

**MINISTRY OF EDUCATION AND SCIENTIFIC RESEARCH  
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BUCHAREST**

**ABSTRACT**

**Doctoral thesis**

**CONTRIBUTIONS TO INDIVIDUALIZED TRAINING  
ON POSITIONS FOR THE OPTIMIZATION OF  
TECHNICAL AND TACTICAL SKILL  
DEVELOPMENT OF JUNIOR HANDBALL PLAYERS I**

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### ***Introduction***

Sport performance nowadays is determined by several factors and no one can certainly say which of them holds the largest share.

The ever increasing performance, as well as the need to fulfil it, is based not only on the phenomenon of emulation, but also on the individual's wish to become better throughout the entire training process.

Training is a unitary process that takes place according to the general laws of performance development depending on the level of motor skills, intellectual capacity and psycho-motor features.

Handball is a sport branch involving a so-called conflict activity, the team aim to achieve superiority over the opponents, while concealing their own thoughts and trying at the same time to discover and intuit the opponents' plans.

Therefore, research into the great confrontations in sports is needed from the perspective of the confrontation of both sides, and the game is determined by the existence of the technique, tactics and strategy. Without these components, the confrontation of the teams participating in the competition is not possible.

The individualization of handball players' training is necessary as a consequence of the differences between their individual peculiarities, both in terms of motor capacity and the differences in technical and tactical content specific to each game position.

As far as handball is concerned, the literature has not focused enough on individualization and no research has been carried out on the acquisition and improvement of technical procedures in the light of enhancing the methodology for individualized training.

Based on what has been previously said, we find that, in point of handball theory and methodology, the relevant research concerns effective training of players by developing performance capacity within individualized training.

## ***Rationale***

The choice of the topic was primarily determined by my experience as a permanent teacher at the Handball Department of CSS Craiova, and therefore as a performance athlete.

The complexity and topicality of the theme are given by the trends of modern handball, in the sense of eliminating the hierarchy of positions and awarding the quality of game leader to the player who has the ball, as well as by the fact that the specialized literature does not provide enough information on individualized training on positions of junior players I.

This category of players, representing the period of transition to high performance, requires wider use of individualized training on the position in sport training and thus better optimization of technical and tactical skill development.

Although in handball individual actions are subordinated to collective actions, the current tendency is that in a critical moment of the game, a player acting alone can change the fate of the game. This implies a specialized individual training on the position and better efficiency of the players, leading to this research in this direction.

Modern handball has recorded increased dynamics, based on improving elements, some of which are new, some others are updates and adjustments to higher parameters. Integrated in this process of extensive training, individualized training on the position requires in turn an update and adjustment to the new trends in handball, which led to this approach.

## ***Structure of the research topic***

The paper is structured in three parts, consisting of six chapters that contain sections and subsections accordingly.

**Part I - Theoretical and conceptual fundamentals of the research topic**

**Part II - Preliminary research**

**Part III - Contributions to individualized training on positions for the optimization of technical and tactical skill development of junior handball players I.**

**In the first part of the thesis**, we approached theoretical issues regarding the conceptual delimitation of individualized training, methodological and scientific aspects relating to research of sports training in general and specific training in handball as well as views on assessing the level of training of junior handball players I.

**The second part of the thesis** is the preliminary research containing two stages of assessment of junior handball players from September 2008 to June 2009, aiming to determine the level of influence on training as a result of

applying the specific means of individualized training and the validation of hypotheses specific to this stage.

The data collected during the preliminary research were compared between two groups of 10 subjects: the experimental group and the control group.

At the end of the preliminary research, both in terms of data obtained for testing motor skills and aerobic exercise capacity (VO<sub>2</sub> max.), and data on the evolution of the dynamics of technical and tactical indicators, the following *partial conclusions* were reached:

1. At the end of the initial and final assessment of specific technical training, we found insignificant increase in both experimental groups, the most important increase was found in the experimental group, student test values - "t" = 2.47 at the threshold  $p < 0.05$  and simple ANOVA = 4.83 for the final verification. Significant increase demonstrated by statistical indicators confirms the hypotheses formulated at the beginning of the preliminary research;

2. For the shooting drill, we found significant increase of statistical indicators, the most important being recorded at the end of the preliminary research, "t" = 2.28 at the threshold  $p < 0.01$  ANOVA = 4.86.

3. For the passing drill in a triangle, significant increase is recorded at the beginning of the preliminary research, and at the end of the experiment significant increase is recorded in the experimental group "t" = 2.30 at the threshold  $p < 0.01$  and ANOVA = 4.98.

4. The aerobic exercise capacity VO<sub>2</sub>max, insignificant increase is recorded in both groups included in the experiment, the statistical indicators showing increased values of "t" = 0.93, at the threshold of  $p < 0.01$ , ANOVA = 0.91.

5. In terms of the dynamics of the data recorded by the indicators regarding technical and tactical actions in training and competitive games, significant increase is recorded in defence sprinting, passing, accelerating, attack sprinting, technical measures specific to the increase in the pace of the game and gain in the offensive game.

6. Following the sociological questionnaire for handball experts, one can find that over 90% of the respondents consider individualized training as a very important factor of junior training.

7. Individualized training is considered a difficult means to implement, requiring compliance with the specific nature of training on the position and the stages of growth and development of juniors.

8. Individualized training is considered a means of applying collective game tactics.

**Part III** of the thesis includes proper research, carried out in three stages of assessment of junior handball players from September 2009 to June 2010.

To determine the level of influence on training as a result of applying the specific means of individualized training and the validation of research hypotheses, the data collected during the research were compared between two groups of 15 subjects: the experimental group and the control group.

***Research hypotheses:***

1. The optimization of skill development in handball, at the level of juniors I, can be fulfilled by applying individualized training as a specific form of training, in relation to the game position, which will substantially contribute to the improvement of the degree of sports mastery, expressed through a high level of technical and motor skill development indicators regarding junior handball players;
2. The use of training means specific to technical and tactical actions corresponding to competition activities substantially contribute to increased game efficiency as a result of specific individualized training in attack and defence.

***Research objectives:***

1. To establish work hypotheses, the experimental group and the place of carrying out the research, based on the real possibilities of conducting the research.
2. To establish the means and methods needed for the research, the ways of collecting, interpreting and processing the data.
3. To actually collect data and process the outcomes of the final research statistically and graphically.
4. To approach training traditionally and to design a skill development strategy which will consecrate individualized training as a decisive factor in achieving performance at the level of juniors.
5. To draw conclusions and proposals resulting at the end of the research and to determine the implementation limits of the data obtained from research, to disseminate the results to those interested in the optimization of individualized training in handball (coaches, players, methodologists, physical coaches, etc).

At the end of the experimental approach, it was possible to draw *theoretical and practical conclusions* on the optimization of technical and tactical skill development of juniors I by means of the individualized training on positions.

### ***Theoretical conclusions:***

1. Handball, as a performance sport, requires intensive work on the part of the players so that they may cope with extremely difficult training tasks whose solution involves maximum concentration of all physical, moral, will and intellectual capacities;

2. Training lessons with the entire team, initiated for the basic skill development of players and the whole instruction of the team, do not fully solve the constant growth of the handball players' performance capacity. Therefore, the training of handball players should be complemented by individualized training;

3. The individualization of handball players' training is necessary due to the differences between their individual peculiarities, both in terms of motor capacity and the differences in the technical and tactical content specific to each game position;

4. The specialized literature has not focused enough on individualization and no research has been carried out regarding the acquisition and upgrading of technical procedures in the light of enhancing the methodology for individualized training.

5. Based on what has been mentioned above, it appears that, in point of handball theory and methodology, the relevant research concerns effective training of players by developing performance capacity within individualized training.

6. In handball, the individualization of players' training is necessary, because the overall training of the team fails to fully meet the constant increase of sports performance.

### ***Practical conclusions:***

1. The research reveals significant increase of results obtained by the experimental group, for all tests applied to subjects, the data obtained by the calculation of statistical indicators (standard deviation, coefficient of variation, "t" test, simple ANOVA) confirming the first and second hypothesis of the experiment.

2. The statistical data highlight, at the beginning of the experiment, values for most tests located in the area of insignificant differences between the two groups of subjects, which demonstrates a tight level of training at the beginning of the research;

3. In the final testing, for the cone dribbling drill, the graphical representation and statistical indicators ("t" = 2.47, as compared with the table value 2.22, at the threshold of 0.05 and much higher value of the ANOVA test =

4.83 as compared with the table value 4.70) show significant increase in the experimental group as compared with the control group, in all positions, the most obvious increase being recorded in the case of inter and wing players;

4. In the shooting test, the comparative evolution of data recorded by the subjects of the two groups shows significant data increase in the experimental group, which is demonstrated by the test value  $t = 2.28$  as compared with the value of 2.22 at the threshold of 0.01, as well as the value of the ANOVA test = 4.86, higher than the 4.70 table value;

5. In the initial testing of the exercise capacity, the experimental group had better results than the control group, the significant differences being obtained at the level of all playing positions, results justified by the enhancing of significant differences revealed by the calculation of statistical indicators ( $t = 1.07$ ), at the threshold of 0.05, which confirms the hypothesis of the research;

6. The evolution of the collected data in the final testing of aerobic exercise capacity ( $VO_{2max}$ ), reinforces the significance of the much higher differences of data specific to players enrolled in the experimental group as compared with the control group ( $t = 1.05$ ), at the threshold of 0.05, thus confirming the hypotheses and assumptions formulated;

7. The dynamics of the progress obtained in the technical and tactical training of junior handball players I based on individualized training and shaping of tactical training are demonstrated by the much higher results recorded in the experimental group in the final testing as compared with the initial testing, in terms of shooting, passing, dribbling, accelerating, attack jumping, defence jumping, attack sprinting, defence sprinting.

8. Following the game model analysis, in a comparison between individual and collective technical and tactical actions, one can argue that the data obtained in the initial assessment have a superior evolution in the control group, and at the end of the experiment, superior data were recorded in the experimental group, as a result of enhancing individual actions planned during the training within the training macro-structure;

9. From the data obtained by statistical processing, we demonstrate the beneficial effect of training means on the position, thus confirming the hypotheses we formulated, the differences between the results obtained by the experimental group in the initial and final testing being very important. The individualization of training is therefore a key factor for increasing motor capacity at the level of juniors;

10. The technical improvement up to the level of mastery in a growing number of players and the decrease in the number of technical errors at the level of the experimental group, highlighted by the model of technical and tactical game actions, both individual and collective, demonstrate the increased efficiency of individualized training at the end of the experiment by conducting individual and group offensive actions, proving effective with the players in the experimental group.

11. The use of an individual action by a player at the expense of collective action of 2 or 3 players is likely to lead us to the conclusion of more effective and speedy game actions.

12. The obvious higher level of game speed, which, accompanied by good mastery of techniques and tactics, confers an increased degree of spectacular at the level of the experimental group, was demonstrated by the values recorded by the statistical indicators and the indicators of the technical and tactical action model, obtained in the final assessment for the general and specific physical training tests;

13. The statistical indicators prove the validation of the research hypothesis by the superior results obtained by the experimental group in terms of technical and tactical motor parameters, with significantly lower values in the experimental group at the beginning of the research, whereas in the end the values of these subjects were higher as provided by indicators.

### ***Novelties brought to human motricity:***

This scientific approach contributes significantly, by its content and experimental design, through data and research results, to the optimization of sports training, based on observance and integration of knowledge specific to sports training into the border knowledge of human motricity.

The data on the junior handball player's adaptation to the demands specific to individualized training are highly topical and original in the human motricity field, handball, as an intelligent discipline from the motricity perspective, being, in our opinion and that of most specialists in the field, a means of enhancing the psycho-motor and intelligent-motor development of players.

The originality of this work consists in the attempt to adapt as much as possible the means of training, or individualized training respectively, to the specific demands of the game, to the specific requests on the position, the optimization of the individualized assessment means and the establishment, based on the data presented, of the effects of individualized training on increasing performance capacity of junior handball players.

### ***Novelties brought to the technical and tactical training of junior handball players I***

The personal contributions brought by conducting this research for the purpose of optimizing the technical and tactical training of junior handball players I, aim:

1. to establish a system of individualized training, while observing the particularities of training on positions;

2. to optimize the technical and tactical skill development, based on individualized training of juniors I;
3. to present models of technical and tactical training specific to juniors I as compared to the models of international players' specific actions on positions;
4. to present training models with technical and tactical means individualized on the position, and attack and defence phases;
5. to provide some technical and tactical training means based on the interaction between different positions;
6. to provide data on the optimization of the technical training - motor training relationship at the level of juniors I;
7. to establish the dynamics of the progress obtained in the technical and tactical skill development of junior handball players based on individualized training and shaping of tactical training throughout the research.

### ***Recommendations and proposals:***

1. Playing performance handball at the level of juniors determines the emergence of positive as well as negative tendencies to improve the technical and tactical component, the individualization of training being the main positive strategic approach to training juniors internationally;
2. Individual actions are increasingly subordinated to the collective game by the obvious tacticization at the level of the experimental group;
3. Specialization on positions, both in attack and in defence, is an increasingly evident trend having positive effects on the efficiency and spectacular feature of their developments at the level of the experimental group;
4. The players who defend on the wing areas of defence (less favourable to attackers) or those occupying advanced positions (who are closer to the opponent's goal) run in speed as counterattack tops, while the players in the central areas are concerned with the recovery of the ball and are then noticed in the wing areas (where the opponents do not withdraw);
5. The system game (stage IV) is performed by penetration, rapid movement of the ball and/ or players, based on the concept of training whose direct result it is;
6. ***Regardless of the system used, the defence must be elastic, mobile, tight, crowded (over numerical) on the ball. Each defender is firmly in charge with an attacker that he marks with all his attention and vigilance, being doubled by at least one neighbouring teammate.*** This contributes to a collective and effective game.

The game concept is constantly evolving, changing periodically according to the technical and tactical novelties that appear in the best handball teams constituting a model for others.

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