

ABSTRACT OF THE DOCTORAL THESIS
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TITLE OF THESIS:

“CONTRIBUTIONS REGARDING THE ROLE OF HANDBALL GAME UPON THE BIO-PSYCHO-MOTOR DEVELOPMENT OF 8-10 YEARS OLD CHILDREN”

KEY WORDS: handball, biologic potential, psycho-motor potential, growth, development, motility, effort capacity, management.

The thesis is structured on three parts; it contains 13 chapters and a volume of annexes, having bibliographic references comprising a number of 166 works with Romanian and foreign authors.

INTRODUCTION

The modernization of sportive activity according to European and world standards entails that the activity should be made more efficient by valorizing the athletes' potential, by adjusting the entire conception regarding training, by using and improving top technologies directed towards efficiency and valorization.

Motivation of choosing the theme: Excessive use of technology and the multiple possibilities of spending time without moving affect children's proper growth and development, having negative effects upon health, quality of life and sportive performance.

The importance of theme and the research place: The structure of motions specific to the handball game performed by athletes during training, the various types of exercises and other used means act upon certain muscles or muscle groups, imply certain neuromuscular actions, types of metabolism, all these leading to osteotendinous and muscular adjustments of the bodies of those involved.

With this research, we, just like many other specialists in the domain, look for new, simple, efficient and attractive solving modalities for these problems, applicable even at early ages.

PART ONE

**THEORETICAL-METHODIC ASPECTS OF INFORMATIONAL
DOCUMENTATION UPON THE LEVEL OF KNOWLEDGE REFERRING TO THE
RESEARCHED DOMAIN**

Premises of informational documentation

Knowing and understanding the scientific theory of the domain, as well as of the connected domains, can provide explanations and relations regarding the approached phenomena in the present research.

The joint preoccupation of all countries for science and scientific research is determined mainly by its crucial role in the development of wellbeing and human civilization.

The instruction of technical skills from handball in various situations, against the background physical and mental development of athletes, provides the premises of a high level of health condition, of proper growth and development, as well as of the desire to permanently improve sportive performances.

The purpose of informational documentation

The purpose of informational documentation regarding the level of knowing the researched phenomenon was to understand the results already known in scientific theory and to predict ways of gaining new knowledge and of foreseeing the phenomena approached within the investigation theme.

A better understanding of biological processes, as a result of the level of knowledge, will lead in the future to the achievement of performances, to the prolongation of life and amelioration of human condition, to finding proper ways and means specific to our domain, with the help of which we can interfere in achieving these challenges.

Stage objectives

The main objectives of this stage were the following:

The theoretical knowledge of age particularities, of growing and developmental processes with the afferent involvement they have upon motility, of somatic, motor and psychic constitutional typology, of determining certain genetic characters with significance in achieving performance;

Synthesizing the data base provided by social, biological, psycho-pedagogical, anthropological sciences and their unification in a contemporary context which should be useful to the development of our research them;

Bibliographical information directed towards the approached research theme.

Conclusive expressions on Part One

The special results obtained by the representative handball teams in time represent an impulse to know the domain in order to find ways of going back on the highest levels of the podium.

The entire human being is conditioned by motility and the biomotrice and psychic potential constitutes a valuable indicator of the individual's health condition and performance capacity.

The modernization of sportive activity at the European and world standards level is based on the bio-psycho-motor potential as a result of gaining new knowledge regarding the structure of the human body, of its functions as well as of the causes and effects produced by physical exercises upon it.

PART TWO

MANAGERIAL BACKGROUND PROVIDING THE BASIS OF EXPLORATION RESEARCH

This part includes:

The organizational framework with all actions encompassed by the research at this stage: formal and informal;

The informational framework with all data, information, informational circuits necessary for the exploration research, methods, means and procedures of gathering data, analysis and statistical processing;

The decisional framework with the choice of the most appropriate action variants for each situation, providing the coherence of decisions for properly carrying on the activity;

Establish methods and techniques.

Premises of exploration research and management

Study based on documentation and experience, but also on knowledge acquired by other specialists in time;

Knowing the scientific theory at a certain degree of generality regarding the approached theme, fact which allows new possibilities of scientific predictions;

Introduction of scientific data in the strategy and operationalization of practical activities;

Knowing the trends of development and evolution of the handball game.

The purpose of Part Two

The purpose is to provide the operative managerial framework of the research and to test the feasibility of the used apparatus, of the proposed working technique, of the stimuli administration technique and of the optimum conditions of applying them, gathering thus information regarding the eventual limits of the proposed design. We selected the manipulated indicators, the measurement and analysis methods.

Objectives of Part Two

1. Achievement of a diagnosis regarding the bio-psycho-motor potential upon the research sample, marking the level of indicators which we started from in our research.
2. Anticipation of changes which we perceive as a result of strategy elaboration, of action tactics and of decisions regarding concrete actions.
3. Verification of the opportunity of using the research means and methods.
4. Processing and interpretation of initial tests results.

5. Identification of means which will make up the training programme of the experimental sample group according to present state diagnosis.

Subjects

The exploration research contained a number of 128 subjects, the sample group being constituted at this point by second grade girls from schools from Oradea which have in their structure non-profile primary school learning. The subjects' age at that point was 8.

Preliminary tasks

The tasks in the preliminary research were:

- Designing the observational and experimental research;
- Establishing the experimental variables;
- Establishing the measurement, evaluation and data processing instruments;
- Carrying on the empirical research;
- Grouping, ordering the data, making tables, graphics, processing with the help of computer assisted techniques;
- Formulating conclusions.

Hypotheses

Starting from the premises presented in the previous chapters, according to which the effects of practicing physical exercises are found in the variety of areas influenced by, we formulated the following hypotheses:

1. The trainings carried on systematically contribute to the improvement of the way in which children behave, think, feel and act.
2. By using means specific to handball, favorable influences are produced in 8-10 year-old children's biological growth and development.
3. Due to the strain to which the body is systematically subjected during trainings specific to the handball game, the 8-10 year-old handball practicing children's motor indexes show increased values compared to those of children who participate to the regular physical education lesson.

Verification of evaluation and statistical-mathematical interpretation possibilities

With the help of the computer, we verified the evaluation and statistical-mathematical interpretation possibilities; the first step was to place the recorded data into tables using Excel and SPSS programmes.

The descriptive statistics was accomplished by using two methods: numerical and graphic methods.

In the numeric description we used central tendency indicators such as average, median and dispersion indicators such as the interval, standard deviation, variation.

The calculus emphasized the fact that the distribution regarding the studied variable indicators is normal within the sample group of the preliminary research.

Conclusive aspects of the exploration research

The main contribution of the exploring study was the verification of apparatuses, installations, measuring instruments, of used methods and means, on one hand and, on the other hand, the knowledge regarding the bio-psycho-motor potential at 8-10 year-old level when the research began.

The presentation under diagram graphic form, allowed us to incorporate a large amount of information and to clearly visualize the studied values and dependences.

PART THREE

PERSONAL EXPERIMENTAL CONTRIBUTIONS REGARDING THE ROLE OF THE HANDBALL GAME IN THE BIO-PSYCHO-MOTOR DEVELOPMENT AT 8-10 YEAR-OLD LEVEL

The instruction of technical skills from handball in various situations, on the background of physical and psychic development of athletes, provides the premises of a high level of health, growth and development and of desire to permanently improve performances.

The effects of practicing physical exercises are found in the diversity of areas influenced by them, the child's body development occurring on different levels, in different stages, determining the individual's evolution as a whole.

The purpose of research

The purpose of this research is to evaluate the 8-10 year-old child's bio-psycho-motor potential, to elaborate and carry on a training programme through handball, after which we should draw conclusions referring to the influences of systematic sportive activities upon their growth and development.

The objectives of research

1. The experimental research of the conditioning process of the bio-psycho-motor potential through means specific to handball.
2. Analysis of the optimization possibilities of the conditioning process by elaborating a training pattern specific to the age of 8-10.
3. Verification of formulated hypotheses, satisfying the requirements of the experimental research.
4. Analysis of phenomena of probable type, establishing of relations between phenomena, processes and formulation of new ways to develop the handball activity in order to increase the biological and psychological efficiency, fact which will determine and increase human performances.
5. Identification of areas in the body which can be optimally influenced at this age.

Hypotheses of research

The hypotheses proposed by us are as follows:

1. By acting through motor structures specific to attack and defense in handball game within an organized sportive training process, increases of the biological indexes will be recorded.
2. With the systematic participation of 8-10 year-old children to trainings specific to handball game within which we use means specific to the playing phases of a simplified playing pattern, increases of motion indexes will be obtained.
3. By introducing into the sportive training programme some notions regarding the rules of the handball game as well as by knowing the behavioral values, the children's cognitive processes are favorably influenced.
4. By having a proper relationship between rationalization, putting into algorithms and individualization of operational patterns with motor, technical, tactical and psychic content from handball, the 8-10 year-old children's bio-psycho-motor potential is ameliorated.

Research methods and techniques

During our research, we used the following methods:

- Biographical study method;
- Pedagogical observation method;
- Logical method;
- Hermeneutical method;
- Pedagogical experiment method;
- Statistical-mathematical method;
- Graphic-computerized method;

As statistical interpretation indicators, we used the Student Significance Test, ANOVA and certain functions of Microsoft Office Excel programme.

The place of practical-methodic application

The research was carried on in multiple locations: for the evaluation of energetic resources, we used the Miron Georgescu Modified Test (MGM 15) performed in the *Laboratory of motion and biomechanics analysis* within the *Research Center for Human Performance* of the Faculty of Physical Education and Sports from Oradea.

We made the initial measurements and tests in schools from Oradea City with primary learning system.

The specific instructive-educational process and a part of the final measurements and tests were made at Romsport Sports Club, in the ball games hall of the University from Oradea.

The period of unfolding the operations from the experiment

During February and May 2010, the exploration research took place.

During May 2010 and April 2011, the actual verification experiment took place.

Subjects

The research was performed on a representative sample of 128 subjects, 2nd grade, 8 year-old girls from Oradea. They were randomly selected in two groups: 64 subjects in the experiment group and 64 subjects in the control group.

Initial and final tests

These tests emphasized somatic, functional, motor and psychic aspects of the subjects.

- **Somatic measurements** – height, weight, hand opening;
- **General physical training** – 30 m dashes, 600 m resistance running, high jump from the spot;
- **Physical training specific to handball game** – 30 m dashes with dribbling, long jump from the spot, throwing the handball with 3 steps take-off, lateral movement in triangle, 3 tracks;
- **Psychic development** – focused attention test, the method of memorizing numbers, the method of memorizing words;
- **Functional capacity** – Ruffier test.

The statistical analysis shows that during the study, modifications of the measured parameters occurred. The significance of differences between the averages of the control group and the experimental one was tested with *Independent-Sample T-Test*, while the significance of differences between initial and final measurements within each group was tested with *Paired-Sample T Test*. The latter emphasized the value of p as being smaller than 0.05 in the case of all studied parameters, resulting the fact that the training had influence upon the recorded modifications.

Conclusions

- In the study, during the initial and final measurements, it was noticed that there were increases of all average values of the measured somatic indexes.
- Since in the case of somatic indexes the increases being present at both groups, but more considerable in the experimental group, we consider that besides the age specific genetic influences, the influences are also caused by the trainings attended by the subjects.
- By using exercise structures specific to handball game for a simplified playing pattern, the measured motor parameters were positively influenced, being noticed significant differences between the averages of initially and finally measured values.

- The smallest differences were noticed at throwing the handball, the throwing movement being less known and more difficult to learn by girls at that age.
- From cognitive point of view, it is important that the training programme should include the sending of certain notions regarding the rules and knowing the behavioral values is important not only for the unfolding of the play according to rules, but also for the purpose of educating the children in fair-play spirit and of Olympic values.
- The study revealed the fact that a simplified pattern of the handball game is indicated at this age, the influence upon somatic indexes being a beneficial one, without negative consequences upon growth and development, these being between normal parameters for this age category.
- The rational joining of means specific to handball game, the use of a simplified playing pattern, they all have a positive influence upon children, contributing to the amelioration of bio-psycho-motor potential.