессиональные гандболистки, учебно-тренировочные группы, спортивное мастерство, работоспособность, методология.

Цель исследования: усовершенствование тренировочного процесса на период олимпийского цикла (4 года) с акцентом на технико-тактическую подготовку профессиональных гандболисток.

Задачи исследования: 1. Изучение и обобщение научно-теоретических подходов с целью обоснования технико-тактических аспектов подготовки гандболисток за 4 года; 2. Разработка модели программы подготовки гандболисток, включающую эффективные технико-тактические элементы необходимые в современном гандболе, а также возможность их взаимодействия для получения максимально высоких результатов; 3. Оценка эффективности разработанной экспериментальной методология и ее обоснование для определения оптимального подхода к технико-тактической подготовке профессиональных гандболисток в олимпийском цикле; 4. Теоретико-экспериментальное обоснование программы технико-тактической подготовки гандболисток на период 4-летнего олимпийского цикла.

Научная новизна и оригинальность заключается в разработке, аргументации технологии реализации программы технико-тактической подготовки профессиональных гандболисток на период 4-летнего олимпийского цикла.

Получены научные результаты, которые способствовали решению важной научной задачи: в результате проведено теоретико-научное обоснование эффективности технологии совершенствования спортивной тренировки путём внедрения программы технико-тактической подготовки профессиональных гандболисток в учебно-тренировочных группах и группы спортивного мастерства в олимпийском цикле.

Теоретическая значимость определена основными вопросами, отражающими направления и тенденции развития женского гандбола в соответствии с требованиями, Международной федерацией гандбола, что дополняет и расширяет технико-тактическую и психомоторную подготовку профессиональных гандболисток в учебно-тренировочных группах и группах спортивного мастерства в олимпийском цикле.

Практическая значимость. Результаты исследования могут применятся на практике в технологии спортивной тренировки за счет упорядочения системы технико-тактической подготовки, способной повлиять на достижение более высоких показателей в тренировочном процессе на различных этапах спортивного мастерства в олимпийском цикле 4-х лет.

Внедрение научных результатов. Результаты исследования внедрены в учебный процесс Специализированной Спортивной Школы по Гандболу № 2, в ДЮСШ г. Яловены и в учебные планы ГУФВС по специальностям: 1000.1 Спортивная тренировка, 0114.16 Физическая культура, 1001.1 Кинетотерапия и терапия профессиональная. Для студентов 1 цикла обучения факультета Физического Воспитания и Спорта, Департамента ГУФВС по повышению квалификации ГУФВС непрерывной профессиональной подготовки и переподготовки кадров.

ANNOTATION

Verejan Galina: "Technical and tactical training of professional female handballists in an Olympic cycle" – PhD thesis in Education Sciences. Chisinau, 2023.

Structure of the thesis: introduction, three chapters, general conclusions and recommendations, references - 172 sources, 16 appendices, 133 basic text pages, 49 figures, 14 tables.

Keywords: sports training, 4-year Olympic cycle, psychomotor training, technical and tactical training, professional female handballists, educational and training groups, sportsmanship, performance, methodology.

The purpose of the work consists in perfecting the training system for the period of an Olympic cycle (4 years) in order to train performance female handball players technically and tactically.

Research objectives: 1. Study and generalization of scientific and theoretical approaches in order to substantiate the technical and tactical aspects of training female handballists for a period of 4 years; 2. Development of a training program model, determining the effective technical and tactical elements necessary in modern handball, as well as the possibility of their interaction to obtain the highest possible results; 3. Evaluation of the effectiveness of the developed experimental methodology and its justification for determining the optimal approach to the technical and tactical training of professional female handballists in the Olympic cycle; 4. Theoretical and experimental substantiation of the technical and tactical training program for female handballists for the period of the 4-year Olympic cycle.

Scientific novelty and originality resides in the elaboration, argumentation of the implementation technology of the technical-tactical training program of performance female handballists for the period of the 4-year Olympic cycle.

Scientific results obtained that contributed to the solution of the important scientific problem sums up: outcomes in the theoretical-scientific substantiation of the technology effectiveness in improving sports training by implementing the content of the technical-tactical training program of the performance female handball players in the advanced training groups and sports training mastery for 4-year Olympic cycle.

Theoretical significance is determined by the main issues that highlight the directions and trends of developing women's handball in accordance with the requirements determined by the International Handball Federation that complement and expand the technical-tactical and motor training of performance female handballists in the advanced training groups and sports mastery of training in an Olympic cycle.

The applicative value of the work denotes the possibility of applying sports training technology in practice by streamlining the technical-tactical training system that can influence the achievement of superior parameters in the training process in various stages of sports mastery in a 4-year Olympic cycle.

Implementation of scientific results. The results of the research were implemented within the Specialized Handball Sports School No. 2, in Sports School for Children and Youth in Ialoveni and SUPES, in the education plans for the specialties: 1000.1 Sports Training, 0114.16 Physical Education, 1001.1 Kinetotherapy and Operational Therapy for the first cycle students of the Faculties of Physical Education and Sports, Department of Continuous Professional Training and Staff Requalification.

VEREJAN Galina

TECHNICAL-TACTICAL TRAINING OF PERFORMANCE FEMALE HANDBALLISTS IN AN OLYMPIC CYCLE

Specialty: 533.04. Physical education, sports, kinetotherapy and recreation

Summary

of the PhD thesis in education science

Approved for printing:	Paper size 60 x 84 1/16
Official paper. Offset print	Circulation 30 ex
Pattern sheets: 2.0	Order no. 24

State University of Physical Education and Sports

MD-2023 Republic of Moldova, Chisinau, str. A. Doga, 22