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HUMAN PERFORMANCE RESEARCH CENTRE

PROCEEDINGS

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CONTENTS

FINANCING APPLICATION FOR THE INDIVIDUAL MULTIANNUAL PROGRAM FOR SCIENTIFIC RESEARCH/ ARTISTIC CREATION FOR YOUNG POST-GRADUATES

Cazan Florin **Doctorate coordinator Dumitru Colibaba Evuleț**

The aim of the project identifies the key dimensions of physical training specific of professional handball players. These dimensions become 'teaching targets', subjected to be reached with the help of well planned training programs. In the preliminary stage, the research identifies the dimensions, their tests of measurement, and, by their derived indicators, minimum expected performance standards were set.

Doctor's degree dissertation status:

The dissertation is now in the preliminary status of theoretical foundation regarding the differentiated forms of physical training optimization specific for professional handball players.

Until now the following have been realized:

-To study the specialty literature and the scientific research papers which approach the chosen theme.

-Theoretic review of the actual state of knowledge and research regarding the theme.

-Identifying the problems within the research theme and the research approach context

- Preliminary study regarding the identification of game dynamics strucuture and establishing training programs focused on physical fitness

- Setting the target group for the experimental research

-Assessment of the initial level of training programs for physical fitness

-Elaborating the training programs focused for physical fitness.

Doctor's degree head's recommendation:

The study "Optimizing physical training specific for pro-handball players" approaches the following methodological aspects of pro-handball players training:

- identifying conditional dynamics qualities -specific for handball's dynamics structure;
- Choosing tests and establishing the performance behavior for each physical aptitude,
- monitoring physical fitness parameters.

We consider that the experience acquired previously by the graduate (in his posture as player, professor of higher education and coach) will allow him to finalize this study.

ACTUAL STAGE OF KNOWLEDGE IN THE FIELD AT NATIONAL AND INTERNATIONAL LEVEL, ACCORDING TO THE LATEST REFERENCES FROM THE SPECIALTY LITERATURE

Currently, the game of handball practiced by the most valuable teams in the world is identified with a number of characteristics and trends of development, which have to be known, and also translated into action at the right time. The present research is justified by the very fact that it brings into discussion the essential dimensions of the physical condition specific for the technical and tactical actions ensuring the team's (players') play on the field, and, at the same time, provides objective measurement tools for these dimensions. Thus, the measured dimensions resulting from our preliminary study will be converted into operational instructional objectives (which translate into an observable and measurable performance-related behavior). In turn, these operational objectives become teaching targets which entail the establishment of the elements of content, the training strategies and, again, measuring tests that this time inform us on the quality and effectiveness of the undertaken training. As it can be noticed, the establishment

of the objective instructional goals, at this stage of research, facilitates further practical application of the generative practice circuit: Objectives - Contents - Strategies - Assessment, which is able to always ensure the quality and effectiveness of the conducted training.

RESEARCH HYPOTHESYS

1. If we rethink and restructure physical fitness dimension according to the game play of pro teams, then we will thoroughly establish training objectives for specific physical fitness .
2. If we introduce in the training process the practical route formed of objectives, contents, strategies and evaluation instruments then quality and efficiency of physical fitness will certainly rise.
3. Between playing model and training model there is a two-way relationship in which the training model is determined by the dimensions of the playing model. This relationship is conserved in the case of physical fitness.

DISSERTATION PURPOSE

- Rethinking and restructuring instrument strategies according to the characteristics and tendencies of handball played in major international competitions, promoting thinking by objectives and the practical route in realizing physical fitness .

RESEARCH AIMS

1. Studying the specialty literature about training strategies used in pro-handball physical fitness.
2. Bibliography synthesis regarding the achievement of physical fitness for pro-handball players and teams.
3. Studying the structural dimensions of the game played by pro-handball teams and establishing key steps of the training process.
4. Preliminary study of the training programs used by First League teams.
5. Developing training programs focused upon bettering functioning capacities and conditional dynamics qualities: strength, speed, agility, power, skill, technique in movement, etc. Furthermore we intend in future programs to apply new training principles according with the competition effort dynamics .
6. Testing training programs .
7. Evaluating the efficiency of developed programs .
8. Results and statistics interpretation.
9. Developing 3-4 studies within works partial investigation.
10. Editing conclusions under calculated statistical values.
11. Elaborating method prescripts about using training strategies to achieve pro-handball players physical fitness.
12. Editing the doctorate thesis and publicly presenting it.

PROJECT TEAM

Responsible: Cazan Florin
Collaborators: Trainers and professors of First League Clubs
Coach Ion CRĂCIUN , Coach Emil NEACŞU – C.S.M. Medgidia
Coach Eden HAIRI – H.C.M. Constanța
Prof. Petru GHERVAN - University "Stefan cel Mare" Suceava

TARGET GROUP

(Target: C.S.M. Medgidia)

- Group of experimental subjects are pro-handball players of C.S.M. Medgidia
- Group of witness subjects are pro-handball players of H.C.M. Constanta.

SCIENTIFIC INVESTIGATION METHODOLOGY

For realizing the research we will proceed with the following tasks and activities:

-structural dynamics dimensions analyze for the international game play model for establishing physical fitness dimensions specific to handball players.

-preliminary study about physical potential implemented in technical and tactics training and establishing instructional objectives traceable with testing.

-doing measurements upon dimensions of the ascertained physical fitness.

-developing training programs accodrind to the practical route: objectives, contents, strategies and evaluation instruments.

-trying out the program on players at C.S.M. Medgidia.

-using research methods referred in the present study plan .

RESOURCES ANALYSIS

Material resources –existing
- needed

Financial resources – expenses
- incomes

Temporary resources- periods, stages

Space resources

OPERATIONAL PLAN FOR ACTION

STAGES	RESEARCH OBJECTIVES	ACTIVITIES	EVALUATION INDICATORS
I **THEORETICAL AND METHODOLOGYCAL BASYS OF RESEARCH**	- to study the specialty literature and the scientific research papers which approach the chosen theme. -theoretic review of the actual state of knowledge and research regarding the theme. - identifying the problems within the research theme and the research approach context -establishing the work premises and hypothesis	-bibliographic review regarding the specific physical training for handball players	- writing the review regarding the state of knowledge of the theme
II **PROJECT PREPARATION AND ACCOMPLISHMENT**	- establishing the main requests regarding the modern training -pointing the theoretical concepts regarding the differential training in handball - delimiting the concepts regarding the individual training according to the training period, the position on the team and the specific physiological aspects	-delimiting the specific components of the sports training -the influence of general physical training in the handball game- organizing and running the handball training	
III **THE PRELIMINARY STUDY REGARDING THE DIFFERENTIATED**	-the preliminary study regarding the differentiated forms of training organisation with the	-elaborating a questionnaire regarding the importance and the application of the specific physical training	- the quality and the efficiency of the training

TRAINING ON THE TRAINING COMPONENTS OF THE HANDBALL GAME	highlighting the aspects linked to individualizing and individual training -the specialists opinions regarding the problem of the physical training for the handball players - the fundamental requests in practicing the handball game - determining the biological particularities -determining the psychic particularities - determining the sports training particularities	during training - physical development, main motive qualities -tests for determining the character type and the perceptive capacity	
IV **RESEARCH PROJECT ELABORATION**	- assessment of the initial level of training for players with whom the experiment for identifying the training objectives for each player is run. -testing the physical training plans -final assessment of the physical training level - Statistical interpretation of the data with recording the progress made by the Trial Group in comparison with the Reference Group - elaborating the pattern of the game - elaborating the profile of the player for each position	- making a chart with personal data -medical opinions- anthropometric, systemic and physiological data -test regarding estimation of the physical training level - knowing the physical training level of the player who participate in the research -establishing the initial and final period of testing -establishing the place where the research is run -establishing the tests used in the research -material resources analysis: existing and needed -financial resources : expenses and incomes -temporary resources: periods, stages -space resources	
V **PROJECT APPLICATION AND MONITORING**	- Writing a guide book regarding the methodology of physical training for handball players -presenting the guide book in the National Coaches School	-implementing the new methodology in sports clubs	
VI **PROJECT ASSESSMENT**	-elaboration and explanation of individual training forms based on the identification of some objectives generated by the exigencies of the performance behaviour in the game	-the acceptance, generalization and application by the National Coaches College	-project value application assessment

PROJECT ASSESSMENT

Develop and explicit forms of physical training on the identification of specific targets of demands generated performantial game behavior.

PROJECT EXPLOITATION

Methodological prescriptions regarding the usage of new physical fitness programs for pro-handball players which will be taken into discussion by the National Coaches College in order to generalize its application.

Research Reports

1. Preliminary study for identyfing modern handball game dynamics structure and implications upon specifical physical fitness.
2. The two-way relationship between playing model and physical training model for pro-handball players. Developing specifical physical fitness programs , according to the practicality route.
3. Testing the developed physical training programs and evaluating the quality and efficiency of the training program

POTETIAL CONTRIBUTIONS ACCORDING TO THE LATEST EXISTING ACCOMPLISHMENTS IN THE MAIN FLOW OF PUBLICATIONS

- Elaboration of project which will give efficiency to the specific physical training process for the pro handball players
- Laying down a paper with methodological prescriptions which will be evaluated by the National Coaches College in order to generalize it in practice

AIMS AND RESEARCH ACTIVITIES IN THE PROGRAMME:

year*	AIMS (aim name)	Associated activities **	Requested value for each actvity (RON)***
2009	-To study the specialty literature and the scientific research papers which approach the chosen theme. - Identifying the problems within the research theme and the research approach context -Establishing the work premises and hypothesis	Bibliographic review regarding the training individualization for handball players at the junior teams level Theoretic review of the actual state of knowledge and research regarding the theme.	*1000*
2010	- Establishing the main requests regarding the modern training -pointing the theoretical concepts regarding the differential training in handball - Delimiting the concepts regarding the individual training according to the training period, the position on the team and the specific physiological aspects - Statistical interpretation of the data with recording the progress made by the Trial Group in comparison with the Reference Group - Elaborating the pattern of the game - Elaborating the profile of the	Assessment of the initial training level of the handball players with whom the project is run.	*1000*
		Making a chart with personal data Elaborating the programs training . Establishing the initial and final period of testing Establishing the place where the research is run Establishing the tests used in the research	*500*
		Experimenting the programs training.	*1000*

	player for each position		
2011	Dissertation elaboration in the final form	Dissertation accomplishment	*2000*

WAY OF USE/SPREAD OF THE RESEARCH RESULTS (ARTICLE PUBLISHING, TACKING PART IN CONFERENCES, DOCTOR'S DEGREE DISERTATION ACCOMPLISHMENT

Elaboration, in the bases of the research done, of a training programs accodrind to the practical route: objectives, contents, strategies and evaluation instruments

Laying down a paper with methodological prescriptions which will be evaluated by the National Coaches College in order to generalize it in practice

PARTICIPATION WITH PROJECTS AT SCIENTIFIC/ARTISTIC WORKSHOPS

NR. CRT.	DISSERTATION TITLE	TEAM	CONFERENCE NAME	ORGANIZER/ YEAR
1.	Operational models for physical training of beginners in handball	F. Cazan	International Scientific Conference „ Body activities: traditional and modern"	2004 Sibiu
2.	Optimizing technical training of beginners in handball	F. Cazan	International Scientific Conference „ Education through sport movement for health"	Ecological University Bucharest 2004
3.	Game-effective means of teaching the handball, the primary	C. Rizescu , F. Cazan	International Scientific Conference „ New coordinated quality and efficiency in physical education and sports in light of European integration"	Ecological University Bucharest 2005
4.	Efficient processes throw the gate of the specific items in the semicircle for juniors second level	F. Cazan A. Georgescu	International Scientific Conference „Science and motryciti performance"	Ovidius University Constanta 2006
5.	Contribution in the discipline of handball extraculiculare hours to detect future athletes	F. Cazan A. Georgescu	International Scientific Conference „ Physical Education and Sport in the European vision" , Constanta	Ovidius University Constanta 2007
6.	Group learning and student-student communication	F. Cazan	International Scientific Conference „ Physical Education and Sport in the European vision" , Constanta	Ovidius University Constanta 2007

7.	Improving the process of training the young handball games via motion	Cazan Florin	International Scientific Conference "Perspectives in physical education and sport"	Ovidius University Constanta 2008
8.	Study on quick attack, the male teams in the National League Championship 2006-2007	Cazan Florin	International Scientific Conference "Perspectives in physical education and sport"	Ovidius University Constanta 2008
9.	Skill development by practicing the game of handball in the gymnasium at the VII grade	Cazan Florin	International Scientific Conference "Perspectives in physical education and sport"	Ovidius University Constanta 2009
10.	Taking in handball using dynamics and preparatory games to the second grade	Cazan Florin Georgescu Adrian	International Scientific Conference "Perspectives in physical education and sport"	Ovidius University Constanta 2009
11.	Specific physical optimization for professional handball players (preliminary notes	Colibaba Evuleț Dumitru Cazan Florin	International Conference „Physical Education, Sport and Health"	University of Pitesti 2009

CONTRIBUTIONS CONCERNING THE IDENTIFICATION OF KINESTHETIC PROFILE AND ITS CORRELATING WITH MORFO-FUNCTIONAL LEVEL (PHYSIOMETRIC) SPECIFIC TO APNEA DIVING

Gionea Mihai Bogdan Doctorate coordinator Georgescu Luminița

Key words: diving, plunging, kinesthetic profile, apnoea

Budget structure

NO. CRT.	BUDGET CHAPTER DESIGNATION	VALUE 2008 ** (lei)	VALUE 2009 ** (lei)	TOTAL VALUE (lei)
1	**PERSONNEL EXPENSES ***** - ***max. of Lei 850/monthly net and the contributions owed by employer and by employee***	21000		21000
2.	**INDIRECT EXPENSES**(*management*) ***- max. 5% of project value***			
3	**DISSEMINATION EXPENSES** (*dissemination results obtained and documentation-informing)*	3500		3500
4	**MOBILITY EXPENSES** (*visits for studies, participations in scientific manifestations, internal and international, transportation expenses, accommodation, daily fee, participation tax)*	6000		6000
5	**LOGISTICS EXPENSES** *(consumable items for laboratory, equipment, taxes for access to third parties research infrastructure, etc)*	7000		37500
	TOTAL	37500		37500

Presentation of the doctoral thesis:

Current status of knowledge in the field on a national and international level, related to the most recent references from the specialty literature.

The apnea diving practice represents a component for obtaining the qualification of "rescue diver".

The apnea diving is an educational activity which, in many countries from Europe and America, is managed by the faculties with Physical Education and Sports profile, and are provided with credit points(50-60 max.) in order to obtain the qualification.

The applicants have to prove their swimming knowledge and skills; they have to have the necessary abilities so that they could safely face the challenges related to the diving activity in a specific environment, which is water.

In performing this study, I started from the analysis of the legislative context on an international and national level. The methodological norms concerning public services organization for aquatic rescue are published in the Official Monitor, part Z, No. 675 from

October 4th, 2007.

These norms regulate the rescuing of persons, who are in danger of drowning and the prevention of any accidents of this type in swimming-pools, aquatic parks, pleasure ports or other places for bath (the Black Sea, arranged and natural interior waters).

Personnel hiring and supply are made according to the scale of the Ministry of Public Health and by the specific of accidents cases (art. 7) 3(2) and (4).

According to the Romanian Occupational Code (COR) the rescue diver is situated within group 514.305, major subgroup 5.1, and minor subgroup 514.8.

The organization of training courses in view of the respective qualification is made with the approval of the Ministry of Labor, the Ministry of Education, Research, Youth and Sport and CNFPA respectively, for this occupation is not an occupational standard.

This research aims at recommending the occupational standard according to CNFPA and "rescue diver" COR, following which to be applied on the students from the profile faculty within the University of Pitesti. The level -2- of qualification is required for students' participation along schooling through partial recognition of courses and of practical swimming and first aid works, and their completion with specific activities of diving.

Internationally, the International Organization for Standardization (ISO) uses the following classification:

- ISO- scuba diver with subgroups:
- Level 1 scuba diver ISO- 24 801 -1
- Level 2 scuba diver ISO-24 801 -2
- Level 3 scuba diver ISO-24 803-3
- ISO scuba instructor with subgroups:
- Level 1 scuba instructor ISO 24 802-1
- Level 2 scuba instructor ISO 24 802-2

In France, to the law concerning sports, specific norms and regulations were introduced ever since 2008 for the organization of the diving activity. Legally, the qualifications for organizing these training courses are held by profile sports federations, by the Ministry of Labor, The Ministry of Sports, Learning Federation and Underwater Sports.

At a world scale, there is the World Confederation of Underwater Sports, the World Association of Diving Monitors and a labor union of the Diving Monitors.

After having studied the international patterns, I have deemed the classification through the NAUI, PADI and respectively SS systems (Assessment of Underwater Instructors), the easiest to apply within our country. Thus, there are the following levels:

- Skin-diver- freediving or apnoea diving;
- Diving with a simple equipment- snorkelling;
- Rescue diver
- Scuba diver- Advanced
  - Master
  - Technical

My thesis proposal refers to the obtaining of the skin-diver certificate (level 1 and 2, respectively free or apnoea diving and the diving with a simple breathing equipment- snorkelling).

At the fundament of the accomplishment of this study lies my experience in this type of activity, and I am referring to the specialization in "swimming", obtained within the Faculty of Physical Education and Sports, Masters in Sports, Tourism and Leisure- the theme of the dissertation being the didactic activity of a preparer; also, there are the practical works of swimming, applied swimming and rowed, as well as the experience acquired within the IPOS program (Intensive Program in Outdoor Sports), developed during the period March 15-March 30, 2007 at the University of Artevelde of Belgium.

The hypothesis of the research anticipates a positive correlation between the qualifications

comprised within COR and the creation of occupational standards specific to the rescue diver.
The objective of the research is represented by the establishing of a plan for the management and dissemination of knowledge connected to the creation of the proposed occupational standard-rescue diver –COR, group 514305, major subgroup 5.1, minor subgroup 514.8.
Kinesthetic is the ability of the body to receive and perceive information from the sensitive receivers, and also from the centrally generated orders, under the shape of sensations related to position, movement, effort and weight, with the assessment of movement duration.

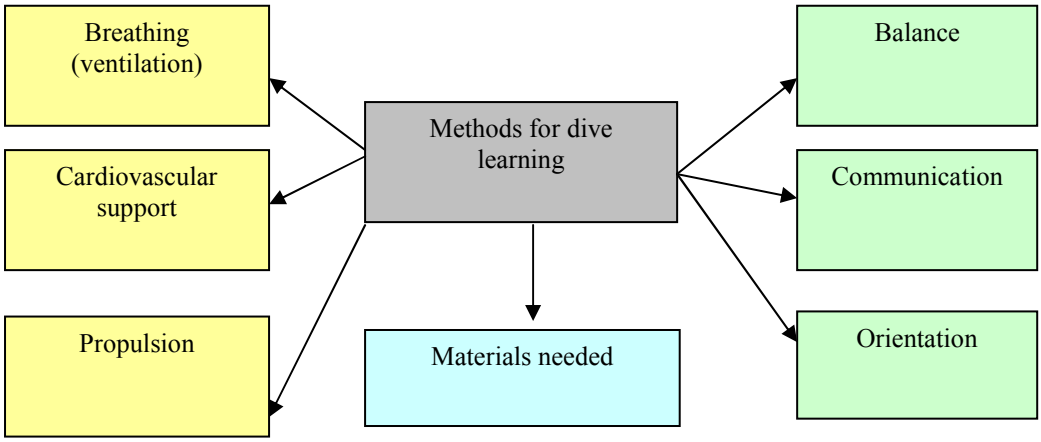
a) the peripheral somatosensitive system is represented by the multitude of receivers from joints, muscles, tendons, skin(extero and proprio-ceptive) which inform the cortical centers on muscles length, contracting state, muscular tension, segments position, temperature, pain, pressure, etc
b) visual receivers provide specific information, classified into two categories- *central* or *focal* within which the orientation in the environment takes place, the verticality state is perceived, the, movement of the surrounding objects, etc and *peripheral* or ***environmental***
c) vestibular receivers.

All the inputs of the three systems are integrated into the sensitive central structures.
The two processes-peripheral reception and central perception- are part of the Nervous System's sensitive systems that connect the individual with his/her exterior environment, the motor group being the stage through which the connection between the individual and physical activity is realized. At the base of the motor plan is the knowing of one's own limitations and abilities, of the action's purpose and of the environment in which the action takes place (risks, opportunities).

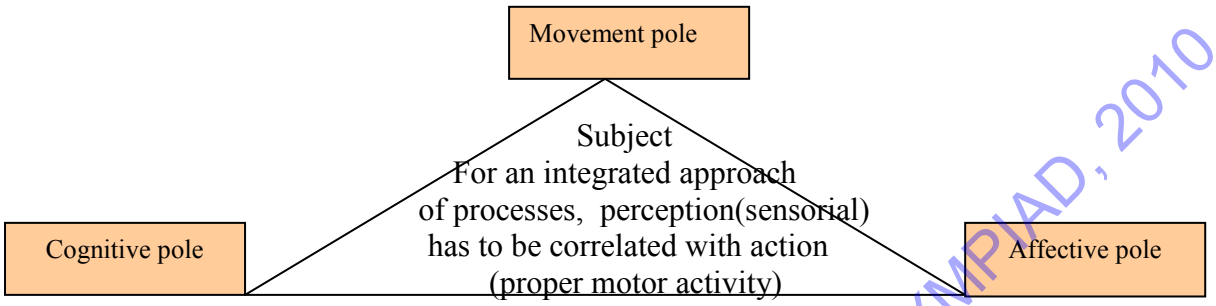
The analysis of rescue diver activity leads to the identification of the following stages: swimming, apnoea diving, freediving, assisted diving.
Training courses' organization is made on the basis of the CNFPA methodology (National Council for

Professional Training of Adults) - the equalization of some swimming skills, first aid knowledge, swimming and rowing practice, accompanied by PFG, apnoea diving techniques, skin-diver, assisted diving with the rescue boat, pre-hospital first aid, building the kinesthetic profile of underwater dives and it addresses the students within the Faculties of Physical Education and Sports.
Plunging into water and respectively dive determines the developing and learning of the necessary automatisms of the subject.

The apnoea diving supposes great swimming skills; it is a special type of swimming (particular).
Diving is defined by palmed propulsion of a special type, which takes place in a specific environment, respectively water.
Plunging and diving into water have at the fundament a number of six features, which can be systematized (codified) in the following manner:
This schema allows for the analysis of the ensemble of points of approaching of plunge and of water dive.



From the point of view of the resources used, learning axes could be classified as follows:



Human breathing is a mechanism destined for producing the energy necessary for cell functioning, through the oxygen brought by ventilation. Simplifying, breathing could be considered as the result of pulmonary ventilation and of gas exchanges of the body.

Human breathing is not meant for underwater exposure. Through its ventilator component, breathing is organized into three stages: inspiration (short phase), inspiratory pause, and expiration (long phase). During diving inspiration and expiration are active.

The development of the active expiratory automatism is needed, because of the implications related to the aquatic environment (the necessity of active expiration development in a forced manner and not by apnoea). The amplitude and the respiratory rhythm have to correlate with the other characteristics imposed by the diving activity.

Balance is modified because of the aquatic environment, to which the subject sensorial perception is added. In the water, all guide marks are rearranged; water is a liquid environment where Archimedes principle works.

Discovering sensations and educating them through water immersion is essential. The extero-ceptive and proprio-ceptive guide marks have to be developed before learning the diving technique. At the same time, new guide marks have to be rearranged and reconsidered for space orientating.

Proprio-ceptive system represents the system that responds to our perceptions; its development prevents accidents from happening.

Extero-ceptive system comprises the abilities we have to have, in case of an environmental change situation.

Balance and lack of balance are correlated with respiration and water propulsion, respectively.

Propulsion is made with the superior and inferior limbs participating; its synchronizing with ventilation is essential and is influenced by the following factors: space (propulsive surface,

orientation, profile) and time (duration, continuity, speed, movement rhythm).
Communication is visual, tactile; there is a hands code. Most accidents happen because of defective communication.

Orientation serves for environmental awareness and is essential for a successful dive.
Sport materials: mask, tube, fins, diving glasses, etc.
Motor pole is important for functions effectiveness during diving and comprises biomechanical information, bio-informational, energetic resources.
Biomechanical pole is important for movement; propulsion has to be hydrodynamic, the subject should have a good aquaticity (floatability).
Informational pole comprises the total of proprio and extero-ceptive sensations.
Bioenergetics pole refers to energetic substratum employed.
Cognitive pole (thinking, observation, curiosity) is essential for learning, but also for individual's safety.

Training courses objective is represented by subject's obtaining of autonomy or of independence, under apnoea diving conditions. The adaptation for obtaining the abilities to the conditions specific to aquatic environment is essential.
Affective or relational *pole refers* to integration into a specific environment, to emotions ignoring, fear suppressing, anticipation and social integration.

Diving practice is still used for an integrative purpose, under the form of cryotherapy.
The thesis's content shall be systematized into theoretical approaches connected to the presentation of body adapting to water and to apnoea, respectively: diving's physics, cardio-respiratory functional system, underwater vision, thermo genesis, immersion and bloodshift reflex; psychological analysis of causes related to apnoea stress: breathing techniques, relaxation techniques, Valsalva compensating maneuvers, tubal gymnastics

- Notions of swimming and diving, indications and contra-indications, setup of pre-participation file and participants selection
- Setup of the kinesthetic profile by the identification of proprio and extero-ceptives involved in the realization of motor control and attention concentrating, specific to the activity of diving to free apnoea and assisted diving.
- Setup of physiometric profile by objectification of the physiological and somato-functional indicators (somatoscopy, somatometry, dynamometry, spirometry, functional cardio-respiratory and effort tests , etc)
- Setup of the psychological profile: sensibility, activity, dissimulation, anxiety, etc)
- Identifying first aid measures on the management of main accidents that happen on water immersion and ensuring of pre-hospital medical assistance
- Assuming of the signalizing code, specific to underwater activities
- Physical training for the selected subjects and water specific training.

Lot of subjects
Students at FEFS (Faculty of Physical Education and Sports), the University of Pitesti, bachelor program
Place of development: the afferent Olympic Swimming -pool and outdoor swimming-pool
Sport materials: mask, tube, fins, diving glasses, etc
Necessary equipment: anthropometric compass, height measurement device, metric band, chronometer, scale, stethoscope, tensiometer, spirometer, balance board, SALLUSTAR device, goniometer, dynamometer, etc.
Research methods employed: observation, sociological investigation, experiment, static-mathematics analysis.

Potential contributions related to the most recent achievements existent within the main publications flux.

8.4.3 The objectives and research activities within the program:

Year*	Objectives (objective's designation	**Associated activities ****
2009	1. Establishing the conceptual methodological framework(theoretic) necessary for the identification of structural components with a role in acquiring the professional skills for rescue diver, levels 1 and 2 according to COR	1. The identification of the relational structures between theory and the creation of a practical pattern in view of complementing in a specific system
		2. The proper knowledge of the theory of argumentation as a fundamental factor in achieving the scientific approach
		3. The understanding of the functioning of the main apparatuses and systems of the body and the knowing of its limitations is fundamental for a good research, oriented on obtaining of social and individual progress.
	2.	1.
		2.
		3.
2010	1. Creating and integrating the proposed theoretic pattern, as well as validating the practical implementation of the pilot program, consulting the interdisciplinary team formed of swimming specialists, first aid, psychology, physical preparation, legislation and creation of occupational norms and standards for rescue diver, levels 1 and 2(apnoea diving and adapted simple diving)	1. Identification and assessment of the necessary material backing for the realization of the aimed purpose.
		2. Definition of subjects' admission or rejection criteria within the research, in order to ensure a rigor flux, for the increase of internal validity degree.
		3. Analysis of the evaluation and testing methods, as well as establishing efficacy of the proposed methods.
		4. Establishing of the research lines and of the correcting possibilities, of theoretical and practical implications of the obtained results.
	2.Elaborating the thesis on final form	1. Establishing of the managerial plan, as well as dissemination of knowledge and risks management
		2. Underlining the theoretical and practical importance of enlarging the current code of skills and qualifications, available for the EFS (Physical Education and Sports) students.
		3. Finalizing the written material and the presentation of annexes.

Justification for the budget required:

To be presented in detail that what is wanted to be acquired (with approximate costs) and the mobilities provided to be performed.

The manner of exploitation dissemination of research's results (articols publication, participation to conferences, finalizing the PhD thesis):

- Obtaining of a qualification for the students from the EFS domain along schooling for the obtaining of supplementary incomes, for financial autonomy
- Identifying the potential impact on subjects' socialization and social integration
- Implementing and validating into practice of the rescue diver certificate, levels 1 and 2, in accordance with COR

Integrating development programs of future research with the potential of changing some current methodologies.

Participation with projects in sessions of scientific/artistic communication

No. crt.	Project title	Conference, publishing house
1.	The increase of performances, by optimization of coupling, combining and regulation of the specific movements in crawl swimming in children	International Conference : Physical Education, Sport and Health Pitesti, 21-23 November 2008. Publishing house: EUP
2.	Research on the acceptability of comfort conditions provided by school camps	International Conference : Physical Education, Sport and Health Pitesti, 21-23 November 2008. Publishing house: EUP
3.	Study on delimiting, on the importance and preferences of leisure consumers	International Conference : Physical Education, Sport and Health Pitesti, 21-23 November 2008. Publishing house: EUP
4.	Research on specific means of mountain school camps	International Conference : Physical Education, Sport and Health Pitesti, 21-23 November 2008. Publishing house: EUP
5.	Study on the content and socio-human relations inside a thematic mountain camp of children and teenagers	International Conference : Physical Education, Sport and Health Pitesti, 21-23 November 2008. Publishing house: EUP

- Contributions concerning the use of leisure activities within mountainous practice in winter of the students from the Faculty of Physical Education and Sports	Scientific Report, the Publishing House of the University of Pitesti, 2007
- Research on the role of mountainous activities over human personality	Scientific Report, the Publishing House of the University of Pitesti, 2007
-The increase of performances, by optimization of coupling, combining and regulation of the specific movements in crawl swimming in children	Scientific Report, September, 2008, Iasi

CONTRIBUTIONS AIMING THE ATHLETES' SELECTION SYSTEM'S OPTIMISATION IN THE FIRST FORMATIVE PHASE

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Abstract of the Doctoral Research Program:

The Program's topic aims to elaborate, experiment and to implement an alternative selection system for the first formative phase in athletics which should embeds, beside the existing tools, several tests from the psychomotricity and coordinative abilities areas. For this reason, I effectuated a preliminary research targeting two directions: on a hand, the research of some international selection systems in order to underline testing modalities for children in the first formative phase and, on the other hand, I analyzed the evolution of three athletes generations who were selected according to the current selection system promoted by FRA (Romanian Athletics Federation) at the national level, athletes who competed to the first National Championships for Children in 1988, 1989 and 1990, in order to reveal the efficiency of current selection system in Romania. I followed their entire sport career, starting from kids age category and ending nowadays, to all in and outdoor national championships, at each sport. The research shows the performances, improvements, stagnations, regressions and abandons of the sport career.

I noticed that the athletes selected according to the current selection criteria do not succeed to cover the actual need for talents and did not supported Romania in keeping the performance level which consecrated our country in athletics competitions. I also witnessed, at the competitions which I attended as a viewer, some athletes do not biomotrical and behavioral correspond to the sport trial which they compete, revealing flaws in the preliminary formative phase of the selection process.

The objective of this project is to optimize the current athletics selection system in the first formative phase, by adding value to it through sport events, psychomotricity and coordinative abilities tests, by improving its efficiency, promoting sportive orientation in athletics within schools in correlation the first with the latest.

I studied the actual selection system applied Romania and I observed that, compared to the multitude of athletics trials which the future performance athletes are selected for, it contains a limited number of trials, physical exclusively, which do not offer the specialists the possibility to select young people who demonstrate abilities favorable to high-performance athletics practicing and to take advantage of the performance potential in different athletic trials.

The main objective of this project is to elaborate, experiment and to implement an alternative selection system in athletics, which should be based on sportive orientation activities within schools.

The project targets several research directions: to study specialized bibliography treating the research challenges and highlighting the trends in selection observed at national and international levels, to conduct a preliminary research regarding the structure and efficiency of the primary selection system in athletics, to put up, test and apply an alternative selection system in athletics, which should include, beside physical trials, some tests for psychomotricity and coordinative abilities.

Budget's structure:

No.	NAME OF THE BUDGETARY CHAPTER	YEAR I AMOUNT (RON)	YEAR II AMOUNT (RON)	TOTAL AMOUNT (RON)
1.	**PERSONNEL EXPENSES** * (salaries, contributions to health, pension, unemployment public insurance budgets, collaborations, subsistence for external/internal professional travels)	**16900**		**16900**
2.	**INDIRECT EXPENSES** (administrative expenses, max 5% of grant's value)			
3.	**EXPENSES FOR INFORMATIVE AND DOCUMENTARY PURPOSES**			
3.1	**Direct material expenses**	**2260**		**2260**
3.2	**Travelling expenses** (study visits, attendance to national and international scientific events according to grant's subject, attendance fees, transportation and accommodation costs) - max. 15% of grant's value	**4330**		**4330**
4.	**MATERIALS MATERIALE, OBIECTE DE INVENTAR** (consumable materials including reactives, spareparts, fees for allowing access to third-party research infrastructure),	**3050**		**3050**
5.	**EXPENSES FOR RESEARCH RESULTS DISSEMINATION** (editing & publishing expenses, activities performed for achieving the goals of the research and for disseminating it's results)	**500**		**500**
6.	**CAPITAL EXPENSES** (equipment, software/upgrading max. 50% of grant's value)	**0**		**0**
7.	**ACCESS FEE** to specialized laboratories (for TD projects)	**0**		**0**
	TOTAL			**27040**

Stage of the Doctorate thesis:

Currently, the Doctorate thesis is in the stage of succeeding to define the objective of the research project which aims to design the generic theoretical framework regarding the selection for first formative phase in athletics, to define the specificity of this system taking into account the requirements for each age category subject of the research. I identified the most relevant aspects regarding motric and psychomotric abilities required for practicing athletics at a high level of performance. I studied the main somatic, functional and psychological characteristics of children ageing 9 to 12, age on which the first formative selection is effectuated in athletics.

The tasks of the research done until now are:

1. Biblographic documentation, focused on identification of the main requirements of the

selection process, in the formative phase and for the established age categories;

2. Study of the references related to international selection processes for the first formative phase in athletics;

The research project started with an introspective preliminary research, materialized in 2 studies:

- The first study was based upon athletics championships' informative bulletines, "Technical results" volumes of the Romanian Athletics Federation, whose goal was the objective acknowledgement regarding the efficiency of the selection system for the first formative phase, system promoted in the '80s, valid even nowadays. The current selection system in Romania benefits of criteria, trials and tests developed on experimental basis, but even this one is susceptible for being modified, in order to update it according to the latest scientific developments in this field. The study was performed by researching the evolution of three generations of athletes, who had started their activity at c 1 category in 1988,1989,1990;
- The second study aims a dissemnination of the content of selection systems in countries with tradition in high performance athletics and results on European and worldwide highly appreciated.

9. Presentation of Doctoral program:

CURRENT STAGE OF KNOWLEDGE IN THIS DOMAIN AT NATIONAL AND INTERNATIONAL LEVEL, RELATED TO THE LATEST REFERENCES FROM THE SPECIALITY LITERATURE

Introduction

Studies, experiences and current researches confirmed that high performance is directly conditioned by the human "material" that enters into athletics, validating the high importance of selection process within the training activity further performed, for obtaining the best athletic performances.

Human aptitudes and performance in sport are conditioned by the appreciation of human native qualities. These aptitudes' evaluation determines an adequate orientation of young people towards individual sports. Francis Bacon said that those whose native aptitudes are compatible with their aspirations are very lucky.

The need for athletics orientation activities and for preliminary selection became more and more highlighted nowadays, many more authors – Nicu. A. (1993), Colibaba D. (1998), Dragnea A. (2002) affirming that the probability of obtaining valuable athletic performances increases as the required basis needed was established early, in the childhood.

In the last decades, in highly performant sports, generally speaking, and in athletics, particularly speaking, incredible results were obtained due to some biological, social, economic, psychological, technological etc. features, making unsufficent just the natural selection (with some exceptions), pushing the sports science through a scientific drive selection.

Selection is defined as "a systemic activity of specialists, organized and developed according to some biological and psychological criteria in order to discover children with exceptional aptitudes for different sports practice."

(Dragnea, C.A; Teodorescu, S.M, 2002, pg. 111).

In order to ensure the needed reserve for the ongoing refreshment of children sample and especially juniors, the trainers must perform a continuous and systematic activity for training the children even from early ages, must be aware that these are the main source for selection and launching of young talents.

High sports performances are conditioned by biological profiles to which, above genetic

inheritance are overlapping physical abilities well worked and improved. At the current requirements level, sports performance solving based only on native biological abilities or on sustained work ignoring its quality or quantity is a out-of-date concept. Sometimes, an impressive work volume with an optimal quality, overlapping the motivation and an adequate biological constellation represents the indispensable parameters of high performances.

In the last years, in performance sports, it appears more and more critical the necessity to point not only some norms and criteria for selection in the performance sports but also medical and athletic orientation, according to the aptitudes level and not by chance.

The main objective in identifying talents is to discover and select those athletes with the most appropriate aptitudes for sports. (Bompa T.O, 2001,pag.231).

At the national level From the last three decades, young athletes selection and orientation represents an issue for scientists and trainers. Still, the types and methods for children selection and orientation, currently applied, are not perfect. It should be underlined that it does not exist a perfect selection system, there are no unbiased criteria based on scientific arguments through which, with a certain level of confidence, it could be predicted the individual evolution in sports. The most important aspect is that, within the actual Romanian preliminary selection system, issued by the Romanian Athletics Federation in the '80s, are included only physical trials, which are not enough to emphasize the real talent and potential of children. That is why errors are not singulars, having a negative impact, not only in sports, but also in economy, ethical or educational areas.

For these reasons we consider that the elaboration of an alternative selection system for the first formative phase in athletics should comprise, beside physical trials, tests from the psychomotricity and coordinative abilities which will benefit to the initial selection system, increasing its efficiency.

The trials included in the initial selection system are: ***50 m Standing Running; Long Jump; Oina Throw; 600 m Running.*** These trials are specific to age category 9 – 12, corresponding to kids II and I. For selection, children have to achieve the minimal scoring according to Table 1&2.

Table 1. ***Height criteria required for selection – admission of the beginners in the organized athletic activity***

Age	Normal Height		Exceptional Height	
	boys	girls	boys	girls
9	-	137	-	142
10	141	142	147	149
11	146	147	154	154
12	152	154	161	161

Table 2. ***Total points requested for admission of the beginners in the organized athletic activity***

Age		Total points	
Boys	Girls	Normal Height	Exceptional Height
9	10	9	6
10	11	12	8
11	12	15	10
12	13	18	12

This total of points would be achieved at 3 from the 4 events by the children with normal heights and at 2 from the 4 events by the children with exceptional height. The total will be

computed according to Table 3.

Table 3. ***Scoring table for selection – admission of the beginners in the organized athletic activity***

BOYS					GIRLS				
Points	**50m standing running**	**Long jump**	**Oina Throw**	**600m**	**50m standing running**	**Long jump**	**Oina Throw**	**600m**	**Points**
30	6.0	3.05	80	1:26	6.5	2.85	58	1:40	**30**
29	6.1	3.00	78	1:26,5	6.6	2.80	56,5	1:40,5	**29**
28	6.2	2.95	76	1:27	6.7	2.75	55	1:41	**28**
27	6.3	2.90	74	1:27,5	6.8	2.70	53,5	1:41,5	**27**
26	6.4	2.85	72	1:28	6.9	2.65	52	1:42	**26**
25	6.5	2.80	70	1:28,5	7.0	2.60	50,5	1:42,5	**25**
24	6.6	2.75	68	1:29	7.1	2.55	49	1:43	**24**
23	6.7	2.70	66	1:30	7.2	2.50	47,5	1:43,5	**23**
22	6.8	2.65	64	1:31	7.3	2.45	46	1:44	**22**
21	6.9	2.60	62	1:32	7.4	2.40	44,5	1:45	**21**
20	7.0	2.55	60	1:33	7.5	2.35	43	1:46	**20**
19	7.1	2.50	58	1:34	7.6	2.30	41,5	1:47	**19**
18	7.2	2.45	56	1:35	7.7	2.25	40	1:48	**18**
17	7.3	2.40	54	1:36	7.8	2.20	38,5	1:50	**17**
16	7.4	2.35	52	1:38	7.9	2.15	37	1:52	**16**
15	7.5	2.30	50	1:40	8.0	2.10	35,5	1:54	**15**
14	7.6	2.25	48	1:42,5	8.1	2.05	34	1:56	**14**
13	7.7	2.20	46	1:45	8.2	2.00	32,5	1:58	**13**
12	7.8	2.15	44	1:50	8.3	1.95	31	2:00	**12**
11	7.9	2.10	42	1:55	8.4	1.90	29,5	2:05	**11**
10	8.0	2.05	40	2:00	8.5	1.85	28	2:10	**10**
9	8.1	2.00	38	2:05	8.6	1.80	26,5	2:15	**9**
8	8.2	1.95	36	2:10	8.7	1.75	25	2:20	**8**
7	8.3	1.90	34	2:15	8.8	1.70	23,5	2:25	**7**
6	8.4	1.85	32	2:20	8.9	1.65	22	2:30	**6**
5	8.5	1.80	30	2:25	9.0	1.60	20	2.35	**5**
4	8.6	1.75	28	2:30	9.1	1.55	18	2:40	**4**
3	8.7	1.70	26	2:35	9.2	1.50	16	2:45	**3**
2	8.8	1.65	24	2:40	9.3	1.45	14	2:50	**2**
1	8.9	1.60	22	2:45	9.4	1.40	12	2:55	**1**

By "exceptional height" are addressed those children who attend the selection contest and are characterized by exceptional anthropometric measures: arms anvergure, inferior or superior limbs, height etc.

At the international level. I also studied other specific preliminary selection systems in order to see if they include tests and events addressing other areas than motric (physical) area.

In **Germany**, also in the '80s, was elaborated a project financed by the Federal Institute for Sport Science, project representing an attempt to improve the tools for talents searching. The kids were selected then based on: ***basic tests for motric ability, performance during some kids contests, teacher's or trainer's recommendation.***

Basic tests used in selection are presented in Table 4, together with the number of trials to each event of the test and the requested anthropometric measures. The system has been applied in schools from Bochum and Dortmund, for children ageing between 10 and 11.

Table 4. ***Basic Test for selected motric aptitudes and additional anthropometric measurements (Stork, 1985)***
(Youth and Sports Ministry, Research Center for Sports,1995, pg.41-73).

	Motric Aptitude	Applied Test	Number of trials	Measurement
Basic Tests	Speed	- 3om standing running; - 30m launched start running (10m)	1 1	Sec
	Strength (inferior limbs)	- pentajump; - long jump; - long jump following in-depth jump.	2 2 2	Cm
	Strength (superiors limbs)	- Ball throw (400g), - Shot Put (3 kg)	2 2	M
	Endurance	800 m running	1	Sec
	Coordination	Steeplechase running	1	Sec
Anthropometrics	Height	-	-	Cm
	Weight	-	-	Kg
	Anvergure	-	-	Cm
	Legs length	-	-	Cm

In other German lands, the young people evaluation and, implicitly, selection process is based on a federal contest organized in schools, no well-defined selection system for the first formative phase in athletics exists. At this contest have access, on a voluntary basis, all German schools. The contest between schools is one of the most attractive sports educational proposals in Germany, inducing to children the joy of sports practice, educating them for teamwork, impartiality and correctitude.

This contest is also an opportunity for trainers from sports clubs to observe and select kids gifted with real talent for performance sport practicing and is addressed to children from four different age category. It includes the following events: badminton, basketball, football, acrobatic gymnastic, handball, hockey, judo, athletics, sailing, swimming, tennis and table tennis, volleyball. The school teams comprise 12 pupils, boys and girls, who have to compete for entrance in the federal final round. Kids' evaluation is done according to each age and gender category.

I will further give examples regarding the events to which the children compete in the athletic contest. The age category presented is, as named by the German system, age 14 and younger.

So, for **girls** (age 14 and younger), the events are: ***50 m running, long and high jump, 80g ball throw, two 4x50m relay, 800m running.***

For boys (age 14 and younger), the events are: ***50 m running, long and high jump, 200g ball throw, two 4x50m relay, 1000m running.***

All these contests are differently organized in the different German lands and ends, each time, at the national level. These contests are good opportunities to discover young talents.

According to the above mentioned, I can conclude that German selection system comprises control events just from motricity area, no coordinative aptitudes tests are included (www.leichtathletik.de, accessed 16.09.2009 17.00 time)

In **Sweden,** the first sport school has been established in 1975. The sport school for athletics has started in 1978 and in 1979 has been opened the sport school from Lidingoe-Stockholm. The Sweden Athletics Association does not have a centralized selection system for gifted young athletes. Each athletics school has its own testing system. Children are tested each autumn and the events are aiming ***speed, strength, endurance, coordination and flexibility***.

Also, a medical examination is done especially focused on ***foot and back torso position***. An interview is also conducted in order to find out their social background, their families' support

and their goals in life and sports.

Table 5. ***Tests used for preliminary selection in Sweden*** (Youth and Sports Ministry; FRA,1995, pg. 18-19).

TESTS	GENDER	AVERAGE RESULT	VARIATION
30 m running with launched start	M F	3.36 sec 3.66 sec	3.15-3.68 sec 3.47-3.92 sec
Jump strength 5 steps (pentajump)	M F	13.54 m 11.54 m	15.07-12.35 m 12.35-9.90 m
Left foot jump strength 5 steps (pentajump)	M F	13.11 m 11.39 m	14.96-12.00 m 12.65-9.95 m
Right foot jump strength 5 steps (pentajump)	M F	13.12 m 11.42 m	15.07-11.92 m 12.60-9.58 m
Cooper endurance 12 min running	M F	3.100 m 2.793 m	3.395-2.550 m 2.950-2.200 m
Height	M F	180.7 cm 168.7 cm	190-168 cm 180-155 cm
Weight	M F	67.7 kg 57.7 kg	85-52 kg 75-44 kg

In **France**, the selection and testing system of young people includes the following events:

Table 6. ***Tests used in preliminary selection in France*** (www.athle.com accessed in 18.09.2009, 12.30 time)

Event	Gender	Tests				
Running	B	50m	100m	1000m	50mg	
	F	50m	100m	1000m	2000m	50mg
Jumps	B	high	long	pole vault	triple	
	F	high	long	pole vault	triple	
Throws	B	shot put	hummer	discus	javelin	
	F	shot put	hummer	discus	javelin	
Relays	B	4 x 60m	800m - 200m - 200m - 800m			
	F	4 x 60m	800m - 200m - 200m - 800m			
Combined events	B	Tetrathlon – 50mg – discus – high jump – 1000 m				
	F	Tetrathlon – 50mg – javelin – high jump – 1000 m				
Multiple events	B	Triathlon – 1 running – 1 jump – 1 throw				
	F	Triathlon – 1 running – 1 jump – 1 throw				
Walk	B	2000 m				
	F	2000 m				

All these events are attended within "Kids Athletics" Contest. "Kids Athletics" Contest is the most appreciated competition for children under different age categories, supporting the discovering of real sport talents.

For 7 to 9 age category, 17 different events are available for sport clubs managers who choose 6 to 10 events to which the children will participate. During an entire competition season, children will have to participate to all events dedicated to their age category.

For 10 to 11 age category there are 10 events available, out of which 6 to 8 including in a meeting program. All these events represent the evolution towards traditional athletics. Combined and multiple events above mentioned represent the last phase for these children before entering the performance athletics.

Table 7. ***Events and preliminary selection norms in athletics in France*** (www.athle.com accessed on 18.09.2009 12.30)

Events	Norms	
	Boys	**Girls**
50m	7"74	8"14
100m	14"94	15"54
1000m	3'33"0	3'57"0
50m hurdles	10"24 (0.76m)	10"84 (0.65m)
High jump	1.27m	1.20m
Pole vault	1.80m	1.60m
Long jump	4.10m	3.65m
Triple jump	8.70m	8.00m
Shot put	8.00m (3kg)	7.00m (2kg)
Discus throw	20.00m (1kg)	17.50m (600g)
Hummer throw	25.00m (3kg)	20.00m (2kg)
Javelin throw	23.00m (500g)	16.50m (400g)
Triathlon	50 pct	50 pct
Tetrathlon	1050 pct	950 pct
2000m running	12'50"0	13'55"0
10min running	1580 m	1450 m

Orientation norms for primary selection of children in schools from **Minsk – Byelorussia** has been put together based upon mass examination of these pupils, taking into account that they do not practice any sport. For this initial selection, most programs includes exercises clusters and control norms.

Table 8. ***Orientation norms for primary selection in Minsk***

Evaluation tests for basic motric abilities		**Gender**	**Age**					
			8	**9**	**10**	**11**	**12**	**13**
Movement speed – 6x; sec.		**B**	15,0	13,5	12,5	12,5	12,0	12,0
		F	15,0	14,5	14,0	13,0	12,5	12,0
Strenght;kg		**B**	40	50	50	65	70	75
		F	30	35	40	50	60	60
Speed – strength abilities	Long jump; cm	**B**	125	135	145	155	165	175
		F	125	125	130	150	160	165
	Vertical jump; cm	**B**	30	30	33	35	38	42
		F	25	30	31	32	36	37
Endurance	Static; sec.	**B**	14,5	15,5	18,5	21,5	24,5	25,0
		F	8,5	9,0	11,5	12,5	14,0	14,0
	Dynamic	**B**	20	22	25	25	36	40
		F	12	15	19	22	28	30
	General	**B**	2,55	2,25	2,25	2,15	2,15	2,00
		F	3,05	3,00	2,50	2,40	2,30	2,20
Mobility; cm.		**B**	1	2	3	3	3	3
		F	3	4	4	4	5	5

In the primary selection system, the specialists from Minsk, Byelorussia, grounds on a structure which encompasses the average growing pace for morpho – functional indicators of children who does not practice sport. With them, a more simplified appreciation of development tests is performed and the norms elaboration based upon growing pace allows more

differentiated evaluations. Growing pace is computed according to the following formula:

T= (100* (P2-P1))/(0,5*(P1-P2))%, in which

T= growing pace,

P1 and P2 = Initial and final values for indices (after 2 years)

Table 9. ***Growing pace for morpho – functional indices of children who does not practice sport***

Morpho – functional indices		Gender	Growing pace in %		
			From 8 to 9 years	From 9 la 10 years	From 10 la 12 years
Body length		B	7	7	7
		F	8	5	8
Body weight		B	23	18	15
		F	19	26	21
Thoracic circumference		B	8	7	5
		F	6	10	8
Lungs vital capacity		B	20	23	13
		F	16	31	23
Inhale –exhale endurance		B	2	23	27
		F	12	21	14
Strength		B	26	24	35
		F	30	32	39
Movement speed		B	-19	-9	-5
		F	-8	-11	-10
Speed – strength abilities	Long jump	B	3	14	17
		F	3	20	20
	Vertical jump	B	9	16	14
		F	21	6	15
Endurance	Static	B	25	35	27
		F	50	30	4
	Dynamic	B	11	9	31
		F	41	38	37
	General	B	-17	-9	-9
		F	-9	-12	-15
Mobility		B	40	64	0
		F	11	3	9

As a result of anthropometric measurements, the essential criteria within the first formative phase of the selection process, of the motric aptitudes tested above mentioned and handling of the growing pace of morpho-functional indices form the upper table, the specialists in selection can successfully conduct this process, identifying young talents who could succeed to achieve high performance by specific trainings. (National Council for Physical Education and Sports, Research Center for Physical Education and Sports "Sports for Children and Young People" - vol XLV" Gujalowski, A.A. (URSS) – "Growing pace of morpho-functional indices as selection criteria for young athletes" pg. 19-24)

United States of America never had an organized system for identification and selection of athletes gifted with Olympic potential at an early age. Due to wideness and diversity in the US

and to the lack of direct control over young athletes, this type of program has been seen as impracticable by the US Olympic Committee (USOC). Also, as long as US athletes gained a lot of Olympic medals, just by "attending", the majority considered that a talents selection is useless.

The program applied in the US for talent evaluation is administrated similar to a physical condition test and, for this purpose, can be used as testing locations the existing sports clubs, parks and leisure programs, university camps and physical education lessons. The results obtained would be summarized and the standards would be designed to age and gender, at each test category. Boys and girls who obtained good results at field test will be encouraged to practice athletics. Also, testing results will be used for recommending to an individual a certain event to be focused upon.

Table 10. ***Tests used for talent evaluation in the US***

Tests
height
weight
body structure
long jump
vertical jump
five jumps for distance
60 m sprint with stating start
30 m sprint with stating start
30 m sprint with moving start
steps frequency during 30 m sprint with moving start
length of steps during 30 m sprint with moving start

1. **height;**
2. **weight;**
3. **body structure**. Adipose tissue percentage of every athlete will be determined through measurements of skin pleats using sliding calipers. For men, the measurement is done to cvadriceps and shoulder tendon.

Adipose tissue can be determined using the following formula:
% Adipose tissue (men) = [(4.57 / Body density) – 4.142] x 100.
% Adipose tissue (women) = [(4.201 / Body density) – 3.813] x 100.
Body's adipose tissue Total = % Body's adipose tissue x weight.
Slim body mass = weight – Body's adipose tissue Total

4. **long jump**;
5. **vertical jump**. The athlete stands in vertical position, touching the jumps panel. Then, from a moving position, jumps and reaches the jumps panel as high as possible.
6. **five jumps for distance**;
7. **60 m sprint with stating start;**
8. **30 m sprint with stating start**. During 60 m sprint, 2 time monitors are placed at 30 m distance. It is used the best time of 2 trials.
9. **30 m sprint with moving start**. This measurement is done for a "flying" moving start. The time recorded for 30 m sprint is subtracted from 60 m sprint final time.
10. **steps frequency during 30 m sprint with moving start** . The times are recorded for a step done with a certain foot between 30 and 60 m as determined, using two time counters, one for each foot. The numbers of steps done with each foot are added and divided by the time recorded for 30 m sprint. E.g. 8 steps done with the right foot + 7

steps done with the left foot = 15 steps. 15steps / 5.0 sec between 30 and 60 m = 3 steps/second.

11. **length of steps during 30 m sprint with moving start**. Is determined from 30 m sprint with moving start. Is the numbers of steps between 30 and 60 m divided by 30.

E.g. 15 steps..... 30 m / 15 steps = 2 m length of step.

Performance tests are effectuated in the same order for all athletes, in order to eliminate any serial effect. Except for anthropometric measurements (height, weight, adipose tissue), all tests are done twice and the best result is used in computation. (Rogers L. Joseph – US Athletics Trainer Manual – Sports National Agency, Bucharest 2004 (pg 25-32)

Brazil uses as preliminary selection system the CELAFISCS tests cluster which includes the following tests according to Centro de Estudos do Laboratorio de Aptidao Fisica de Sao Caetano do Sul din San Paulo:

Table 11. ***Tests used in the preliminary selection in Brazil*** ((Youth and Sports Ministry, Research Center for Sports, 1995, pg.49)

VARIABLES	MEASUREMENTS
Anthropometrics	Height Weight Skin surplus
Metabolic – aerobe - anaerobe	VO2 max estimated l-m ml (kg-min)-1 40 sec running
Neuromuscular strength	Vertical jump Long jump Backward sitting elevations Arms lifting Hand strength
Speed	50 m sprint
Agility	Zig –zag running
Psycho -social	Perceived effort - sociometric
Ageing	Menstruation age

We can sustain that, even on the south-american continent, the events for selecting children are only physical, no tests from psychomotricity or coordinative aptitudes areas exist.

The **Hungarian** selection system includes events and norms from the motricity area differentiated by age and gender category. In order to present the events for children is given as example „**DR. PETER BACSALMASI MEMORIAL TEAM AND INDIVIDUAL COMPETITION**" contest destined to children and young people.

Table 12. ***Hungarian events system for preliminary selection***

No.	Event	Boys Age 10-11	Girls Age 10-11	Boys Age 12-13	Girls Age 12-13
1.	60m running	x	x	-	-
2.	80m running	-	-	x	x
3.	800m running	x	x	x	x
4.	Long jump	x	x	x	x
5.	Qina throw	x	x	x	x
6.	3 kg Shot put	-	x	-	x

After reviewing the international specialty literature I concluded that most of the selection systems, meaning the German, Swedish, French, Byelorussian, American or Brazilian system, use generally, like the Romanian preliminary selection system, motric events for future athletes' selection. Also, , some countries never had an organized system for identification and selection

of athletes with Olympic potential from an early age.

For example, the US talent evaluation program could be applied as a physical condition test in the established sports clubs or during the physical education classes or the tests of the French system are performed as events during "Kids Athletics" contest, a lead competition for children of different age, supporting real sport talents discovery.

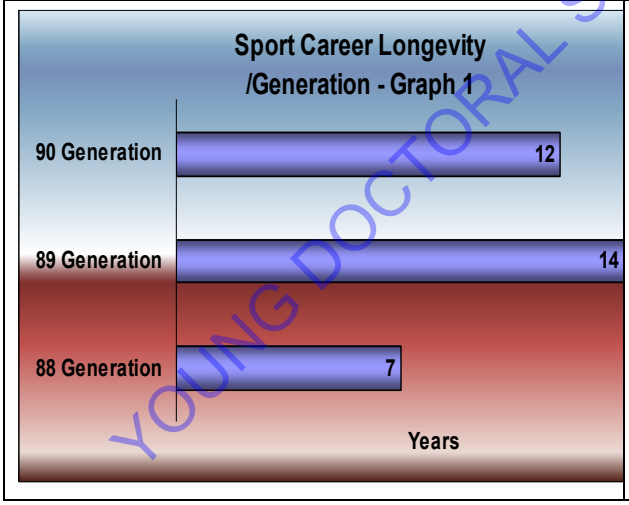
Taking into consideration these data and information, we can conclude that is recommendable to consider the necessity to propose an alternative selection system in Romania which evaluates psychomotricity and coordinative aptitudes features. In order to appraise the current Romanian selection system and to provide arguments to elaborate, try out and implement an alternative selection system which better highlight future athletes' complexity, I effectuated a preliminary research upon three different athletes' age categories who evaluated from kids category until senior category, selected according to actual norm and events of the selection system.

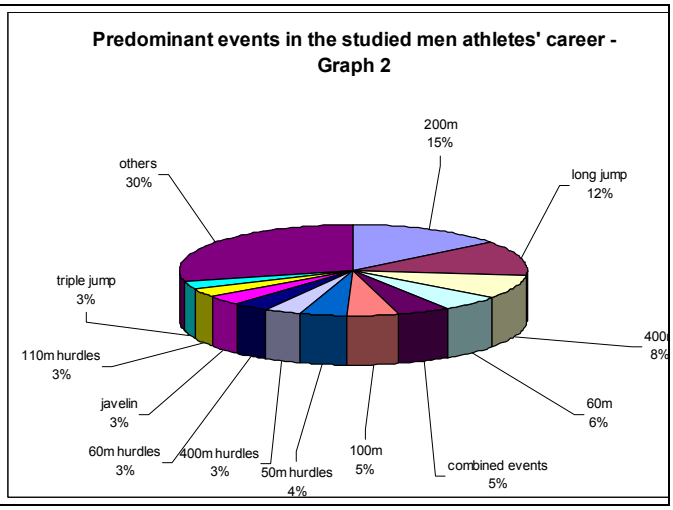
Target sample of this research consists of the athletes identified within the Technical Results volumes issued by the Romanian Athletics Federation, as follows: I reviewed the athletes from 1988, 1989 and 1990, children generations who attended in and outdoor national competitions, by name, and I studied the evolution in the sport career until nowadays. I revised in and outdoor national competitions, each event from each competition, each result and each rank of the subjects, for emphasizing stagnations, regressions, performances and abandons of sportive career by the studied subjects. The study is effectuated upon 100 athletes, boys and girls, born in 1975, 1976 and 1977.

The utilized research methods are:

- bibliographic study;
- statistics;
- graphs.

An overview of the three athletes generations - men, regarding the performance activity continuity, quantified in the maximal number of years representing the sports career's longevity, showed a double longevity in case of '89 Generation as compared to '88 Generation, from 7 to 14 years. In case of '90 Generation, the maximal longevity is 12 years (Graph 1). In the same context is noticeable the athletic career continuity until seniors category, 35% of all athletes attending the national competitions until this level while, from all studied men athletes, 23% participated until Juniors III category, 10% until Juniors II category and the same percentage until Juniors I category.





Athletic performances were materialized in Golden medals gained by 35% of the men athletes studied, in Silver medal obtained by 49% of them and Bronze medal gained by 43% of them, as effect of ranking 1, 2 and 3 at the national competions.

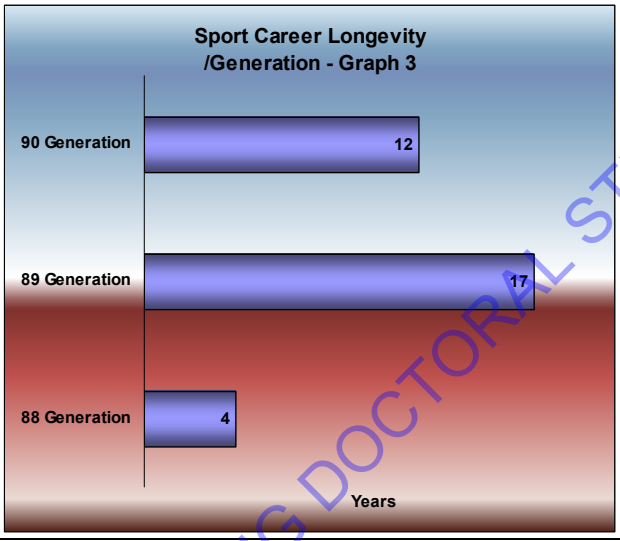
Regarding the diversity of events which were mostly attended by the men athletes from the three generations, speed events, especially 200m running, provided the highest level of attendance (200 m – 15%, 400m- 8%, 60m – 6%, 100m – 5%), being observable the interest for other events like long jump – 12%, hurdles events – 13%, triple jump – 3% and combined events – 5%. (Graph 2).

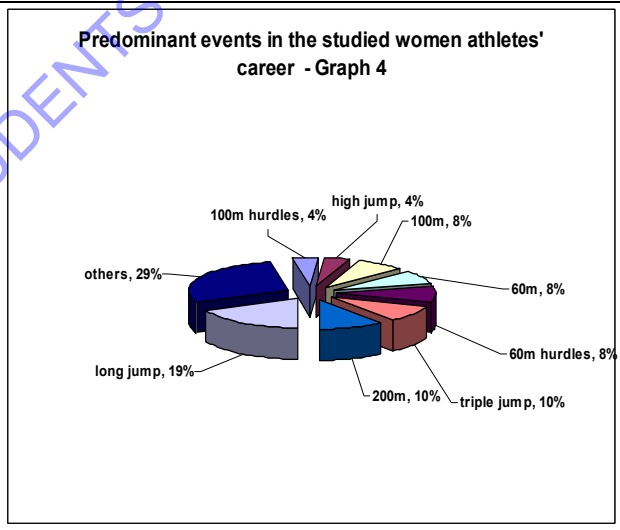
Representative men athletes form the observed generations who achieved remarkable results at national and international level are:

- **Grețea Dorel** (‘89 Generation) obtained Sports Master 1st category title at javelin event and has been multiple national champion etc..
- **Soos Levente**(’90 Generation) obtained Sports Master 1st category title at 100m şi 200m outdoor running, national best result at Juniors I in 100 m running, in 1995; national record at Juniors I in 60 m running, in 1996; national best result at 4x200m relay in 1996; he has been nominalized for best athlete of the year in 2004 and 2005 at 100m running etc;
- **Ion Nicuşor** (’90 Generation): obtained Sports Master 1st category title at 110m outdoor hurdles; national best result at 4x200m relay in 1996, etc;
- **Baritz Eduard** (generation 90) : obtained Sports Master 1st category title at indoor long jump event, etc.

From the sport career longevity point-of-view in case of studied women athletes, ’89 Generation had the longest sport career - 17 years, while in ’88 Generation there were girls athletes with performance results recorded just for another 4 years after the launching year and the maximal longevity of women athletes was 12 years for ’90 Generation. (Graph 3).

29% from the total women athletes reached the seniors level by attending official contests and 8% has competed until Juniors I category. On the other hand, lots of the initially selected athletes has further competed until Juniors II category – 22% and Juniors III – 25%, respectively. Their performances has been evidentiated by ranking top 3 in the national contests, 27% ranking 1st place, 41% 2nd and 37% 3rd place.





As a result of the three women athletes generations’ study, I discerned the predominance of certain events like jumps (long jump – 19% and triple jump –10%), due to the performances recorded by several highly valuable athletes:

- **Cristina Nicolau** (’89 Generation): obtained Sports Master 1st category title; national record at Juniors II category in 1992 at long jump event; Bronze medal at the European Outdoor Championship for Juniors I (San Sebastian- Spain) 1993 at long jump event; Bronze medal at the European Outdoor Championship for Juniors I (Nyiregyhaza, Hungarian) 1995 at long jump event; Silver medals at World Outdoor Championship for Juniors I (Sydney, Australia)

1996,at long and triple jump; Golden medal for triple jump and Silver medal for long jump at European Youth Outdoor Championship (Turku, Finland) 1997; Golden medal for triple jump at European Youth Outdoor Championship (Goteborg, Sweden), in 1999, her personal best at triple jump event; Silver medal at European Indoor Championship (Gent, Belgium) 2000 at triple jump; multiple national champion at long jump, triple jump and high jump, etc.

- **Marton Melinda** ('89 Generation): multiple national champion and vice champion in hurdles and long jump events; Bronze medal at the European Outdoor Championship for Juniors I (Nyiregyhaza, Hungary) 1995 at triple jump event etc.;
- **Micklo**ş **Eva** ('90 Generation): obtained Sports Master title, Silver medal at the European Outdoor Championship for Juniors I (Ljubljana, Slovenia) for 100 m hurdles event; Bronze medals at European Youth Outdoor Championship (Goteborg, Sweden),1999, at long jump and 100 m hurdles events; multiple national champion at hurdles and long jump events, etc.

Also, women athletes mostly attended running events – 26% of total official results studied were recorded at 60 m, 100 m and 200 m running events – and at hurdles events – 12% (60 m hurdles and 100 m hurdles). (Graph 4).

Proceeding to this analysis, I can affirm that the athletes selected according to actual existing criteria do not succeed to cover the current need for talents, arguing that only a small percentage of the studied athletes had a representative and longevive sport career and valuable results.

I observed that the current Romanian selection system, as compared to the multitude of athletic events for which the future performers are selected, has a limited number of tests, exclusively physical, lacking to offer to the specialists the opportunity to select young people gifted with favorable skills for high performance athletics and valorification of performance potential for different athletic events. As an evidence, lots of athletes renounced at the athletic activity after just one or two participations to official competitions. One explanation might be that these were not properly selected or driven in the athletic activity, did not biomotrical or behavioral correspond to the type of event practiced, which denotes flaws in the actual selection system.

Following the above mentioned statements, I consider that if I design and experiment a selection system of the first formative phase in athletics as an alternative to the existing one, correlating it to 9 to 12 age category particularities and linking it to specific sports orientation activities, than the selection quality would permit an earlier identification of athletes gifted with real skills for sports discipline, covering a very broad range of sport events.

One flaw of the actual selection system is that it strictly addresses motricity features. In this respect I will experiment a tests cluster aimed to highlight other psychomotricity and coordinative aptitudes features: coordination, rithmicity , equilibrium, space orientation, laterality etc., materializing them through norms and standards for primary selection.

Coordinative capacities are a generic complex comprising mainly psychomotric skills meaning quick learning ability using new movements, rapid and efficient adaptation to various conditions, specific to different types of activity, by restructuring the existing motric base. (Dragnea, A; Bota, 1999, pg.243).

For selecting the most appropriate tests from the psychomotricity and coordinative aptitudes area, I studied the weight of psychomotricity factor in the athletic events clusters to evidentiate the main coordinative aptitudes which are predominant in the athletic events.

Speed running are running over 50 to 400 m including distance; they cover classical distances for the competitional system (50m, 60m, 100m, 200m, 400m). They consist of an uninterrupted sequence of identical units named running steps which gives the cyclical exercise character to running. The coordinative capabilities are expressed through a quick and efficient adaptation of athletes to the specific conditions required by each event.

Speed running being cyclical events, rhythm capacity helps the individual to optimize and

efficiently organize its motric work, with minimal energy consumption.

A good segmental coordination consisting of the energic arms and legs movements during the race is amplified by the optimal general equilibrium and last, but not least, eye- inferior limbs coordination, all together generating the optimal psychomotric profile of the sprinter.

From the psychomotricity and coordinative aptitudes point-of-view I mention that in **relays** contributes, in a significant weight, time & space orientation which allows position alteration and receiver body movement in time and space, as related to the action area for the mobile reference point: the moving team partner as :"the bringer". Orientation capacity has an important role in the continuous adaptation of motric execution as related to team members. Equilibrium capacity helps to sustain the body in the relay waiting position and to regain equilibrium by the receiver after relay has been cached, the later required for race continuation in secure conditions. Vestibular analyzer is decisive in equilibrium preservation.

Endurance runnings are cyclical motric actions, the pace is a crucial factor due to the fact that it determines movement recurrence in an identical sequence, being a temporal component directly linked to coordination, speed, precision and ability. So, the pace is a critical skill of middle , standard and long-distance runner.

Beside the pace, the tempo decides the movement frequency per time unit and is also highly important.

Equilibrium capacity is another coordinative skill which occurs in a higher or smaller weight during endurance runnings, supporting body or its segments position alteration according to emerged situations.

Coordinative functions' quality influences the endurance running's rapidity and worth, having a relatively quick degree of adaptation to the changing conditions and ensuring athlete's self preservation in different motric situations. On the other hand, segmental coordination guarantees a superior degree of movement for body's segments during symmetrical exercises, by a functional economy of effort and optimal muscles strengthness.

Hurdles runnings (110 m Men, 100 m Women and 400 m) are the most demanding running events from the coordinative and technical point-of-view. Permanent cyclical and non-cyclical movement alternance at maximal speed give the technical complexity of these runnings.

Coordinative aptitudes present in hurdles events are mainly psychomotric abilities which require quick and efficient adaptation to specific various conditions during the race, by restructuring the existing motric base.

Another requirement of the rational techniques is the good general body equilibrium during the entire hurdles race and especially during hurdle over passing. It interferes also for regaining body's equilibrium after hurdle over passing and in high amplitude requests. It is achieved through a proper coordination of different body segments serial positions, of whole body position, which continuously switch between them and as related to the entire body, segmental coordination mainly referring arms-legs-body coordination.

Laterality is a psychomotric aptitude showed in 400 m hurdles event because it underlines individual's capacity to effectuate motric actions achieving same performances, in same conditions, with both left and right body segment, in this case addressing athletes who are able to approach the hurdle with the same level of confidence no matter the leg used.

Basic mechanism of hurdles running techniques is the running pace between hurdles. Pace capacity is the individual's aptitude to organize its motric executions in time and space. It is highly important in learning elements and technical procedures requiring movement frequency variation without energetic consumption increase.

Space and time orientation capacity allows position alterations and body movements in time and space as related to a certain action field represented by fixed reference points

which are the hurdles.

Jumps are multifaceted and non-cyclical motric aptitudes based upon certain time and space – related characteristics: distance, amplitude, direction, position, duration, pace, equilibrium and dynamic: speed, strength, endurance, coordination, precision.

From the psychomotricity and coordinative aptitudes point-of-view, jump events are highly complex events which encompass lots of factors from this domain.

Time & space orientation capacity allows body's position revision and its movements in time & space, as related to fixed reference points which can be sand pit in long and triple jump, lath and landing match in high jump and pole vault events.

As mentioned before, jump events are based upon certain time & space characteristics which are decisive in performace achievements: distance, direction, position, pace, tempo, amplitude. (L. Mihăilescu, N. Mihăilescu, 2006, pg. 185)

- élan precision which requires steadiness related to each step length, attained through correct distribution of effort during the whole élan and is conditioned by distance perception until the jumping step in the context of all spatial relationships of the ambience;
- élan stability is based upon a constant number of steps, a general well-determined pace and a running tempo which should be kept in the functional relaxation context;
- horizontal speed preservation during élan is conditioned by contact angle increasing, amortization amplitude and duration;
- movements done during flight should be defined by amplitude, perfect coordination and suppleness.

The level of coordination reflects jumper's capacity to execute jump phases with different difficulty levels, quickly, with high efficiency and precision, depending upon the tasks required by the event.

Arms-legs coordination is important during the flight, the arms executing a rotation movement following up-forward-down-backward-up direction. Also, good body segments coordination and their movements help de rotation movements produced at the launching moment to be accelerated or decelerated in the air.

In triple jump event, this coordination is characterized by the alternative arm work in jumping step execution and both arms simultaneous work in linking the third jump; all these movements are decisive and help to achieve the best performance.

Landings in jumping events are effectuated in disequilibrium conditions that are way a high level of coordination will support athlete's body adaptation to these conditions, the athlete succeeding to realize precise and secure motric activities.

In long and triple jump, landing techniques, by touching the sand with the hills, coordinating body segments through arms, legs movements and trunk position aim to bring the hills touching point to sand as closer as possible to the point where the extension of body's weight center tangent meets pit layout without causing backward disequilibrium of the jumper.

Equilibrium capacity highly influences jumps events, being critical in tapping and flying phases. Tapping is the jump fundamental phase through which is attained the optimal vertical jump and horizontal speed preservation. Tapping foot placement on the jumping line is the crucial moment for dynamic and spatial structure of the tapping which has to be performed in a perfect equilibrium.

In high jump, in tapping phase, the development level of the athlete's coordinative aptitudes is important due to the fact that through their intervention in this phase there will be created optimal synchronizing conditions in the course of:

- optimal horizontal speed determination using amortization;
- moving direction accuracy;

- favorable body and its segments positions adaptation;
- rotation movements launching needed for flight execution.

Flight procedure during jumps highly depends upon athlete's speed, his equilibrium and his preservation capacity. In the flight phase, human body is acting like a free-flying entity influenced by all physics laws specific to this situation, that is why equilibrium capacity handling generates an efficient and secure flight.

Coordinative capacities required by **throw events** are mainly psychomotric aptitudes which implies efficient and quick adaptation to the specific various conditions of the events, restructuring the existing motric base.

Another requirement of the rational techniques is the good general body equilibrium during the event and especially in the final effort stage and equilibrium reassessment after throw.

In the final effort phase of shot put, the main task is horizontal movement blocking and its conversion in a lifting-rotating complex moving toward throwing direction, movement which requires a perfect dynamic equilibrium.

In shot put event, pirouette procedure, "throwing – shot put" system must have a general stable equilibrium and athlete's body weight is placed on his right foot.

Segmental coordination is referring especially arms-feet-trunk coordination, eye-hand coordination and sequential positions of different body segments, of entire body, which are permanently changing one opposed to the other and to the entire body during the throw.

Time & space orientation capacity is emphasized in the élan phase of shot put, when the athlete is backward positioned to the throwing direction, on the posterior limit of the circle and inside it.

In the javelin throw, throwing steps pace consists of an accelerated running and a step structure during which the athlete must reach the optimal moving speed. The pace and tempo of these steps are highly important due to the fact that kinetic energy accumulated by the athlete during the élan phase is converted, according to specific final effort conditions, into throwing power.

The movements executed by the athlete during élan phase in javelin throw require a very good coordination of body segments and of the entire body, due to the fact that they are executed during a less usual running.

The élan phase during discus throw event, in which the body and its segments execute a rotation movement of "discus - throwing" system around a vertical axis claims for a good spatial orientation, an efficient dynamic equilibrium and an optimal segmental coordination.

These coordinative aptitudes are emphasized in the final effort phase and body equilibrium restatement, when after discus throw, the athlete effectuates an active change of feet position (from the right on the left foot), in order to keep himself inside the circle.

Throw events requires a certain level of motric abilities: strength, speed, mobility and agility, and from the psychomotric point-of-view, it is critical the visual-motric coordination based on a good level of dynamic equilibrium, established on throwing pace and a good spatial orientation (spatial visualization) to envisage the technical execution.

Summarizing the above mentioned I can assert that in athletic events the main coordinative abilities are:

1. **Rythmicity (pace)** is the individual's capacity to organize his motric execution in time and space. It is very important for learning technical elements and procedures and tactic combinations which require movements frequency variation without increasing energy consumption.
2. **Coordination** is a multifaceted capacity, complex motric ability, highly correlated with speed, strength, endurance and mobility, critical for achieving high performances. Strength, speed, endurance and mobility are fundamentals of physical condition for high performance,

a good coordination being needed for gaining and improving abilities. Coordination is highly important in obtaining and developing techniques and approaches, in performing motric activities in unusual conditions, difficult competitional field, weather conditions, infrastructure etc. Coordination is even more needed in spatial orientation when the body is not familiarized with the circumstances or in disequilibrium conditions (various competitional ground, stops etc.)
The level of coordination reflects the capacity of executing movements with different level of difficulty, quickly, with high precision and efficiency, according to the required tasks.
3.**Equilibrium** requires to hold the body in a certain steady position and to regain its equilibrium after movements or high amplitude tasks.

Furthermore, for designing an alternative selection system for the first formative phase in athletics, beside the already existing events, tests from the psychomotricity and coordinative abilities will target: rithmicity, coordination and equilibrium. I will propose tests for each above mentioned coordinative ability, correlated to 9 to 12 age category particularities, containing specific elements of some athletic events. Implementation area for the alternative selection system covers the following counties: Arad, Timiş, Bihor, Hunedoara and Caraş-Severin.
For the selection system project I propose the following tests:

Table 13. ***Tests proposed to be added to the alternative selection system.***

Rythmicity tests	Coordination tests	Equilibrium tests
Hexagon Test	T-Test Agility Test	Dynamic Equilibrium Measurement Test
"Quadrant Jump Test"	Sargent (Vertical Jump Test) Test	Standing Balance Test
„Tapping" Test	Matorin Test	Stork Balance Stand Test
-	"In quadrant "Test	Flamingo Test

The proposed tests for the preliminary selection will be added to the existing ones and will be the base for initial testing in several schools from the following counties: Arad, Timiş, Bihor, Hunedoara and Caraş-Severin. After this phase of the preliminary selection, I will propose a training program for coordinative aptitudes development, needed for practicing athletics. Selected children will be periodically tested, during a preparation year, and the final testing phase will validate or invalidate the didactical strategy accuracy used for training.

POTENTIAL ADDED-VALUE AS RELATED TO THE LATEST EXISTING ACHIEVEMENTS IN THE MAIN FLOW OF PUBLISHED WORKS

The research for which the alternative selection system for the first formative phase will be applied will be effectuated in the following counties: Arad, Timiş, Bihor, Hunedoara and Caraş-Severin and is aimed that, at the end of the didactical experiment, I will be able to discover real talents for athletics.

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OBJECTIVES AND RESEARCH ACTIVITIES OF THE PROGRAM:

Year	Objectives	Related activities	Amount requested per activity (RON)
2010	**1. Theoretical and methodical foundation of the research program**	a). Selection system and process presentation for the first formative phase in athletics: concepts, structure, methodical particularities; b). Opinions overview regarding the preliminary selection system treated in the international and national specialty literature; c). Psychomotricity and coordinative abilities concepts, needed for alternative preliminary selection system designing; d). Presentation of 9 to 12 age category particularities.	***19160***
2010	**2. Preliminary research regarding the efficiency of the current Romanian selection system in the first formative phase**	a). Study of three generations of athletes' evolution, selected according to the current Romanian selection system, who performed between 1988 and 1990, from kids to senior category, following performances, stagnations, regressions and abandons of sport career by them. b). Study regarding the content of selection system in other countries with history in high performance athletics and worldwide and European recognized results, in order to see if they include tests and events from other areas than motric (physical) field.	***4330***
2010	**3. Research methodology argumentation**	a). Selection of psychomotricity and coordinative abilities tests which will be added to the proposed project of selection system; b). Statement of Research premises which will generate hypotheses; c). Research hypotheses formulation as related to its goal and objectives; d). Identification of research subjects; ensurance of resources, organization of research program.	***3050***
2010-2011	**4. Design, experiment and implement a project regarding the selection system for the first formative phase which, beside the current physical events, will include psychomotricity and coordinative abilities tests, system based upon sport orientation activities effectuated in schools**	a).Design of the project related to the selection system for the first formative stage in athletics; b).Design the implementation strategy of this project related to the selection system in the following counties: Arad, Timiş, Bihor, Hunedoara and Caraş-Severin; c).Conduct preliminary tests based on events included in the project related to the selection system; d).Propose a training program for coordinative abilities development during one year; e). Accomplish intermediary and final tests; f).Appraise the strategy effects; g).Analyze and translate the research results; h).Draw conclusions.	***500***

VALORIFICATION/DISSEMINATION OF RESEARCH RESULTS (ARTICLE PUBLISHING, CONFERENCE ATTENDANCES, DOCTORATE THESIS FINISHING)

Preliminary research results and those obtained after designing, experimenting and implementing a project regarding the selection system for the first formative phase in athletics will be published in some international and national conferences' volumes. The proposed project for preliminary selection will be submitted to scholar sport clubs to be experimented and to FRA for validation/ official confirmation.

Project's results will be utilized in athletics. The following steps will be proceeded:

- ✓ Public presentation of doctoral thesis
- ✓ At least 3 articles published in national and international magazines.
- ✓ Submittance of the project related to the selection system to several national athletic clubs in order to be tested and eventually additionally improved
- ✓ Attendance to conferences, where the study results will be partially/entirely presented

Scientific activity of the program's owner:
REWARDS GAINED AT SCIENTIFIC EVENTS
ATTENDANCE AT SCIENTIFIC COMMUNICATION SESSIONS

NO.	PAPER TITLE	TEAM	CONFERRENCE NAME	ORGANISER / YEAR
1.	SELECTION IN ATHLETICS	Dulceanu Corina	International Session scientific communica „Zilele Academice Arădene",Arad	" Vasile Goldiş" West University Arad, 2003
2.	DOPPING, A CONTEMPORAY SPORT'S FLAGEL	Dulceanu Corina	International Session of scientific communications „Zilele Academice Arădene", Arad	" Vasile Goldiş" West University, Arad, 2004
3.	MOTRIC GAME AND CONTEST, EFFICIENT WAYS FOR SPEED AND AGILITY DEVELOPMENTS DURING PRIMARY AGE	Dulceanu Corina	International Session of scientific communications " Activităţi motrice dirijate – Limite şi perspective"	Transilvania University,Sports Academy, Braşov 2008
4.	STRENGHT – SPEED DEVELOPMENT METHODOLOGY DURING AN YEARLY TRAINING CYCLE FOR JUNIOR SPRINTERS	Dulceanu Corina	International Scientific Conferrence – „ Perspective în educaţie fizică şi sport" Constanţa	Ovidius University Constanţa, 2008
5.	HYDRIC EQUILIBRIUM IMPORTANCE IN LONG-DISTANCE RUNNING	Dulceanu Corina	International Session of scientific communications „Zilele Academice Arădene", Arad	" Vasile Goldiş" West University , Arad, 2008

6.	DYAGNOSIS AND PROGNOSIS EVALUATION REGARDING PRELIMINARY SELECTION IN ATHLETICS	Dulceanu Corina	International Session of scientific communications „Activitățile corporal învățământul superior prezent şi perspective Bucureşti	Politehnica University Bucureşti, 2009
7.	PHYSICAL NORMS AND EVENT SYSTEM SPECIFIC TO EACH ATHLETIC EVENT USED WITHIN THE PRELIMINARY SELECTION	Dulceanu Corina	International Session of scientific communications „Zilele Academice Arădene", ediția a XIX-a, Arad	" Vasile Goldiş" West University , Arad, 2009
8.	METHODOLOGICAL CONDUCT OF THE COORDINATION ABILITY DEVELOPMENT AND EDUCATION DURING THE FIRST FORMATIVE PHASE IN ATHLETICS.	Dulceanu Corina	International Conference "Exercițiul fizic - mijloc complex şi modern de promovare a sănătății", Craiova	Craiova University, Sports Academy, Societatea Română de Medicină Sportivă, Craiova 2009
9.	BIO-MEDICAL ANALYSIS OF EFFORT PARAMETERS ACCORDING TO ATHLETIC EVENTS' SPECIFICITY	Dulceanu Corina	International Conference „Educația fizică şi sportul din România – prezent şi inovare", Oradea	Oradea University, Sports cademy, , Oradea 2009
10.	STRATEGY MANAGEMENT APPLIED FOR ATHETIC TRAINING OPTIMISATION	Dulceanu Corina	International Session of scientific communications „Educația fizică şi spo – prezent şi perspectiv ediția a VII-a, Arad	Asociația profesorilor de educație fizică şi sport din Arad, Universitatea de Vest " Vasile Goldiş" Arad 2009

CONTRIBUTIONS MEANT TO IMPROVE PHYSICAL TRAINING IN JUNIOR VOLLEYBALL PLAYERS BASED ON NEUROMUSCULAR EVALUATIONS

Lică Marcelina Elliana **Doctoral degree coordinator: Georgescu Luminița**

Research abstract:

The research study provides an original way of standardize physical training based on neuromuscular assessments meant to enhance performance skills in volleyball. the objectives of the research program try to determine neuromuscular performances according to the motor skill level of junior volleyball players as primary aspects in the elaboration and application of specific programs meant to support the improvement of sports performances.

Key terms: neuromuscular evaluation, sports performance, physical training, volleyball, motor skill

Budget structure:

No	DESIGNATION OF BUDGET MATTER	VALUE 2008** (lei)	VALUE 2009** (lei)	TOTAL VALUE (lei)
1.	STAFF EXPENSES - *the budgeted net salary amount represents maximum 850 lei monthly and the employee's and the employer's contributions to the State budget*	8000	10100	18100
2.	INDIRECT EXPENSES *(overhead)- maximum 5% of the project value*	500	500	1000
3.	DISSEMINATION COSTS*(data dissemination, achieved results and information-laboratory)*	600	1000	1600
4.	TRAVEL COSTS*(including study visits, participation to scientific manifestation on national and international level, transportation fees, lodging, daily allowance, participation fee)*	2000	3100	5100
5.	COSTS FOR LOGISTICS SERVICES *(consumables for laboratory, materials and supplies, access fees to research infrastructure of third parties, etc.)*	3000	1500	4500
	TOTAL	14100	16200	30300

Doctorate thesis stage:

The undersigned, **lica marcelina eliana**, has presently completed three semesters of the program of academic advanced training (1st and 2nd semester) and the additional training module no 3 (3rd semester).

Regarding the doctorate thesis I have achieved the following steps:

- the study of areas of expertise and the completion of this field;
- the evaluation of the existing knowledge degree concerning the subject of the research paper, on national and international level;
- data and material collection necessary for the elaboration of the pilot experiment;
- the selection of subject groups for the achievement of the pilot experiment.

Doctorate thesis presentation:

The title of the doctorate thesis is **CONTRIBUTIONS MEANT TO IMPROVE PHYSICAL TRAINING IN JUNIOR VOLLEYBALL PLAYERS BASED ON NEUROMUSCULAR EVALUATIONS.**

Research Purpose

Our research purpose aims at the optimization of the action technology during the process of physical training of junior volleyball players through determining the most efficient means of physical training, as well as its evaluation system.

Research Hypothesis

The standardization of the evaluation system proposed here may be constituted as an objective adjustment of the physical training process meant to develop an efficient physical training suitable for junior volleyball players.

Research Objectives

- elaboration of evaluation sheets for the subjects submitted to the experiment, including neuromuscular investigations and motor skill testing;
- elaboration of appointment and planning documents for the experiment span;
- design of training means (or the free working variable) meant to be applied;
- subjects' initial testing;
- results assessment and determination of contingent abnormal interactions for the reorganization of the project;
- part transmission of results;
- project development according existing circumstances:
    - subjects' investigation
    - registered data processing and interpretation
    - drawing theoretical and practical conclusions for different stages of project development
- paper drafting;
- transmission of final results.

Research Assignments

In order to achieve an adequate development of this research and to create a scientific pattern framework closely related to knowledge acquired during the experiment and to constant and consequent tuition provided by the scientific manager, we have considered the following steps as highly important aspects:

1. research theme determination;
2. study of area of expertise;
3. drafting of working hypotheses;
4. determination of the free working variable and of precise working instruments during the experiment;
5. determination of free working variable testing level;
6. selection of the experimental plan;
7. selection of subjects submitted to the experiment;
8. elaboration of planning documents (individual sheets);
9. determination of the initial level of subjects' motor skills through specific control tests;
10. discussions with field experts and investigation protocol improvement;
11. practical verification, during the experiment, of the efficiency of free working variable application (pilot experiment);
12. reevaluation of motor skill development, applying the improved alternative of the investigation protocol;
13. revision of experiment project;

14. real development of the experiment according to new circumstances;
15. results analysis and centralization;
16. data processing and interpretation;
17. drawing conclusions and presenting resolutions;
18. data presentation in the research report.

Experiment Organizational Methodology

1. selection of the research theme;
2. determination of the research purpose;
3. definition of research arguments;
4. determination of research hypotheses;
5. determination of research objectives;
6. determination of research methods and techniques:
   6.1. study of the area of expertise;
   6.2. direct and indirect observation;
   6.3. experimental method;
   6.4. evaluation method.

6.4.1. **Physiological Investigations**

They allow the investigation of the biological and physiological potential which confers the sportsman's capacity to practice volleyball, as well as the estimation of reactions to certain training structures.

a) Determination of aerobic effort capacity and cardiovascular reactivity

By means of applying the Astrand test, this evaluation will facilitate the assessment of the maximum consumption of oxygen, and applying the Schellong test, the cardiovascular reactivity will be determined.

b) Anaerobic strength assessment

c) Corporal mass determination

This investigation is meant to determine the rate of muscular active mass, aspect which may be correlated to the muscular functional potential assessed through neuromuscular investigations.

d) Biomechanical evaluation

It provides extremely useful information concerning the neuromuscular functions, muscular force, mobility, coordination. To this respect, we propose the following investigation types:

Isokinetic investigations, allowing us to assess:

The maximum muscular force, the correlation muscular force and speed, movement amplitude, velocity, existence of muscular impairments, muscular fatigue level.

Muscular force and pressure evaluation of the level of the inferior limb, using the force platform – is an evaluation which allows us to observe the ground reaction force developed during different training protocols, generating the burst of force, aspect which is related to the results of specific motor tests.

Electromyography is performed simultaneously with the isokinetic investigation for achieving the correlation between muscular force, angular speed, and joint amplitude.

Tensiomyography is the method applied for determining the muscular fiber type, the correlation between these fibers and functional and lateral symmetry at the inferior limb level. The data provided by this method will be correlated to the results achieved by the other methods allowing thus, the adjustment of the muscular training program within the physical training program.

The purpose of all these evaluations is directed towards the following aspects, which need to be taken into consideration during the physical training program:

- evaluation and training of the kinetic chain at the inferior limb level;

- identification of segmental impairments;
- identification of muscular disorder;
- dynamic stabilization assessment;
- identification of motor compensatory strategies necessary in achieving the technical-tactical progress.

6.4.2. **Motor Tests**

- one arm standing jump
- one arm squat jump
- both arms squat jump
- 4m lateral walking
- frontal flexibility
- triple jump
- 20m speed running

6.5. statistical-mathematical method;
6.6. graphical method.

7. establishing the selection criteria for the subjects participating to the experiment;
8. establishing different stages of research development and of data collection.
   8.1. preliminary data of the pilot study:
      8.1.1. neuromuscular evaluation outcomes;
      8.1.2. morphological, functional and motor indices
      8.1.3. questionnaires
   8.2. contest recording;
9. outcome analysis and interpretation;
10. drawing conclusions.

Actual knowledge degree concerning the field, on national and international level, reported to recent references in the subject literature.

The standardization process of physical training of volleyball players, as a result of transformations occurring at the level of worldwide volleyball play, based on the transition from the "quantitative" to "qualitative" training, confirms the need for finding the most efficient ways of maximization the performance capacity.

To this respect, Marcel Serban, in his paper entitled "*Evaluation of performance capacity to volleyball players"* (*Evaluarea capacitatii de performanta la sportivii practicanti ai jocului de volei*), briefed within the International Conference INCS, held in Bucharest, 2007, claims that the main purpose of a sports training evaluation consists in pointing out functional changes as adaptation states generated by the influences of long, middle and short-term training.

Junior class, the first step in joining performance, represents the initial stage of a process of enhanced physical activity. In fact, this class includes young players aged between 15 and 17 years. At this age, male players, reaching full pubertal process, develop their force abilities (KRAEMER and FLECK, 1993). Muscular abilities enhancement (protein synthesis is highly stimulated by the growth of testosterone secretions) and nervous capacities development promote high intensity training. (LATZELTER H and M, 1990; KRAEMER andI FLECK, 1993). However, it is not the appropriate age for activating to maximum capacity, though, this condition represents the most adequate way of developing force (PRADET, 1996). Speed qualities exercise (nervous and muscular qualities) is very important at this age due to the fact that, the nervous system is almost completely developed (KRAEMER and FLECK, 1993).

Anabela Hani (2007), in her paper *Modificari ale parametrilor de forta ca efecte ale antrenamentelor de control neuromuscular(Modification of force parameters as a result of neuromuscular control training)*, emphasizes the possibility of achieving force enhancement

outcomes by using relatively low energetic charges, but high informational demands, by means of a training process focused on the improvement of the neuromuscular control capacity http://www.sportscience.ro/html/articole_conf_2007_-_33.html. Rabita G., Couturier, A., Lambertz, D. (2006), Propriétés élastiques musculo-tendineuses et raideur du système musculo-squelettique global lors de sauts pliométriques : *spécificités liées à la pratique sportive de haut niveau. In: 4èmes Journées Intenationales des Sciences du Sport les 28-30 novembre 2006*, (Elastic characteristics of the musculotendinous system and stiffness of the global musculoskeletal system in plyometric jumps: *features related to sports practice of high performance. In: 4th edition, International Days of Sports Sciences on the 28th – 30th November 2006*), Actes Edition INSEP, Paris, 101-102.

Neuromuscular training represents, nowadays, a modern feature of a complex training of sportsmen and an important aspect in achieving sports performance. Considering the characteristics of the neuromuscular training, sports performance may register a significant evolution in acquiring: explosive muscular force, muscular strength, speed, agility, and the most important aspect, neuromuscular control, which determines the basis of a sports technique of great accuracy. Presently, neuromuscular training programs are to be introduced early, during the junior period, taking into consideration complex investigations, a very important aspect in female team performance. Physical training of volleyball players is presently focused on neuromuscular dynamic training, which leads to the absorption of joint shocks, increasing joint stability, reducing the risk of muscular impairment occurrence and improving the sportsman's biomechanical parameters. All these effects influence tisular structures (bones, ligaments, tendons) whose endurance is significantly improved.

Presently, the issues registered concern the moment of the introduction of a neuromuscular training, and these issues persist due to the lack of relevant studies on this matter, based on experimental or electrophysiological facts.

Starting from the need of enhancing vertical jump, depth jump, speed, joint mobility, the research hypothesis refers to the improvement of biomechanical functional parameters, such as, high movement amplitude, reduced varus-valgus imbalance at the knee joint level (Myer, G.D., K.R. Ford, J.P. Palumbo, and T.E. Hewett, Neuromuscular training improves performance and lower extremity biomechanics in female athletes. *J. Strength Cond. Res. 19(1):51–60. 2005)*. Actual studies follow the effects of neuromuscular training on lower extremities in sportsmen's physical training, in order to achieve high sports performance and to reduce the risk of acute traumatic lesion occurrence or of overwork. According to the initial hypothesis, the point is to quantify the sports performance progress in correlation with biomechanical complex evaluation. No research may evidence any association to neuromuscular and effort evaluations. Actual studies indicate the fact that the physical training focused on muscular performance relies on plyometric programs, endurance training, trunk - training and speed training. All these components together improve the lower extremity biomechanics and optimizes sports performance. The effects of the neuromuscular training are less obvious because there exist no training protocol based on neurophysiological investigations.

An important achievement consists in finding a correlation between neuro-mechanics and human motor performance, namely, sportsmen's performance. Motion implies functional integration of several systems, the most important in our case being the muscular system connected to joint system and nervous system. This triad creates an optimum view of structural alignment, neuromuscular efficiency (coordination), motion. Each system is the expression of a normal relation between muscular length/pressure and muscular force, meaning muscular balance which determines the coordination and the accuracy of motor gesture (David T., Ward D.C., *Neuro Mechanics and Human Performance*, ATC LMT CSCS in Neuromuscular, 2008)

A muscular impairment inducing low neuormuscular control (coordination) determines the creation of several patterns of wrong movement, which represents the diminution of sportsman's

performance , but when dealing with well-trained sportsmen, this issue may be redressed by means of compensatory movement strategies. There are situations when the muscle remains inactive, these situations being determined by muscular fatigue. In these cases the optimum muscular force is reduced and the mechanisms of developing compensatory movement strategies, meant to help the sportsman to continue his performance sports activity, are altered. The solution consists in the identification of factors inhibiting sports performance and increasing the risk of traumatisms occurrence, and the identification of the moment when these factors operate.

Potential contributions related to the most recent achievements revealed in the main publications.

ELEMENTS OF ORIGINALITY

This project relies on a study of the area of expertise concerning the aspects of sports performance improved through neuromuscular training. Therefore, the study starts with the following questions:

1. Is there a complete evaluation of the neuromuscular system in sports activity? This question is determined by the fact that, presently, sportsmen's neurophysiologic investigations are limited to a neurological clinical examination and a functional examination.
2. Does the juniors' selection process (secondary selection) consider the sportsman's neuromuscular genetic potential? Presently, this aspect is not taken into account, and it may be achieved through an investigation of muscular fiber array possessed by each sportsman.
3. Is there any correlation between motor performances obtained as results of motor tests and the neuromuscular parameters, which would allow a more precise control of physical training?
4. Is there any correlation between the sportsman's effort capacity and muscular parameters?

All these questions represent a real support in achieving an original approach of sportsmen and in developing an adequate physical training activity meant to improve the muscular potential considering the sportsman position in the team. At the end of this research, we also propose an algorithm of evaluation, based on complex investigations, namely, neuromuscular investigations correlated to motor tests.

Research objectives and activities within the program:

Year*	Objectives (designation)	Related activities**
2010	1. Research organization	1.1. Information regarding new theoretical and practical aspects on national and international level, related to the research theme.
		1.2. Detailed analysis of working methodology, determination of activity stages and distribution of tasks.
		1.3. Primary selection of subjects included in the research – determination of experimental lots and witness group.
		1.4. Elaboration of questionnaires meant to establish ways of including neuromuscular tests in the case of volleyball players.

		1.5. Elaboration of individual sheets
	2. Elaboration of the study concerning the methodology of neuromuscular investigation and motor skills in the case of junior volleyball players.	2.1. Use of questionnaires.
		2.2. Neuromuscular examinations of subjects included in the research.
		2.3. Motor tests application.
	3. Elaboration of intermediate reports.	3.1. Primary information collection, processing and analysis.
		3.2. Elaboration of research reports, dissemination of preliminary results.
2010	1. Implementation of working programs meant to improve the physical training process.	1.1. Elaboration and implementation of specific programs meant to correct potential deficiencies resulting from the initial testing, by means of objective stimuli.
		1.2. Subjects' reevaluation.
		1.3. Investigation methodology revision considering the information resulting from subjects' observation.
		1.4. Specific programs revision and application meant to enhance physical training level of the experimental lot.
	2. Determination of the improvement degree of motor skills resulting from the application of specific programs.	2.1. Final testing of subjects included in the experimental lot and witness group.
		2.2. Comparison of achieved results considering the level of physical training.
	3. Drafting of doctorate thesis. Results dissemination.	3.1. Research results dissemination by introducing different works to scientific manifestations on national and international level, by drafting and publishing articles to magazines in the field.
		3.2. Elaboration of monographs presenting theoretical and practical aspects of the new working methodology implementation within the physical training program of performance sportsmen.
		3.3. Completion of the doctorate thesis.

Justification of the requested budget:

	2009	2010
1. Staff expenses	**8000 lei**	**10100 lei**
2. Indirect expenses	**500 lei**	**500 lei**
3. Dissemination costs	Publication of articles in scientific magazines B+: 3 articles x 200 lei/article = 600 lei **Total: 600 lei**	Publication of articles in scientific magazines B and B+: 2 articles x 200 lei/article = 400 lei Publication monograph to CNCSIS Publishing House: 600 lei **Total: 1000 lei**
4. Travel costs	Participation to national scientific manifestations: 800 lei Participation to international scientific manifestations: 1200 lei **Total: 2000 lei**	Participation to national scientific manifestations: 1000 lei Participation to international scientific manifestations: 2100 lei **Total: 3100 lei**
5. Costs for logistics	Purchase of laptop – 1900 lei Consumables (photocopier paper, DVDs for video records, printer ink cartridges) - 200 lei Purchase of field published works – 200 lei Access to research infrastructure of third parties (Sports Polyclinic of Craiova) – 700 lei **Total: 3000 lei**	Access to research infrastructure of third parties (Sports Polyclinic of Craiova) – 1200 lei Consumables (photocopier paper, DVDs for video records, printer ink cartridges) - 200 lei Purchase of field published works – 300 lei **Total: 1500 lei**
TOTAL 30300 lei	**14100 lei**	**16200 lei**

Ways of appreciation/dissemination of research results (articles publication, participation to conferences, and completion of the doctorate thesis):
Project results will be disseminated through:

- *Original articles and case facts* published in national magazines, CNCSI/BDI Publishing House (Citius Altius Fortius Pitesti, Sports Science Bucharest, Sports Medicine, Discobolul)
- *Papers and interactions to scientific manifestations* on national and international level (International Scientific Conference CSSR, Bucharest 2010, 2011, Scientific Interactions Session ANEFS 2010, 2011, ECSS congress, Antalya 2010)

Monograph publication, Universitaria Publishing House, certified by CNCSIS.

Works participation to sessions of scientific / artistic interactions.

- *Efficiency optimization kick attack junior volleyball player* – The 1st annual international congress and exhibition on kinetotherapy with international participation, Caciulata, 06-07 June 2009
- *Rolul pregătirii fizice în creşterea performanţelor sportivilor voleibalişti*, Simpozionul Internațional „Educație prin mișcare" (Role of physical training in growing the performance of volleyball players), Craiova, 2009, Lică, Marcelina E., Cosma, A., Cosma, Germina
- *"Cai de optimizare a pregatirii copiilor in primul an de activitate in tenis de masa.*" (Ways of standardization children physical training during the first year of activity in table tennis play), "Sport for all Ages. From Movement Education to Sports Performance"., Craiova, 2005, Marcelina Eliana Lica, Dragos Diaconescu

- *Locul exercitiului fizic in petrecerea timpului liber al elevilor liceeni,* Sesiune de comunicari "Sportul pentru toti. De la educatia pentru miscare la sportul de performanta"(Role of Physical Activity in Spare Time to High School Pupils, Interaction Session "Sport for all Ages. From Movement Education to Sports Performance"), Craiova, 2005, Dragomir Marcela, Marcelina Eliana Lica
- *Contributii la optimizarea procesului de pregatire in stadiul I in tenis,* Sportul pentru toti. De la educatia pentru miscare la sportul de performanta", (Contributions Meant to Improve Physical Training Process During the 1st Stage in Table Tennis, Sport for all Ages. From Movement Education to Sports Performance) Craiova, 2005, Dragos Diaconescu, Marcelina Eliana Lica
- (Mehanical Lumbago Rehabilitation Process to Sportsmen) - Varsovia, Polland, 2001, Rodica Vladutu, Marcela Dragomir, Marcelina Eliana Lica

Publications:

- Outcome of the correlation between sportsmen's mental flexibility and efficiency in performing technical-tactical actions - Cosma Germina Alina, Simion Gheorghe, Pascu Dănuț, Lică Marcelina Eliana "Sport Medicine Journal" No.20 - 2009
- *Role of unspecified means in improving physical training process undertaken developed by women's basketball players*, Lica Marcelina Eliana, Cosma Germina, Pascu Danut, Scientific Report Series Nr.13/2009, University of Pitesti, pg.710
- *The optimization of the physical preparation of the fencers by introducing interdisciplinary means,* Lica Marcelina Eliana, Fortan Catalin, Roxana Dumitru, Scientific Report Series Nr.13/2009, University of Pitesti, pg.713
- Diversification of physical and sport activities, through circles of students on sports branches, a reliable solution for spending the free time in a judicious way – article published in the supplement of Sports Medicine magazine, on the occasion of the International Conference entitled "Physical exercise, a complex and modern way to promote healthy living", Craiova, June 22nd -25th, 2008, Dragomir Marian, Marcelina Eliana Lica
- *Aspects of the interaction student-teacher within the process of knowledge* - article published in the supplement of Sports Medicine magazine, on the occasion of the International Conference entitled "Physical exercise, a complex and modern way to promote healthy living", Craiova June 5th – 7th, 2008, Dragomir Marcela, Marcelina Eliana Lica
- *Aspects of the dynamics of the interaction between motor knowledge, skill and learning in physical training* – article published in VIITORUL magazine, no 13t 2006, pages 3-6, Dragomir Marcela, Marcelina Eliana Lica
- *Physical training – an important factor of standardization of tennis training (beginners)*- article published in VIITORUL magazine, no 13t 2006, pages 34-37, Marcelina Eliana Lica
- *Kinematic analysis of the serve in table tennis* - article published in VIITORUL magazine, 2004.
- *Characteristics of table tennis training lessons to beginners* - article published in VIITORUL magazine, no 15t 2002, pages 23-24, Marian Dragomir, Marcelina Eliana Lica (Dragomir)
- *Rehabilitation process of athletes suffering from mechanical lumbago* - article published in VIITORUL magazine, no 2-3t 2001, pages 53-56, Rodica Vladutu, Marcela Dragomir, Marcelina Eliana Lica (Dragomir)

Participation to national and international research-development programs / artistic creation

- Paper based on a research-development contract, CERES program no 93t2002, Grant title: Methodology of monitoring high performance sportsmen's physical training in cyclical sports with aerobic prevalent feature (MEMOSIP) CERES, program manager Talaban Denisa – **Lica (Dragomir) Eliana Marcelina**, member of research team, 2002-2003.
- Code CNCSIS 687, Contract no 40202t2003, Grant title: *Images Collection and Kinematic Analysis of Movements by Means of SIMI MOTION CAPTURE 3D device. Learning Applications in Technique of Different Sports Branches and Tests,* grant manager: Dragomir Marian, **Lica (Dragomir) Eliana Marcelina**, member of research team.

CONTRIBUTIONS TO OPTIMIZING THE TECHNICAL TRAINING IN THE EVENT OF 110 METERS FENCES, THROUGH MONITORING THE CINEMATIC PARAMETERS

Gîță Nechita Florentina Doctorate Coordinator: Mihăilescu Liliana

Key terms: monitoring, optimizing, kinematics, technique

Abstract of the research program.
The actuality of the theme refers to the deficient level of the technical training in the event of 110 meters fence and to the lack of a modern intervention methodology in the training, through objectively detecting and correcting the mistakes in one's technique during the phase of passing over the fence, through using a proficient software of video analysis.

The correct biomechanics of the technical skills brings along their mechanical efficiency and contributes to raising efficiency in sports training and implicitly in the competition. In the framework of the paper herein, the scientific research upon determining the cinematic parameters of the step over the fence, helps us in obtaining scientific information upon the level of having acquired a rational technique in the event of 110 m. fences, necessary both during learning and in correcting mistakes.

Through the intermediary of this research, we will contribute to optimizing the technical training in the event 110m. fences, through determining the cinematic parameters of the step over the fence, following the application of the video analysis, through comparing them with the cinematic variables, a model existing in the specialized literature and through making the corrective intervention operative.

We deem that if we determine the particular aspects of the fence double quick step kinematics for the sportsmen comprised in the research, then we will dispose of the objective parameters for evaluating the technical training and we will objectively note the mistakes which occur during the development of the motor actuating activity, in this „passing over the fence", and we will have the possibility to discover the cinematic causes and the mistake effects in the process of acquiring the rational technique during the fence running. Through the intermediary of these parameters we may intervene in the technical training towards correcting the kinematics mistakes, on each and every sportsman's level, through an individualized strategy focused on corrective exercises, on methodic exercises and on intrinsic and extrinsic feed-back (visualizing

one's own exercises).

The objective of the research is focused on identifying the cinematic parameters of the step over the fence, in the framework of case studies and on comparing them with the models existing in the specialized literature, so as to optimize the respective sportsmen's technical training. In achieving the research, the basic methods which will be resorted to are the observation method, the experimental model and the analysis method. Within the research, there were involved three junior athletes of the 1st category, with an athletic training over 3-5 years, members of the National Olympic College 190 Bucharest.

The practical enhancement of the data obtained during the initial, intermediate and final testing, through investigations as complex and objective as possible, will be processed with statistic-mathematical calculations. Depending on these ones, there will be elaborated the general and operational objectives, the submitted methodological solutions for every athlete in view of acquiring the correct technique for passing over the fence. All these reference elements based on the video analysis of the component motion structure will enable us to permanently follow the evolution of the results and the efficiency of the unfolded activity, influencing thereby positively the level of the athletic training.

Considering the high level of performance during the fence events for seniors on international level, and the low level during these events on internal level, there is necessary that at least on the level of the juniors 1, to pass at monitoring cinematic variables, which should be manipulated in the sportsmen's technical training so as to accomplish their technique and to obtain performance that should be compatible with those on worldwide level.

Budget structure:

NR. CRT.	DENOMINATION BUDGET CHAPTER	YEAR I VALUE (RON)	YEAR II VALUE (RON)	TOTAL VALUE (RON)
1.	**STAFF EXPENSES** * (wages, CAS, Unemployment, Contribution to social health insurances, collaborations, daily fee-internal/external official trips)	5000	2500	
2.	**INDIRECT EXPENSES** (overhead, max 5% of the grant value)	1417	708,33	
3.	**INFORMATION, DOCUMENTATION EXPENSES**	5250	2425	
3.1	**Material expenses-**	1000	300	
3.2	**Mobilities** (study visits, participations in internal and international scientific manifestations, in accordance with the grant set of themes, access fees, transport and accommodation expenses) - max. 15% of the grant value	4250	2125	
4.	**INVENTORY MATERIALS, STAFF** (consumable materials inclusively reagents, components, access costs to the infrastructure for research of third parties)	1000	200	
5.	**COSTS FOR ENHANCING THE RESEARCH RESULTS** (editing-publishing expenses, actions to the purpose of achieving the research theme or enhancing the results)	1000	1000	
6.	**CAPITAL** /equipment, software/upgrading in proportion of max.50% of the grant value)	14167	7083,33	
7.	**ACCESS FEES** to specialized laboratories (for projects type TD)	500	250	
	TOTAL	28333	14166,66	

Stage of the doctoral thesis:

In the current stage of the research, we mention to have achieved the first three objectives of

the doctoral thesis:

- drawing up documentary cards, which allowed us to go in-depth into the different opinions and conceptions with respect to the set of themes circumscribing the research;
- identifying the tools, the apparatuses and the technique for determining the cinematic elements which may be used in our country;
- determining the somatic, motor actuating and performance parameters for the sportsmen included within the research.

The first somatic indicator under research has been the athletes' height, which displays individual values ranging between 1,68 and 1,73m. at the first testing. Considering that, as regards the majority of the juniors, the growth has not ended yet, we dare say that at the height they might reach, the targeted performance might be attained. The second indicator is the length of the inferior limbs, which displays individual values ranging between 95 and 105cm, at the first testing. These somatic indicators will compared to the normal values of the youths aged between 17-18 years, who practice no sports and likewise to the somatic values of the reference model, the gold medaled of the 110mf event. There is felt the need of appraising and using in practice these somatic indicators, as in the selection of the event there are searched for high athletes with long inferior limbs.

From the motor actuating standpoint, the development of the qualities and the accomplishment of the running technique.

To the means for the fence runner's general physical training, there pertain those with specialized orientation; however, which, through the nature of the neural muscular efforts and of the working regime, influence the overall runner's organism. Therefore, during the training, there must be paid special attention to the adequate training of the locomotory apparatus, which should ensure a rapid and at the same time economic over the fence. The insufficient training or the weak development of the main motor actuating qualities will bring about technical mistakes whose correction is many a time long and painful.

We present as follows the following mistakes noted in the subjects' video recordings and the means for correcting them:

Mistakes	Means for correction
1. Much too high crossing	The attack is done at greater distance from the fence
2. Immediate putting down the towing foot after passing the fence (much too short step)	Passing the towing foot over two fences placed in parallel
3. Too slow passing over the first fence	Accelerating and reducing the last step of the running up to the first fence
4. Insufficiently actively motion of the attack foot	Passing fences placed at the distance of a step Increased volume of training and special exercises for working with the attack foot
5. Too slow passing over the fences.	Improving the running speed Passing the fences in a rhythm of 5 steps
6. Insufficient trunk leaning forward during crossing over the fence	Crossing over the fence with a lath placed above them

The training in the fence event constitutes a complex issue of high fineness. This way, in training fence runners, we place in forefront the technique of running over the fences, which must be characterized through good neural-muscular coordination, amplitude and a high degree of relaxation. The athlete must dispose of a well developed "sense of acceleration", and on this basis, there is formed and developed the "capacity of acceleration", both aspects being profoundly involved in the maximal enhancement of the runner's speed potential.(A. Dumitru, M.Neamțu, 2000, p. 207 – 213).

The second very important aspect is force training, which must likewise participate in enhancing the sportsman's potential, as non-adequate force training may "choke" this potential. In the training for the fence event, we speak, as a matter of fact, as for athletics in rough terms, of

"necessary" and "sufficient" and of explosive force, in the sense of the force manifestation under speed regime in the impulsion activity. The force training also aims at the adequate fortification of the abdomen and inferior members musculature, in parallel with ensuring the mobility of the coxo-femural (hip-thighbone) joint.(A. Dumitru, M.Neamțu, 2000, p.214 -218).

The third important aspect id the development of mobility, suppleness and skill.

Competitions are deemed the best means for perfecting sports skill. Competition „favors comparison between sportsmen and various competitors, the result confirming or infirming the capacity of performance, understood as feature of personality" (C.A. Dragnea, S.M. Teodorescu, 2002, p.570). Envisaging the place that competition must occupy in the process of the junior's training, we appreciate that the passage from the competition pre-eminently understood as confrontation with oneself, to progressive competition, is achieved through the polyvalence of competitive experiences at young age. This orientation means, as a matter of fact, either acquiring a significant "luggage" of knowledge and experiences (which stands in itself for a rise and an improvement), or counter-balancing the absolute and generalized significance, which is generally attributed to victories and defeats, placing instead of a classification, many and different classifications. Competition is the only form capable of offering feasibility to training models. (C.A. Dragnea, S.M. Teodorescu, 2002, p. 571). Therefore any model must be checked in the competition, then „accomplished, finished in the training and again checked in the competition until the stage of prototype." (C.A. Dragnea, S.M. Teodorescu, 2002, p. 572). The sports performance obtained in the competition will make up the final objective of technical training.

From the physiological standpoint, sports performance in running over short distances is especially ensured by the functional state of the neural-muscular system and of the central nervous system, which, through its high functional mobility, ensures the rapid alternating between the excitation and inhibition of the locomotory centers (contraction-relaxing). This way, the effort is mostly achieved under anaerobic conditions therefore, during the effort, the athlete contracts a significant duty of oxygen. The effort from the event of 110mf is of the type alactacid anaerobic. The activity of the cardiovascular apparatus is marked through a considerable intensification as compared to rest. The cardiac frequency and the arterial pressure rises to 160 pulsations / minute and respectively to 180/70 mmHg. The return to the rest level will be obtained once with calming the organism (breathing) after 6-7 minutes since working the effort off. The nervous and the neuromuscular systems are most intensely solicited, as the effort is brief and explosive, entailing intense nervous and musculoligamentary strain. (N. Alexe, 1993, p. 236).

The materials used in the research pertain to the Department of Research D04 – „Advanced Mechatronics Systems" of the Faculty of Mechanics within Transilvania University of Braşov.

After going through the first objectives of the research, there was carryout out the initial testing, within the experiment. During the subjects' video recording, there was used a „Trouble Shooter" camera, there was carried through the filming with 60 close-ups per second, with natural illumination of high intensity (placed in front of the subjects and laterally as compared to the camera), diaphragm ¼ (quarterat the crossing over the fence there was used lens with focal point of 12mm. The markers used which were placed on the subjects on different areas of the body: ankles, knees, hip, wrist, elbow and shoulder. They are made up of black elastic and a synthetic white material, as a ball.

The cinematic parameters which were determined in the framework of research are the following:

- Detachment speed on the horizontal during the attack of the fence;
- Speed on the horizontal during the landing;
- Height CGG against the soil;

- Maximal distance CGG above the fence;
- The angle described by the trunk plane with the inferior members, in the moment of attacking the fence;
- The angle described by the trunk plane with the inferior members, in the moment of the landing;
- Duration of the flying over the fence;
- Horizontal distance from the impulsion to the fence plane;
- Distance on the horizontal of the landing after the fence;
- Cinematic analysis of the motions carried through in the moment of crossing over the fence.

These recordings of the subjects required a professional intervention. I make mention of the fact that I have had no permission to work independently with the respective materials. This way, the inter-discipline approach turns into organizational necessity, not only methodological.

Through the intermediary of this research, we will identify the cinematic variables of the fence double quick step in the studied athletes, we will compare their units of measurement with models from the specialized literature, thereby guiding objectively the technical training to the purpose of rendering it efficient for each and every athlete.

Presentation of the doctorate program:

KNOWLEDGE CURRENT STAGE IN THE FIELD, ON THE NATIONAL AND INTERNATIONAL LEVEL, RELATED TO THE LATEST REFERENCES IN THE SPECIALIZED LITERATURE.

Biomechanical study applied in sports activity offers the following possibilities (D.D.Donskoi quoted by Iliescu, A., 1968, p.6):

- to study the technique of physical exercises in the process of sports training, enhancing what is essential for the motion and what ensures a valuable result;
- to appreciate the quality of physical exercises, to detect the mistakes, the causes and their consequences, as well as to find the paths for moving them off;
- to accomplish the sports technique, to substantiate it scientifically and to generalize the experience;
- to study the general, common particularities of the best sports technique, as well as those which depend on the individual characteristics of physical development.

„In the main, any sports motion, any technical procedure may be analyzed from biomechanical standpoint." (N. Alexe,1993,p.263). The author states that biomechanical analysis might detect an insufficient power of the sportsmen, a piece of information of major significance for adequately selecting and programming the means of training to the purpose of correcting the motor actuating action. Starting here, we will achieve the cinematic analysis of the fence crossing in the event of 110 mf and thereby we will obtain variables enabling us an objective assessment upon the 1st category juniors' technical training.

The notion of "erroneous technique" in fence crossing refers to those motions that the athlete executes in the moment of crossing over the fence. D.Gârleanu describes a series of mistakes and means for correcting them in the fence event. (1992, p.108). This way, technical mistakes are deemed of importance, as they indicate where the athlete's level of technique is situated, compared to the standard model, these information being necessary to the purpose of correction, representing an essential stage in the process of athletic training.

"To biomechanics, there reverts an important role in optimizing sports performance, in analyzing and correcting technical training" (N. Alexe, 1993, p.263). Applying the video techniques and the biomechanical analysis instruments (informatics) is the experts' main

purpose, for obtaining information in the framework of the athletic training process (feedback) so as to undergo objective assessment; being re-transmitted towards the athlete (feedback) so as to raise technical efficacy.

The authors A. Prescorniță, D. Tohănean maintain that "monitoring stands for a continuous approach, of follow-up, supervision, recording and comparison wherein no concrete and active intervention is made upon the student. (2008, p.19).

Fence running is an event wherein the separations in the classification depend on the value of the technique, a value which is determined by the correctness of the fence crossing motions, on the accuracy and aesthetics of the motions.

The author P. Dupuis claims that "information science promotes new instruments for analyzing the performance in sport following technological and methodological advancements in the field of sports physical activity."(2003,p.7-13). This way, the use of modern technologies offers the possibility for the process of athletic training to be approached from a new perspective.

N. Alexe perceives a rise of the achievements in the field of science and technique, due to informatics (video recording) which creates new possibilities for carrying through complex calculations and for calculating great volumes of information in a relatively short while. (1993, p. 405).

Numerous authors claim that through introducing the computer, there are obtained a series of facilities: evidence, statistics, graphics, diagrams etc. (A.Prescorniță, 2008,p.19; N. Alexe,1993,p.405; M. Epuran, 2005, p. 306 etc.). N. Alexe maintains that the advantages of using computer are: speed and calculation precision, the capacity of memorizing and storing the information, the effectuation of interactive and flexible calculations." (1993, p. 306).

M. Epuran considers that a researcher should be doubled by the expert in electronics, in advanced techniques for collecting events in real time (motions, actions etc.) to the purpose of rapidly processing thereby the information. The approach covers this way several disciplines. (2005, p. 272).

The performance in fence running is specifically measured in time, this way they may be compared at any time with some others. The searched parameters will be expressed in units of measurement, enabling the researcher to analyze an objective assessment of the motion and thereby to set exact evaluation criteria, knowing many times the qualitative indicators which are decisive in performance. *Biomechanical analysis of fence crossing* comprises two stages: *qualitative analysis*, which aims at identifying and naming the components of the motion and *quantitative analysis,* which settles the units of measure for the variables of the fence crossing motion.

M. Epuran considers that "digitizing the video cameras is state-of-art in processing imagistic information, offering the great advantage of using the computer in storing, rendering and very differently processing these information, through particularly ingenious software" (2005, p. 328).

The video camera "Trouble Shooter", is a camera of high speed, is a complex equipment allowing the engineers, the technicians and the researchers to analyze processes unfolding in a very brief while. The camera records a sequence of images at very high speed and subsequently renders it at low speed, allowing thereby the users to see, measure and analyze events unfolding at much greater speed than the one perceived by the human eye. *Trouble Shooter* is a portable camera of high speed equipped with color display TFT of great dimensions. The scanning rate is of 1000 close-ups/sec (respectively 16000 close-ups/sec series HR), with flexibility in use, portability (identification of the apparatuses and of the instruments in the framework of the department D04 "Advanced Mechatronic Systems", Faculty of Mechanics, Braşov).

Another author, D. Boboc, submits a series of theoretical aspects synthesized from the specialized literature upon the concept of "motion capture". It supposes recording the body motion to the purpose of rendering/resuming and likewise analysis (2003, p. 56-62). This way,

with these apparatuses, the athlete's position of the body in space may be studied.

The importance of video recording is also recognized by J. Krug, U. Heilfort, J. Zinner, 1996, p.103 who refer to two stages of investigation: training of the video implementations – that refers to the traditional video training and the training on measurement surfaces. Hence there ensues that the first universal concept of the measurement spaces, of significance for the training technique, was elaborated by U. Heilfort (1985 quoted by J. Krug, U. Heilfort, J. Zinner, 1996). In the framework of this concept there has been gone through the following directions:

1. measuring through video images;
2. comparison of the obtained model with the standard model;
3. synchronous recording and evaluation of the recorded information.

The analyses and the systemic evaluation within sports technique accomplishment directed the latest researches towards conceiving professional software.

M. Epuran states "with a performing software, there may be recorded individual actions and behaviors and there may be achieved calculations in percentages on action and behavior genres, positive or negative, technical mistakes." (2005, p. 297).

From those presented above, we may state that the method of video recording is applied and enhanced in the athletic training process as observational instrument, and also as corrective instrument of the technical mistakes during the fence event, to the purpose of obtaining sports efficiency. This way, within the research, there will be stressed the combination between the traditional methods and the state-of-art methods, achieving thereby a single path for technique accomplishing in fence running.

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POTENTIAL CONTRIBUTIONS IN RELATION TO THE LATEST ACCOMPLISHMENTS EXISTING IN THE MAIN TIDE OF PUBLICATIONS

The experimental argumentation of the efficiency in monitoring and rendering the technical training operational, based on the cinematic analysis of the fence double quick step technical elements110mf, will bring along the following contributions:

1. contributions in monitoring the cinematic parameters of crossing over the fence and identification of the independent variables for perfecting the sports technique;
2. contributions to using the software destined for determining the cinematic parameters during crossing over the fence;

contribution in modeling the subjects' technical training, through comparing the variables determined in each of them to the model in the specialized literature and through elaborating the optimal individual model.

RESEARCH OBJECTIVES AND ACTIVITIES WITHIN THE PROGRAM

Year	Objectives (denomination of the objective)	Associated activities	Value sollicited on activities (RON)
2009/2011	1. Studying the theoretical concepts within specialized literature as regards sports training, fence crossing technique, biomechanics, kinematics and modeling;	Trips on local and national level within various specialized centers and drawing up on this basis, documentary slips enabling a deeper knowledge upon variegated opinions and conceptions related to the research	***3554,4***
2009/2011	2. Identifying the instruments, the apparatuses and the technique for determining the cinematic elements to be used in our country;	Trips on local and national level in various research centers: Department of Advanced Mechatronic Systems, D04, Faculty of Mechanics, Braşov, National Institute of Research, Bucharest, CCPU Piteşti.	***3554,5***
2009/2011	3. Determining the characteristics of the model of general physical development in youth aged of 17-18	Actions of antropometric and motor actuating measurements. Trips to the institutions that the subjects pertain to.	***3541,66***
2009/2011	4. Determining the cinematic parameters in fence crossing on the level of the studied juniors;	Actions of video recording, of making up the stills, upon the subjects, and cinematic analysis of the researched cinematic parameters.	***15766,66***
2009/2011	5. Analyzing and generalizing the determinant indicators by comparison to the cinematic variables of the sports technique existing in literature	Analysis of the cinematic parameters during crossing over the fence. Comparative analysis of the results with the consecrated models.	***13250***
2009/2011	6. Noting the efficiency of applying the cinematic analysis to the purpose of detecting and correcting the technique mistakes.	The main event assessing the working capacity is the competition event, however the result in the competition event results from all factors having entered the training and therefore there is called for knowing the efficacy in each of them. This both reveals upon the actions exercised by the means used so far (detecting the defaults) and upon the subsequent formulation of improved training plans. Trips on local and national level for visualizing the subjects during the competitions.	***2833,33***

MANNER OF ENHANCING / DISSEMINATING THE RESULTS OF THE RESEARCH (PUBLISHING ARTICLES, PARTICIPATING IN CONFERENCES, FINALIZING THE DOCTORAL THESIS)

The results obtained in the event of 110 mf. will constitute the proof that during the experiment, through monitoring the cinematic parameters of fence double quick step, through the cinematic analysis of this key technical element in the motor actuating action specific to the fence runner, there was achieved a rationalization of the technical training.

The practical experience in using the technology for determining and analyzing the cinematic parameters of the fence double quick step submitted in the project will make up in a guide of good practice, useful to the trainers specialized in this athletics technical event.

The partial and final results of the research will be communicated in the framework of different sessions of scientific communications and will be published in specialized scientific bulletins, in magazines etc.

11.1. PARTICIPATING WITH PAPERS IN SESSIONS OF SCIENTIFIC/ARTISTIC COMMUNICATIONS.

NR. CRT.	TITLE OF THE WORK	TEAM	CONFERENCE NAME	ORGANIZER / YEAR
1.	**"Precontracția în probele de sărituri" [Precontraction in Jumping Events]**	**Nechita Florentina**	**International Conference of Scientific Communications – „Preocupări actuale de optimizare a activităților de educație fizică şi sportive de performanță"/ Current Preoccupations for for Optimizing the Physical and Sports Activities towards Performance**	**„Dunărea de jos" University, Galați, 2002**
2	**"Dirijarea procesului de antrenament al sprinterilor în baza de selecție a copiilor şi juniorilor" [Guiding the Sprinters' Training Process in the Selection Basis for Children and Juniors]**	**Nechita Florentina**	**Materials of the scientific conference - "Probleme actuale privind perfecționarea sistemului de învățământ în domeniul culturii fizice" / Current Issues upon Accomplishing the Education System in the Physical Culture Field Edition VI, Volume**	**Chişinău, 2003, Republic of Moldavia**

			II	
3	"Micul circuit, ca metodă de formare a motricității la copii şi juniori" [Short Circuit, as Method for Forming Motor Actuating Capacity in Children and Juniors]	Nechita Florentina	Materials of the scientific conference - "Probleme actuale privind perfecționarea sistemului de învățământ în domeniul culturii fizice" / Current Issues upon Accomplishing the Education System in the Physical Culture Field Edition VI, Volume	Chişinău, 2003, Republic of Moldavia
NR. CRT.	TITLE OF THE WORK	TEAM	CONFERENCE NAME	ORGANIZER / YEAR
4	„Selecționarea tinerilor sportivi talentați" [Selecting Young Talented Sportsmen]	Nechita Florentina	International Congress „Sănătate prin mişcare pentru generația viitoare"/ Health through Motion for the Future Generation	Oradea, 2003;
5	"Rolul educației fizice în învățământul primar" [Role of Physical Education in Primary School]	Nechita Florentina	„Olympia" - Revistă de informare olimpică / Magazint of Olympic Information	Ed. OMNIA UNI S.A.S.T., Braşov, 2003
6	"Considerații privind corectarea deficiențelor fizice la şcolari" [Considerations with respect to Correcting Physical Deficiencies in Primary Education]	Nechita Florentina	International Congress – „Programs and Abstracts"	Oradea, 2003
7	„Importanta aspectelor motrice în pregătirea alergătoarelor de garduri" [Importance of Motor Actuating Aspects in Training Fence Runners]	Nechita Florentina	Olympia" – Session of Scientific Communications with International participation	FEFS. , Braşov, 2004
8	„Tactul pedagogic – o cerinta elementara in activitatea sportiva" [Pedagogic Tactfulness – Elementary Requirement in Sports Activity]	Nechita Florentina	Olympia" – Session of Scientific Communications with International Participation	Publishing House of Transilvania University, Braşov, 2004

9	„Conceptul de sport” [The Concept of Sport]	Nechita Florentina	Session of Scientific Communications – „Physical Culture and Sport in the 3rd Millennium“	Publishing House of Transilvania University, Braşov, 2006
10	„Antrenorul – aptitudini si competente” [The Coach-Aptitudes and Competences]	Nechita Florentina	Session of Scientific Communications – „Physical Culture and Sport in the 3rd Millennium“	Publishing House of Transilvania University, Braşov, 2007
11	"Essențial qualities, skills or roles in coaching"	Nechita Florentina	Buletin of Transilvania University	Publishing House of Transilvania University, Braşov, 2007
NR. CRT.	TITLE OF THE WORK	TEAM	CONFERENCE NAME	ORGANIZER / YEAR
12	“Excelența şi raportul cu arta în sport” [Excellence and Relation to Art in Sport]	Nechita Florentina	Session of Scientific Communications – „Physical Culture and Sport in the Service of Life Quality and human Performance“	Publishing House of Transilvania University, Braşov, 2007
13	„Fair play în lumea sportului„ [Fair Play in Sports World]	Nechita Florentina	Session of Scientific Communications – „Physical Culture and Sport in the Service of Life Quality and human Performance“	Publishing House of Transilvania University, Braşov, 2007
14	"Artistic gymnastics"	Nechita Florentina	Buletin of Transilvania University	Publishing House of Transilvania University, Braşov, 2008
15	„Excelența în activitățile sportive” [Excellence in Sports Activities]	Nechita Florentina	„Olympia”- Magazine of Olympic Informing no.8/2008	Publishing House of Transilvania University, Braşov, 2008
16	" Biomechanics in sport "	Nechita Florentina	Buletin of Transilvania University	Publishing House of Transilvania

				University, Braşov, 2009
17	**„Selecția şi orientarea medico-biologică în atletism – alergarea de garduri”** **[Medical-Biological Selection and Orienting in Athletics – Fence Running]**	**Nechita Florentina**	**Session of Scientific Communications – „New Educational, Sports, Managerial, Kineto-Therapeutical Evolutions and of Leisure Time within European Context”**	**FEFS., Braşov, 2009**
18	**„Bazele fiziologice ale recuperării postefort fizic”** **[Physiological Bases of the Post-Physical Effort Recovery]**	**Nechita Florentina**	**New Educational, Sports, Managerial, Kineto-Therapeutical Evolutions and of Leisure Time within European Context ”**	**Braşov, 2009**

INDIVIDUALIZATION OF PLAYERS' TRAINING ON POSITIONS AT JUNIOR LEVEL HANDBALL TEAMS

Pițigoi Gabriel **Doctor's degree coordinator Colibaba Evuleț Dumitru**

Key terms: Differentiated traning, Organization of the training process, Knowledge of the player, Individual training, Individualization principle

Research programme review.

The aim of the project is rethinking and restructuring of the process individual training according to the demands and exigencies of the international sports competitions.

The project aims to improve the training process by improving the physical, technical and tactical level of the junior handball players; concept delimiting regarding the differentiated training according to: the training period, the occupied position in the team and the age specific physiological aspects.

Budget structure:

NR. CRT.	NAME OF THE BUDGET CHAPTER	YEAR I VALUE (RON)	YEAR II VALUE (RON)	TOTAL VALUE (RON)
1.	**EXPENCES WITH PERSONNEL*** (Incomes, CAS, unemployment benefit, Contribution for health social insurance, collaborations, separation allowance for internal/ external travels)	11450		11450
2.	**INDIRECT EXPENSES** (on-costs, max 5% from the value of the grant)			
3.	**RESEARCH EXPENSES**			
3.1	**EXPENsES FOR MATERIALS**	1000		1000
3.2	**EXPENCES FOR:** study calls, participations at internal and external scientific actions according with the grant theme, access taxes, housing and transport expenses - max. 15% from the value of the grant	2500		2500
4.	**MATERIALS, INVENTORY OBJECTS** (expendable materials including reactives, components, expenses for access at the research infrastructure for a third party)	1000		1000
5.	**EXPENSES FOR PRACTICAL APPLICATION OF THE RESEARCH RESULTS** (editing-publishing expenses, actions for theme accomplishment or practical application of the results)	4500		4500
6.	**CAPITAL EXPENSES** (equipments, software/upgrading de max.50% from the value of the grant)			
7.	**ACCESS TAXES** to the specialty laboratories(for TD type projects)	1000		1000
	TOTAL	21450		21450

Doctor's degree dissertation status:

The dissertation is now in the preliminary status of theoretical foundation regarding the differentiated forms of training organization with highlighting the aspects linked to the individualization and individual training.

Until now the following have been realized:

-To study the specialty literature and the scientific research papers which approach the chosen theme.

-Theoretic review of the actual state of knowledge and research regarding the theme.

-Identifying the problems within the research theme and the research approach context

-Preliminary study regarding the differentiating forms of training organization with highlighting the aspects linked to individualization and individual training.

- Setting the target group for the experimental research

-Assessment of the initial level of training for junior players

-Elaborating the individual training plans.

Doctor's degree head's recommendation:

The project with the theme "Individualization of players' training on positions at junior level handball teams" extends the differentiated forms of the training process at the junior level of handball players, which means from the point where the training of the players for high performances must begin. In the case of junior players there are few papers which debate the subject of individual training. So, it seems normal that the research shall begin with an elaborate assessment of all hereditary or/and gained traits in order to make an individual profile chart in which all traits, characteristics and deficiencies will be mentioned. The traits and characteristics will be continuously improved and the deficiencies will be removed by individual training. Taking into consideration the post-graduates' experience which was accumulated in time while begin a professional handball player, teacher and handball coach, we consider that the research purposes will be accomplished with success.

Doctor's degree programme presentation:

ACTUAL STAGE OF KNOWLEDGE IN THE FIELD AT NATIONAL AND INTERNATIONAL LEVEL, ACCORDING TO THE LATEST REFERENCES FROM THE SPECIALTY LITERATURE

At this moment the requirements of high level international competitions impose the rethinking and restructuring of the training process. Thus, the training process has to solve a series of performance proficiency which imply differential training.

The differential training targets the collaboration relation and the training forms organization. For this in the educational sciences in general and the sports sciences in particular the following forms have taken shape:

- Face-to-face relation which means the relation between the coach and the team, teamwork
- The relation between the coach and the proficiency groups or groups of training level
- The relation between the coach and team of two who support and help each other
- The relation between the coach, the player (athlete) and the individual training forms

Individualizing on positions and in general the individualizing process is generated by the following reference points:

a. the basic requirements of the game

b. the exigencies imposed by practicing handball in high level competitions (O.G., W.C, E.C.)

c. the exigencies of the positions in game, offence and defence systems

d. the characteristics and the qualities of the players (developing the ones existing and compensating the ones which don not exist)

e. the level of individual training

f. athletic shape

g. special game tasks
h. special conditions imposed by the scientific administration (medical examination)
i. accidents and diseases
j. national team selection
k. other situations: - training conditions
- accumulated fatigue and over solicitation from competitions
- professional obligations
- self motivation

There are few papers which present in an explicit mode the individual training. Since Leon Teodorecu and Knust Ghermanescu there have been written very few papers. Some reports written by dr. prof. D.E. Colibaba in 2004 and by I. Mihaila have appeared.

RESEARCH HYPOTHESYS

1. In the context of modern training the differential training gains a special importance for maximizing the capacity for performance. So, we give the presumption that if we use all the organization forms of individual training, then the performance capacity of each player will increase a lot.
2. If we will make charts for each player and if we will run the training process according to the praxiological circuit which is made up from objectives- contents- strategies- assessment, then the training quality and efficiency will evidently increase.

DISSERTATION PURPOSE AND AIMS

DISSERTATION PURPOSE

- Rethinking and restructuring of the process of individual trainings according to the requirements and exigencies of international competitions.

RESEARCH AIMS

1. To study the specialty literature and the scientific research papers which approach the chosen theme.
2. Theoretic review of the actual state of knowledge and research regarding the theme.
3. Identifying the problems within the research theme and the research approach context
4. Preliminary study regarding the differentiating forms of training organization with highlighting the aspects linked to individualization and individual training.
5. Assessment of the initial level of training for junior players with whom the experiment for identifying the training objectives for each player is run.
6. Elaborating the individual training plans.
7. Testing the individual training plans.
8. Final assessment of the training level.
9. Statistical interpretation of the data with recording the progress made by the Trial Group in comparison with the Reference Group.
10. Elaborating 3 or 4 partial scientific reports for the dissertation.
11. Writing the dissertation.
12. Writing a guide book regarding the methodology of individual training of junior handball players.

PROJECT TEAM
Coordinator: G. Pitigoi
Collaborators: coaches for juniors from Steaua
G. Zamri, Dia Alexandru

TARGET GROUP
The subjects for this research will be junior handball players from Steaua.

SCIENTIFIC INVESTIGATION METHODOLOGY
In running the research we will proceed as follows:

- Studying the actual state for the theoretical base of the paper
- Establishing the evaluation tests for the level of training in order to make the individual charts for the players and the training programs
- Putting in practice the organization forms of individual training
- Measuring the quality and the efficiency of the training program using the report: realized objective, proposed objective
- Statistical interpretation of the data obtained with the highlighting of the progress made
- Elaborating a guide book with methodological advice for junior handball teams

RESOURCES ANALYSIS
Material resources –existing
- needed
Financial resources – expenses
- incomes
Temporary resources- periods, stages
Space resources

OPERATIONAL PLAN FOR ACTION

STAGES	RESEARCH OBJECTIVES	ACTIVITIES	EVALUATION INDICATORS
I **RESEARCH AND IDENTIFICATION OF THE PROBLEMS WTIHIN THE THEME**	- to study the specialty literature and the scientific research papers which approach the chosen theme. -theoretic review of the actual state of knowledge and research regarding the theme. - identifying the problems within the research theme and the research approach context -establishing the work premises and hypothesis	-bibliographic review regarding the training individualization for handball players at the junior teams level	- writing the review regarding the state of knowledge of the theme
II **PROJECT PREPARATION AND ACCOMPLISHMENT**	- establishing the main requests regarding the modern training -pointing the theoretical concepts regarding the differential training in handball - delimiting the concepts regarding the individual training according to the training period, the position on the team and the specific physiological aspects	-delimiting the specific components of the sports training -the influence of general physical training in the handball game- organizing and running the handball training	
III **THE PRELIMINARY STUDY REGARDING**	-the preliminary study regarding the differentiated forms of training organisation with the	-elaborating a questionnaire regarding the	- the quality and the efficiency of the individualized

THE DIFFERENTIATED TRAINING ON THE TRAINING COMPONENTS OF THE HANDBALL GAME	highlighting the aspects linked to individualizing and individual training -the specialists opinions regarding the problem of the differentiated physical training for the junior handball players - the fundamental requests in practicing the handball game - determining the biological particularities -determining the psychic particularities - determining the sports training particularities	importance and the application of the differentiated physical training during training - physical development, main motive qualities -tests for determining the character type and the perceptive capacity	training
IV **RESEARCH PROJECT ELABORATION**	- assessment of the initial level of training for junior players with whom the experiment for identifying the training objectives for each player is run. -testing the individual training plans -final assessment of the training level - Statistical interpretation of the data with recording the progress made by the Trial Group in comparison with the Reference Group - elaborating the pattern of the game - elaborating the profile of the player for each position	- making a chart with personal data -medical opinions-anthropometric, systemic and physiological data -test regarding estimation of the training level - knowing the training level of the player who participate in the research -establishing the initial and final period of testing -establishing the place where the research is run -establishing the tests used in the research -material resources analysis: existing and needed -financial resources : expenses and incomes -temporary resources: periods, stages -space resources	-progress measuring test in learning the technique (H. Barrou) - physical state evaluation test (Ruffer)etc.
V **PROJECT APPLICATION AND MONITORING**	- Writing a guide book regarding the methodology of individual training of junior handball players -presenting the guide book in the National Coaches School	-implementing the new methodology in sports schools	
VI **PROJECT ASSESSMENT**	-elaboration and explanation of individual training forms based on the identification of some objectives generated by the exigencies of the performance behaviour in the game	-the acceptance, generalization and application by the National Coaches College	-project value application assessment

PROJECT ASSESSMENT

- The elaboration of some control tests for identification of the anthropometric, systemic, functional, motive, physical and psychological deficiencies.

PROJECT EXPLOITATION

- The elaboration, by the virtue of the research done, of individual charts for the players, of training patterns and instruments for evaluation of the training process quality and efficiency.
- Laying out a material with methodological prescriptions which will be taken into discussion by the National Coaches College in order to generalize its application.

Research Reports

Report no.1

1. The preliminary study regarding the methodological coordinates for the elaboration of the individual training projects for junior handball players from team Steaua.

Report no.2

2. The elaboration of individual training projects and their application

Report no.3

3. The results obtained by the junior players from team Steaua after individual project application.

POTETIAL CONTRIBUTIONS ACCORDING TO THE LATEST EXISTING ACCOMPLISHMENTS IN THE MAIN FLOW OF PUBLICATIONS

- Elaboration of project which will give efficiency to the training process in the individual training of the players at the level of juniors for handball teams
- Laying down a paper with methodological prescriptions which will be evaluated by the National Coaches College in order to generalize it in practice

AIMS AND RESEARCH ACTIVITIES IN THE PROGRAMME:

year*	AIMS (aim name)	Associated activities **	Requested value for each actvity (RON)***
2009	-To study the specialty literature and the scientific research papers which approach the chosen theme. - Identifying the problems within the research theme and the research approach context -Establishing the work premises and hypothesis	Bibliographic review regarding the training individualization for handball players at the junior teams level Theoretic review of the actual state of knowledge and research regarding the theme.	*1000*
2010	- Establishing the main requests regarding the modern training -pointing the theoretical concepts regarding the differential training in handball - Delimiting the concepts regarding the individual training according to the training period, the position on the team and the specific physiological aspects - Statistical interpretation of the data with recording the progress made by the Trial Group in	Assessment of the initial training level of the junior handball players with whom the project is run, in order to identify the specific training aims for each player.	*1000*
		Making a chart with personal data Elaborating the individual training plans Establishing the initial and final period of testing Establishing the place where the research is run Establishing the tests used in the research	*500*

	comparison with the Reference Group - Elaborating the pattern of the game - Elaborating the profile of the player for each position	Experimenting the individual training plans	*1000*
2011	Dissertation elaboration in the final form	Dissertation accomplishment	*2000*

WAY OF USE/SPREAD OF THE RESEARCH RESULTS (ARTICLE PUBLISHING, TACKING PART IN CONFERENCES, DOCTOR'S DEGREE DISERTATION ACCOMPLISHMENT

Elaboration, in the bases of the research done, of: individual charts for the players, training patterns and training quality and efficiency assessment instruments.

Laying down a paper with methodological prescriptions which will be evaluated by the National Coaches College in order to generalize it in practice

The elaboration of some control tests for identification of the anthropometric, systemic, functional, motive, physical and psychological deficiencies.

PARTICIPATION WITH PROJECTS AT SCIENTIFIC/ARTISTIC WORKSHOPS

NR. CRT.	**DISSERTATION TITLE**	**TEAM**	**CONFERENCE NAME**	**ORGANIZER/ YEAR**
1.	Study regarding the modern handball game at the Olympics- Athens, 2004	Dr. prof. Drăgănescu Elena, instructor Piţigoi Gabriel	National workshop of scientific reports	Ecological University 2005
2.	Study regarding the improving of amplitude of the back bone moves of sportsmen.	Dr. prof. Drăgănescu Elena, instructor Piţigoi Gabriel	National workshop of scientific reports	University in Bucharest 2005
3.	Study regarding the adhesion of the students from the University of Medicine and Pharmacy for physical activities.	Petreanu Adrian, Pruneanu Manuela, Piţigoi Gabriel, Dobă Denisa	Seminary for sports And European identity	Sophia-Antipolis University in Nice 2005

RETHINKING AND RESTRUCTURING PROCESS INSTRUCTION OBJECTIVES AND CONTENT OF SECONDARY SCHOOLS STUDENTS IN ACCORDANCE WITH SCIENTIFIC TEACHING DESIGN STAGES AND OPERATIONS.

Popovici Gheorghița **Doctorate co-ordinator Colibaba Evuleț Dumitru**

Summary of the Research Programme:

The operational part of the research aimed to designing and programming of the orientation, selection, instruction and participation processes in competitions of the basketball players, at all stages education and sports training.

The project is strategically developed out of tune processes raised but the harmony between terminals strategic finalities particular age, with the favorable aptitudes for practicing performance basketball, with the tendencies of development trends of the game on a world wide scale and with the high demands basketball competitions to our sportivemen are going to participate.

Each formative stage disposes of an analitical programme where there are specified the separate instructional targets – content – operational strategies – evaluation tests –demanding incresed normative steps, allowing only for the talented and highly trained elements to promote a step Lower the upper one.

The structure of the budget :

NR. CRT.	NAME OF THE BUDGET CHAPTER	FIRST YEAR VALUE (RON)	SECOND YEAR VALUE (RON)	TOTAL VALUE (RON)
1.	**PERSONNEL EXPENSES *** (wages, CAS, unemployment, social health insurance contribution, collaboration, subsistence-national travel / exteme)	10656		10656
2.	**Indirect costs** (overhead, max 5% of the grant)			
3.	**EXPENDITURE INFORMATION, DOCUMENTATION**	500		500
3.1	**Material expenses -**	1000		1000
3.2	**Mobilitati** (study visits, participation in national and international scientific events according to the theme of the grant, access fees, travel expenses and accommodation) - max. 15% of the grant	1000		1000
4.	**MATERIALS, OBJECTS OF STOCK** (consumable materials including reagents, components, costs for access to research infrastructure of third parties)	2500		2500
5.	**Cost for the Promotion of research results** (costs of publishing - publishing, actions towards the theme or recovery results)	5000		5000
6.	**Capital expenditure** (equipment, software / upgrading the proportion of max.50% of the grant)			
7.	**Access charges** to specialized laboratories (TD for type projects)	1000		1000
	TOTAL			21656

Thesis status:
- Have developed analitical programmes for each class separately observing the following praxiological design: objectives-content-strategy-assessment tools established instructional objectives;
- Have developed comprehensive class projects that were established themes, objectives, continuturilepentru each half separately.

Chief recommendation doctorate:

The paper entitled "Designing the activity of training students in secondary schools with the basketball profile " offers a scientific approach towards rethinking and restructuring the traditional methodology of teaching - learning the game of basketball on schools with this spotr branch.
As outlined in the title is a new designs that it can provide a range of curricular products such as training class syllabus, global and operational projects, ordering the teaching - learning activity on the praxiologic chain alignment: objectives - content - instructional strategies - assessment to ensure quality and efficiency of training.

I believe that the research is likely to succeed given the experience previously acquired PhD. (Popovici George) as a player, coach and especially a teacher at the school profile raised.

Presentation of the doctoral program :

THE CURRENT STATE OF KNOWLEDGE IN NATIONAL AND INTERNATIONAL DOMAIN REPORTED TO THE LATEST REFERENCES IN THE SPECIALIZED LITERATUTE

1. JUSTIFICATION OR MOTIVATION OF THE PROJECT

Old planning activity carried out with pupils in secondary school, planned to learn he contents and less the instructional objectives.
Our intention is to rethink teaching - learning basketball on curricular projects.

This concept marks the transition from training proictarea based content (what we learn?) to disigning focused on objectives.

This concept will produce beneficial effects on curriculum and curricular products available to the teachers, which means the the basketball program, methodological guides, manuals, compendium , etc..

Promoting the teaching - learning at secondary school level will lead to replacing the concept of "seeing and doing" which are currently being used by "precision and rigor" design science teaching.

2. THE PURPOSE AND RESEARCH OBJECTIVES:

The purpose of the paper:

a. Rethinking and restructuring basketball the teaching - learning basketball at secondary school by promoting the concept of design teaching

b. Develop comprehensive and operational projects for each year of study in hand in order to increase quality and efficiency of training process

3. RESEARCH OBJECTIVES

Study of specialized literature and scientific research workswhich puts into question the teaching of basketball in general and especially secondary schools;
Summary bibliography on the current state of knowledge of the theme of highlighting issues less erected :

1. Setting the target group and research tools to be used;
2. Preliminary study on the available bio-psycho-social aspects of students in order to establish objectives and develop global projects and operational projects;
3. Global Project Design and operational a year of study;
4. Practical implementation of operational projects with specific educational events specified to the didactical scenario and calculating teaching quality and effectiveness of training;
5. Statistical analysis of data and their comparison with results of a class who worked on the model of traditional design;
6. Development of three scientific communications as a result of scientific investigations conducted on paper reports;
7. Final drafting work
8. Develop a booklet of basketball by teaching science projects

4. RESEARCH HYPOTHESES

1. If the activities of the teaching - learning basketball in secondary school, will be redesigned and restructured after the educational model and then the quality and efficiency of the training process will improve significantly.

2. Performantial behaviour of students will improve significantly if demanding standards will obviously grow over time (from a formative stage to another)

5. PROJECT TEAM

Popovici Gheorghita - - physical education teacher from School. No 3, Gaiesti city,
Mariana Manea - physical education teacher from School no .3, Gaiesti city
Brasoveanu Lucretia - physical education teacher School no .3, Gaiesti city

SCHOOL Nr. 3 HEAD MASTER:
Stroie Elena - professor from School no .3, Gaiesti city

6.TARGET GROUP

Will be geared parallel classes V - VIII in which each efective students is 25 students. Of these classes the experimental group and control group will be choosen

The experimental group will work after global design and the control group will meet traditional training methodology

7.THE METHODOLOGY OF INTERVENTION (INVESTIGATION):

The investigation will take place in order of the following algorithm operations:

a) Study of literature and collection of premises generators of hypotheses
b)Formulating hypotheses;
c)Initial evaluation of levels of training by anthropometric measurements, motor, psychological, functional;
d)Setting the objective of training content, training strategies and quality assessment tests and the effectiveness of training;
e)Evaluation of global and operational education projects;
f)Evaluation of quality and efficiency of training process.

NOTE: Along with the suggested methods by previous algorithmic operations will stop using direct and indirect observation, based on protocol records, interviews with specialists advised of the domain.

8. ANALYSIS OF RESOURCES

Identification of resources:

a) material resources

Existence resoucers	Required resources
• PC • printer • Xerox Paper • 20 CD • based educational materials • Internet connection	• voice • camera

b) financial resources

c) temporal resources:

Duration:

- preliminary studio - 6 months
- development and practice of project - 12 months
- improvement project 6 months

Frequency of the activity: according to the planned research objectives (see analytical operational plan - Chapter X)

Operational plan of action:

STEPS	RESEARCH OBJECTIVES	ACTIVITIES	ASSESSMENT INDICATORS
I. DOCUMENTATION AND IDENTIFICATION OF THE PROBLEMS OF THE THEME	-establish keyword -identify the problems involved in the research topic -setting assumptions, assertions questioning and working hypotheses	- Explicitation and interpretation of key words - bibliographical summary of basketball in secondary cycle - Consulting the web pages	- Drawing on the knowledge synthesis of the theme - Critical Analysis of Existing planning documents
II. MEDIATION AND PREPARATIONS OF THE PROJECT	-Training tools for analyzing existing sylabbi products - the elaboration of the project	- Interviews with teachers working in schools with basketball programs: - Mariana I - Brasoveanu L – with approval of the School no. 3 school master Ms Stroie Elena	- elaboration of written documents
III. PRELIMINARY STUDY ON THE IMPLEMENTATION OF THE CONCEPT DESIGN TEACHING BASKETBALL IN SECONDARY SCHOOL	- Study existence planning documents the of teaching basketball in schools - Action to establish the initial level of training - Establish the teaching-learning basketball activities on the following products: - Curriculum - Syllabus or theme - Global projects - operational projects - Units of learning - Other products	- Rethinking and restructuring of the teaching learning - assessment based on praxiologic circuit -objectives-content-strategy - Assessment tools - Performing measurements to establish the level of training	-control prooves, tests and measurements on functional and technical tactics anthropometric parameters

IV. PERSONAL CONTRIBUTION TO OPTIMIZE THE TEACHING LEARNING ACTIVITIES OF THE BASKETBALL GAME	- Developing mentioned curricular products	- The composition of protocols for regarding the observation training	- Calculating the quality and effectiveness of training process
V APPLICATION IN PRACTICE AND MONITORING PROJECT	- Overall project implementation and operational practice	Project monitoring	- Calculation of quality and efficiency
VI THE EVALUATION OF THE PROJECT	- Corrections to the tested curricular products	- Statistical analysis of data and comparison with the control group of the results	- Comparative analysis of data obtained from the experimental and control group

CONTRIBUTION REPOTRED TO THE LATEST EXISTING POTENT1AL PROJECTS MAINSTREAM PUBLICATION

- Develop a work which is going to make the training program of students in secondary school and basketball more efficient profile.
- creating a material with methodological prescriptions wich will be discussed with FRB in order to be generalized in practice

RESEARCH OBJECTIVES AND ACTIVITIES OF THE PROGRAM:

Year *	Objectives (target name)	Activities associated **	The amount requested by activity (ron) ***
2009	- Studying specialized literature and scientific research works related to the treatment chosen theme. -identifing problems in circumscribed research topic and context of the research approach. -setting assumptions and working hypotheses -synthesis bibliography on individualization handball players in the training of junior teams -synthesis on the current state of theoretical knowledge and research to the topic under discussion.	- synthesis bibliography on training program for baschetball players in the teams secondary schools; - theoretical synthesis on the current state of knowledge and research to the topic under discussion.	***900***
2010	- Determine the target group and research tools to be used; - elaborationb of the global and operational projects on year of study;	- Preliminary study on the available bio-psycho-social aspects of students, in order to set targets and develop global and operational projects; - Practical implementation of operational projects with challenging the specific educational events challenge scenario and calculating teaching quality and effectiveness of training;	*300*
2011	Develop thesis in final form Completion of work	Completion of work	***2200***

PARTICIPATION WITH WORKS SCIENTIFIC/ ARTIST COMMUNICATION SESSIONS

NO. CRT.	TITLE OF THE PAPER	Team	CONFERENCE NAME	ORGANIZER / YEAR
1.	Improve the teaching basketball to groups of beginners	Teacher Octav Constantinescu,Teacher Popovici Gheorghita	National scientific communication Session	School Inspectorate, District Dambovita
2.	Contributions to improving assessment system physical and technical capacity of children a junior teams	Teacher Octav Constantinescu,Teacher Popovici Gheorghita	National scientific communication Session	School Inspectorate, District Dambovita
3.	Technical equipment and installations with small dimensions for baby basketball	Teacher Octav Constantinescu,Teacher Popovici Gheorghita	National scientific communication Session	School Inspectorate, District Dambovita

RETHINKING AND RECONSTRUCTION OF TRADITIONAL TRAINING METHODOLOGY BASED ON ITS IMPLEMENTATION IN THE PRAXIOLOGIC CIRCUIT AT LEVEL CHILDREN AND JUNIOR TEAMS (ICE HOCKEY)

Corduban Victor Doctorate co-ordinator : Dumitru Colibaba Evuleț

Key terms: Instructional strategy, Sport instruction, Optimization, Ice hockey for children and juniors

Summary of the Research Programme:

Rethinking and reorganization of training strategies in children and junior ice hockey teams Establishing the current level of knowledge of the theme researched; Identifing major issues circumscribed in our theme researched; Knowing the age particularities to be followed in developing training plans; Establishing the target groups (experimental and control);
Evaluation the biomotric potential of children and juniors; Stage evaluation of training level at junior and children teams.

Rethinking and reorganization of annual training programs in phases of education in accordance with the praxiologic cycle components; Practical application of training programs for children and juniors on the formative stages; Drafting a booklet of teaching and learning ice hockey on children and juniors; Writing the paper in the final form.

The structure of the budget :

NR. CRT.	NAME OF THE BUDGET CHAPTER	FIRST YEAR VALUE (RON)	SECOND YEAR VALUE (RON)	TOTAL VALUE (RON)
1.	**PERSONNEL EXPENSES *** (wages, CAS, unemployment, social health insurance contribution, collaboration, subsistence-national travel / exteme)	10656		10656
2.	**Indirect costs** (overhead, max 5% of the grant)			
3.	**EXPENDITURE INFORMATION, DOCUMENTATION**	500		500
3.1	**Material expenses -**	1000		1000
3.2	**Mobilitati** (study visits, participation in national and international scientific events according to the theme of the grant, access fees, travel expenses and accommodation) - max. 15% of the grant	1000		1000
4.	**MATERIALS, OBJECTS OF STOCK** (consumable materials including reagents, components, costs for access to research infrastructure of third parties)	2500		2500
5.	**Cost for the Promotion of research results** (costs of publishing - publishing, actions towards the theme or recovery results)	5000		5000
6.	**Capital expenditure** (equipment, software / upgrading the proportion of max.50% of the grant)			
7.	**Access charges** to specialized laboratories (TD for type projects)	1000		1000
	TOTAL			21656

Thesis status:

- Have developed analitical programmes for each class separately observing the following praxiological design: objectives-content-strategy-assessment tools established instructional objectives;
- Have developed comprehensive class projects that were established themes, objectives, continuturilepentru each half separately.

Chief recommendation doctorate:

The paper entitled " **Optimizing training strategies hockey teams - children and juniors** " offers a scientific approach towards rethinking and restructuring the traditional methodology of teaching - learning the game of ice hockey at the children and juniors level .
As outlined in the title is a new designs that it can provide a range of curricular products such as training class syllabus, global and operational projects, ordering the teaching - learning activity on the praxiologic chain alignment: objectives - content - instructional strategies - assessment to ensure quality and efficiency of training.

I believe that the research is likely to succeed given the experience previously acquired PhD. (Corduban Victor) as a player, coach at different levels and especially a coach of Romanian Juniors National Team.

Presentation of the doctoral program :

THE CURRENT STATE OF KNOWLEDGE IN NATIONAL AND INTERNATIONAL DOMAIN REPORTED TO THE LATEST REFERENCES IN THE SPECIALIZED LITERATUTE

- 27 years experience in hockey and exchange of experience;

1. JUSTIFICATION OR MOTIVATION OF THE PROJECT

- numerous contacts and exchange experience with schools: Canadian, Russian, Czech;
- talks and opinion poll with experts in field hockey: internally - Stefan Tomovici, Florian Gheorghe, Marius Gliga; internationally - Tom Skiner, Kevin Figsby, Junnu Kataja.
- professional knowledge appropriated during student period and independent study;
- Training courses organized at the Romanian Ice Hockey Federation nationwide;
- "Poverty" of studies that deals with children and juniors preparation in our country;
- Mistakes that are committed to junior teams preparation

2 THE REASEARCH GOAL AND OBJECTIVES

A. The project goal:

Rethinking and reorganization of training strategies in children and junior ice hockey teams

B. Research goal and objectives

Study objectives (1):

1. Establishing the current level of knowledge of the theme researched;
2. Identifing major issues circumscribed in our theme researched;
3. Knowing the age particularities to be followed in developing training plans;
4. Establishing the target groups (experimental and control);
5. Evaluation the biomotric potential of children and juniors;
6. Stage evaluation of training level at junior and children teams.

7. Rethinking and reorganization of annual training programs in phases of education in accordance with the praxiologic cycle components;
8. Practical application of training programs for children and juniors on the formative stages;
9. Drafting a booklet of teaching and learning ice hockey on children and juniors;
10. Writing the paper in the final form.

4. RESEARCH HYPOTHESES

1. We believe that at this moment the traditional methodology can be improved, if it will be revised and restructured, according to the praxiologic circuit model OCSE (objectives, contents, strategies, evaluation);
2. We believe that if instructional strategies are a result of optimum combination of methods, materials, resources, fundamentals, rules and organizational forms adapted to the preparation stage, then the training quality and efficiency of will be greater;
3. We believe that if the training process will take place on the overall operational projects and educational establishements, then we can achieve the conscious leadership and control of the work done.

5. PROJECT TEAM

Leader: Corduban Valentin Victor
Assistants: Bianu Remus
Marza Andrei
Pysarenko Ievgen
Consultant: Academic: Colibaba Evuleț Dumitru

6.TARGET GROUP

U14 – Juniors III STEAUA" Bucharest team
U12 – Children "STEAUA" Bucharest team
U10 – Children "STEAUA" Bucharest

7.THE METHODOLOGY OF INTERVENTION (INVESTIGATION):

- literature study to identify current level of knowledge of the topic researched and to determine the major issues;
- establishing the experimental group and the control group, on which we focus attention during the research;
- measurements by which we assess the children biomotric potential;
- developing analytical trainings on formative stages;
- interpreting results and presenting them in the form of guidance for teaching - learning in the context of scientific communications.

8. ANALYSIS OF RESOURCES

a. **Material resources**:

Existing:	Neccessary:
- Millestones (20 pieces); - Pucks (100 pieces); - Computer; - Printer; - Printer paper; - Internet connection; - DVDs (20 pieces).	- Voice interpreter; - Video camera.

b. Financial resources:
   - Costs for hours of ice;
   - Costs for consumables purchase;
   - Costs for making prints, copies, etc;
   - Transport costs;
   - Communications costs;
   - Costs for informational materials puchase;

c. **Temporal resources**:
   - Preliminary study 6 months;
   - Development and practice of project 12 months;
   - Project improvement 6 months.

d. **Arial Resources**:
   - Ice-rink;
   - Locker room for children.

Operational plan of action:

STEPS	RESEARCH OBJECTIVES	ACTIVITIES	ASSESSMENT INDICATORS
I. DOCUMENTATION AND IDENTIFICATION OF THE PROBLEMS OF THE THEME	-establish keyword identify the problems involved in the research topic -setting assumptions, assertions questioning and working hypotheses	- Explicitation and interpretation of key words summary of ice hockey at children and juniors level - Consulting the web pages	- Drawing on the knowledge synthesis of the theme - Critical Analysis of Existing planning documents
II. MEDIATION AND PREPARATIONS OF THE PROJECT	-Training tools for analyzing existing sylabbi products	- Interviews with teachers working in ice hockey programs:	- elaboration of written documents
III. PRELIMINARY STUDY ON THE IMPLEMENTATION OF THE CONCEPT DESIGN TEACHING ICE HOCKEY AT THE CHILDREN AND JUNIORS LEVEL	- Study existence planning documents the of teaching ice hockey Action to establish the initial level of training - Establish the teaching-learning ice hockey activities on the following products: - Curriculum - Syllabus or theme - Global projects -operational projects Units of learning - Other products	- Rethinking and restructuring of the teaching learning - assessment based on praxiologic circuit objectives-content-strategy Assessment tools Performing measurements to establish the level of training	-control prooves, tests and measurements on functional and technical tactics anthropometric parameters
IV. PERSONAL CONTRIBUTION TO OPTIMIZE THE TEACHING LEARNING ACTIVITIES OF THE ICE HOCKEY GAME	- Developing mentioned curricular products	- The composition of protocols for regarding the observation training	- Calculating the quality and effectiveness of training process

V APPLICATION IN PRACTICE AND MONITORING PROJECT	- Overall project implementation and operational practice	Project monitoring	- Calculation of quality and efficiency
VI THE EVALUATION OF THE PROJECT	- Corrections to the tested curricular products	- Statistical analysis of data and comparison with the control group of the results	- Comparative analysis of data obtained from the experimental and control group

CONTRIBUTION REPOTRED TO THE LATEST EXISTING POTENT1AL PROJECTS MAINSTREAM PUBLICATION

- Develop a work which is going to make the training program of students in ice hockey at children and juniors level.
- creating a material with methodological prescriptions wich will be discussed with RIHFin order to be generalized in practice

RESEARCH OBJECTIVES AND ACTIVITIES OF THE PROGRAM:

Year *	**Objectives (target name)**	**Activities associated ****	**The amount requested by activity (ron) *****
2009	- Studying specialized literature and scientific research works related to the treatment chosen theme. -identifing problems in circumscribed research topic and context of the research approach. -setting assumptions and working hypotheses -synthesis bibliography on individualization handball players in the training of junior teams -synthesis on the current state of theoretical knowledge and research to the topic under discussion.	- synthesis bibliography on training program for ice hockey players in the children and teams; - theoretical synthesis on the current state of knowledge and research to the topic under discussion.	***900***
2010	- Determine the target group and research tools to be used; - elaborationb of the global and operational projects on year of study;	- Preliminary study on the available bio-psycho-social aspects of students, in order to set targets and develop global and operational projects; - Practical implementation of operational projects with challenging the specific educational events challenge scenario and calculating teaching quality and effectiveness of training;	*300*
2011	Develop thesis in final form Completion of work	Completion of work	***2200***

INSTRUCTIONAL STRATEGIES TO OPTIMIZE PSYCHOLOGICAL TRAINING IN JUDO.

Sava Mihai Adrian **Ph.D. Coordinator:** **Mihăilescu Liliana**

Key Terms: Strategy, Training, Psychological preparation, Judo, Sport performance

Summary of Research Program:

The project is part of the category projects which aimes the activity of the yound phd students. The subject is an interdisciplinary and experimental topic , with theoretical and practical scientific implications in the sports training . The project aimes to improve the scientifical theory which anticipates the process of training in judo,bringing a signigicant contribution in developing an instructional strategy for the psychological preparation for the athlets, in relation to other components of training, ensuring adding value to the sport performances.

Stage of Ph.D. thesis:

The PhD Thesis is in an early stage, in which it was finished the first phase of theoretical preparation and follows the research ones..

The first stage of research aimed at gathering data / information on the theoretical and methodological bases of the theme chosen, in order to outline the scientifically base of the research. The references are focused on sport psychology, training theory, pedagogy, statistics, research methodology etc.

The second stage aimed at developing the first study (preliminary), regarding the view of the coaches on the psychological preparation in judo training. This study will be based on survey and it is focused on group. In parallel with this study will be conducted the second study (preliminary) on the expression of motivation, self-confidence, need of performance by applying "professional motivation test" by Michaela Roco, to children, adolescents of 14-16 years old, included in the performance training in judo.

Stage three will focus on establishing the operational framework and run an experimental study which it will materialized in the creation of a training model regarding the improving the psychological preparation of adolescent athletes in judo, based on the strategy developed and implemented to the target group of experimental research. Currently milestones documentation and bibliographic study on the practice carried out research in this direction and is under implementation and enforcement of the questionnaire, whose results will be the main premise which will generate the hypotheses, and also will fully reach the scope of the research project.

Presentation of the Research Program:

CURRENT STATE OF KNOWLEDG AT THE NATIONAL AND INTERNATIONAL LEVEL, REPORTED TO THE LATEST REFERENCES FRO THE LITERATURE OF SPECIALITY

The Olympic sport of Judo has experienced incredible success worldwide. The current ruling sport body of judo, the International Judo Federation (IJF), governs a membership of millions worldwide of both adults and children practicing the art and sport of judo. In many countries, judo is part of educational curriculum, and follows the trend initiated by its founder and professor of physical education, Dr. Jigoro Kano. Since judo's introduction to the Olympics in 1964, many countries have concentrated efforts on studying the science behind the sport of judo. The majority of these academic investigations have occurred in Europe, particularly Eastern Europe, where sport science is an integral part of coaching and athlete preparation.

Recently the western part of the world, the North and South America, put efforts into understanding the science of judo. These investigations range from quantifying and identifying the physical make up of the judo athlete to understanding and measuring their psychological performance in both training and competition. Modern day coaching programs in all parts of the world are increasingly turning to the sport scientist in an effort to improve on athletic performance in elite level judo events.. (Wayland J. Pulkkinen B.P.E., M.Sc., C.K, The Sport Science Of Elite Judo Athletes, preface)

Judo principles are not based on the use of force, even if it is a martial art. In literary translation, judo means "the way of gentleness" and judo practice involves training an individual to obtain self-discipline, abstention, coordination, improving social relationships; judo involves training the individual to cope with various problems in a calm manner and with gentleness. As a result, practicing Judo is supposed to contribute not only to physical development but mainly to achieve a psychological maturity. Because of his philosophy, judo might help people redirect their aggression and frustration and to adapt better in social terms. Various experts in the field have tried to find a scientific support in terms of Judo effects on the individual, its importance in shaping the individual both in terms of physically and his personality. Judo has a different meaning for everyone. Can be viewed as a fun sport, an art, a discipline, a recreational or social activity, a fitness program, a way of self-defence or fighting, a way of life. Could be all these and more.

Actually, Judo comes from the fighting system of feudal Japan. Dr. Jigoro Kano studied these ancient forms and integrated combat what he considered to be the best techniques in what is today the modern sport of judo.

People practice Judo for various reasons: to excel in competitions, to stay in shape, to develop self confidence, and for many other reasons. Judo can be practiced by people of all ages, both sexes, persons with disabilities. As a sport that comes from a martial art has to complete development of body, quick reflexes, develop a sharp mind and well-coordinated. The ultimate goal in Judo is the maximum capacity of human beings, always tending towards perfection.

In modern judo various studies were made for improving the training process. Such new systems have appeared and there is a relatively new science, named sport psychology. These systems have been specially designed for psychological training and using this kind of training instead the traditional one and proved that athletes have a significant advantage over their opponents. Experience and research have shown that obtaining performance on the mat is the result of a well-tuned physical training, nutrition and diet, and training and psychological assistance. All judoka are aware of their benefits, but few are those who combine them in their training.

Moreover in our country the sport psychology is at its beginnings. One of the problems which I believe to be essential and which a vast majority of coaches neglect, is that it puts more attention on the volume and intensity of physical training and the mental preparation is neglected. As a result, early athletes' abandon is very high, so I think that research involving the development of training strategies is a prerequisite.

Therefore it requires a change of attitude, to tackle this problem, the formation of powerful concepts to mobilize and convince all those involved in preparing athletes judoka, awareness of long-term effects they may have the means to optimize training strategies.

Multidisciplinary research that led to the formation of a system of rules and principles to conduct sports training have focused on some theoretical aspects viewed as instruments to realize the objectives sought.

1. Teaching strategy (instructional). Represents a consistent methodology, directed at solving some very well defined instructional objectives. It selected from the general inventory of the art teaching only the methods, means, material (exercises), principles, rules, laws and organizational

forms able to achieve instructional objectives proposed. Instructional strategy is a subject of educational technology able to achieve quality and efficiency of training.

Rational route of instructional strategy: instructional objectives → Resources → content → training programs (methods, teaching materials, means happy combination of the 3 M → planning (programming) → application → practical training organizational forms → evaluation → correcting the feed -back, which means in fact the fundamental operations of the project stages and mature teachers. („Jocurile sportive, teorie şi metodică" Colibaba-Evuleţ, D., Bota, I. 1998, p. 120)

2. Sport psychology. The science which studies the psychological-behavioral phenomena that have people participating in activities of the performance type. It is an applied branch of psychology developed in recent decades to the development of sports. It investigates the personality, characteristics of athletes, psychological foundations of motor learning, the general preparation for competition, psychological orientation and selection of athletes, psychology groups, various sports psychology, and psychology training and competition (M. Epuran, 1972) (M. Epuran, I. Holdevici, F. Ioniță, Psihologia sportului de performanță, 2008, pag.4, pag. 5)

3. Psychological preparation. Comprises a set of measures to support the athlete to attain the highest level of performance that is capable. (M.Epuran, I.Holdevici, 1980)

Psychological preparation has as the main fields of study:

- psycho diagnosis in order to ensure an adequate psychological preparation to improve the athletic performance
- psychological assistance for athletes: motivational training for performance, physical self-development skills, stress management, building volitional capacity, optimizing interpersonal relationships in sport teams
- psychological support for coaches: optimizing relationships- coach, personal counseling for increasing the efficiency; advices for management of athlete performance objectives
- developing new means of assessment and intervention

4. Athlete's Personality - The concept of personality comes from the Etruscan word "persona" which means "mask" and the role played by the actor on stage, man is considered as a bio-psycho-social whole. Human personality is an outcome of hereditary biological factors, factors related to individual psychological development and those of social nature. (M. Epuran, I. Holdevici – „Compendiu de psihologie pentru antrenori", 1980)

After research has concluded that to achieve high performance levels are related not only qualities of an athlete, but also the personality of the athlete characteristics compatible with the demands and mental pressure generated by the tournament.

Human personality is a system of general and relatively stable characteristics that define a particular individual, causing him to be differentiated from others.

5. Psychic Solicitation. The physical demand - we understand the extent that the whole psycho-behavioral system is mobilized to resolve a situation that represents the task or obligation. Athlete is considered to be "in the situation" a psychological space that must move and encounter obstacles that have to overcome. It will be seen throughout his real ability and / or biological and psychological potential.

6. Technical training is the combination of technical knowledge (in our case, the general basis of judo techniques (DEX, 1998)

7. Technological means. The set of exercises, operations, used to a certain performance. (DEX, 1998)

Means are exercises that provide quality training.

Technology is a concept borrowed from the field of social and productive activities has two distinct meanings:

- Knowledge of the phenomenon using techniques (all the tools, methods, rules) used for

productive activities;

- All methods, means and techniques of material processing, materials and data (digital, information, etc.) (Dicționar de Sociologie, Bulai, A., 1993, p.637)

Mental qualities needed for judoka performance athletes are divided into three groups: volitional, emotional and intellectual.

Volitional mental qualities (30%) are:

- courage (boldness);
- decision;
- initiative (activism);
- perseverance.

Since judo as a sport performance requires intensive efforts in terms of increased fatigue and stress even in training and competition is heady to insist on educating the maximum level of these qualities, a process that is done in the training by creating conditions with increase the degree of difficulty that judoka athletes must overcome.These conditions are:

- conducting rounds along with heavier or more powerful partner;
- tracing task of victory in training by Ippon opponent disqualification;
- supporting halves along with changes of partners, 1-post judoka in difficult situations: fasteners, impedes or sprain from which they have to leave at any cost
- organization of training of general physical training in difficult conditions (Running in the snow, rain, cold, heat sources);
- organization of training volume and intensity more than this.

Mental intellectual skills (45%) are:

- attention;
- operational thinking (creativity);
- rate decision (prediction-intuition);
- memory; imagination.

Athletes already have a genetic dowry in this respect, but also the intellectual qualities can be created, processed, developed at a high level in the training process by appropriate means:

- tracking the judoka value and observing their tactical and technical subtleties;
- halves along with the task to only run counter to partner's mistakes;
- organization of all employment type, the presence of disruptive stimuli (shouts of teammates, music at high intensity);
- create situations in which judoka find the best solution for defense and counterattack;
- analyze their technical and tactical mistakes as a result of training or employment of the competition ;
- change tactics during the battle by repeated changes of partners (those with many different features).

Affective mental qualities (25%) are:

- emotional stability;
- vigilance (responsibility);
- dedication in combat.

To develop qualities of affective mental judoka, the training will be made to resolve a number of real or artificial situations designed by coach:

- organization of rounds on which the judoka will impose his/her superiority;
- choice of partners with who the judoka is able to execute his/her favorite processes;
- organization of rounds with reduced time without judoka knowing it;
- stressing the importance of competition in terms of implications that are the result of the fight (rating, promotion, demotion);
- setting performance objectives with the athlete;
- establishment of individual training tasks and control their performance.

After Epuran M. (1968) the notion of medical-psychology and social assistance consists of:

1. management and control of activity of athlete in training, competition and recovery, which consists of guidance and supervision activities and collect information on it, assess it according to scientific criteria established and the decision of correcting behavior athlete, when appropriate;

2. diagnosis, medical and psychological, as the indispensable basis for: individuality indicators comparing models developed for industries athlete sports for different ages and sexes, development of prophylactic measures and psycho-prophylactic, establishing therapeutic measures in case of illness, accident, failure;

3. guidance individualization of training activity, contest, professional, social, family and leisure, in collaboration with the coach and other factors;

4. advice, either spontaneously or at the request of those interested;

5. contribution to the entire educational process to achieve the complex personality of the athlete. Having to do with gifted individuals, the psychologist can contribute essentially to the recovery of their skills, as well as to achieve a balance that must be provided when the endowment is unilateral and advertising increased compensation;

6. participation in initial selection and subsequent actions, helping technicians to establish the most judicious decision criteria, the requirements are related to the particular individual sport athlete in view of diachronic and prognosis.

Among the most used and effective means specific to psychological preparation for competition include:

- Individual discussion with athletes;
- Training in conditions of competition (with public officials and judges)
- Setting specific tasks to accomplish,
- Providing information about opponents as concrete;
- Judoka's belief that sport is shaped;
- Critical analysis of their behavior in training;
- Acquisition of new procedures;
- Mental training. Specific mental processes in Judo

Currently, sport psychologists, almost unanimously concluded that the process of training using psychological preparation has two ways

- Training everyday;

- Direct training for a specific competition.

Sport psychology lead to a better understanding of performance issues. Sport psychology is a study of psychological factors that affect performance in sport, regardless of its nature and is a science which understands the mental obstacles that might stand in the way of achieving the the goals. The principles of sport psychology are based on the connection between mind and body. Also, the principles of sport psychology emerge from the concept of mental training in sports. Instead of using the psychology of sport as a way to help solve problems of athletes, the new direction is the use of mental capacity as part of training for all athletes. The concept of mental training really took off in 1990. Now, athletes (judoka, wrestlers, etc) from all over the world begin to appreciate that the time devoted to mental preparation and mental training are fully worthy.

Today's sports competitions attract similar fitness levels and similar training regimes. A win against an opponent as formidable as you is a challenge and can be difficult. However, mental training is a competitive advantage that can propel an athlete before others. While the opponent may use the mental training techniques, the difference is reflected in how well athletes understand and apply these techniques. The better they apply these skills the greater is advantage on the mat. Mental preparation can help fighters to overcome fear, negative thoughts, and little motivation. Training programs in mind-body type are particularly effective if used on regular bases and if they are applied consistently. Also, the first step is to recognize low levels of motivation, stress levels, the effects of factors surrounding the athlete, the default on sports performance.

Importance of Mental preparation

It is known that the mind directs our actions and thoughts precede actions. To establish a performance level on the mattress, mental preparation is the key. When speaking about the warm-up process before routine training session, it refers only to physical warm-up. Recently, the warm-up process , involves thinking processes, mental states and emotional states. The benefits of so-called mental warming-up are as follows:

- Strengthens confidence in facing competition;
- Help in keeping control over processes of thought;
- Focus on the efficient execution of routine e during training / competition;
condition to be careful and alert mind;
- Help in planning movements to penetrate the opponent's defense in an effective way;
- Help in destroying mental barriers and fears that could harm performance.

Contribution to general Mental training preparation

Often it is asked the question - what percentage of 100% can be attributed to mental preparation, physical preparation, practice and technique? In other words, mental preparation is a significant difference? It is impossible to distinguish clearly. Every aspect of sports training is an ingredient that contributes to the fulfillment of any sport. These ingredients are equally important, and all converge to a good performance. (source: The Grappling Blueprint, http://www.lloydirvinlive.com)

J Andrew Yiannakis, a judo specialist science states that mental preparation is as important as physical training and helps the athlete to achieve its objectives.

Psychological preparation has a direct impact on some components such as:

(I) Motivation

(II) Confidence

(III) Concentration / focus

(IV) Unit mind-body (internal harmony)

(V) Interpersonal harmony

These are, of course, basic components, without the athlete judoka cannot achieve inner strength, generating performance. (Principles of Warm-up for Judo and Jujutsu by Andrew Yiannakis, PhDs

http://atja.org/Articles/Principles_of_Warmup_for_Judo_and_Jujutsu.htm)

Motivation. The reasons are causes of our behavior, specifically the internal causes of the behavior (A. Cosmivici, 1998, p. 199).

Motivation is a state that gives behavior energy and gives a direction. It is subjectively experienced as a conscious desire. (Atkinson & Hilgard, 2005, p. 507), After the classification made by V.B. Svart and SV Hruşcev, quoted by M. Epuran, (Psychology of Sports Performance, 2008, p. 45), on the factors of the outcome of sport, motivation is situated after heredity, skill, training and before training and personal record. The needs and reasons generate different attitudes as direction, intensity, complexity, to itself, others, things, ideas, facts, etc..

Making a combination of needs and reasons will result the following scheme (M. Epuran, I. Holdevici, F. Tonita, Psihologia Sportului de Performanță, 2008, pag. 137)

NEEDS		REASONS	
ATTITUDES (dynamic, regulating)			
Affective	Intellectuale	Motrical (comportamental)	Personality
- emotions - feelings - passions	- Belief - Faith - Opinions - - Interest	- Preoperative - Posts	- Agresivity - Domination - Submission
Compared with: himself, others, ideas, things, events			

The achievement motivation is influenced by five factors (Epuran M., I. Holdevici, F. Tonita, Psychology of Sport Performance, 2008, p. 139):

1. Personality factors: each individual is driven by the desire to succed and to avoid failure.
2. Situational factors: is expressed in the probability of success in situation or task and the stimulus produced by the value of success.
3. Trends resulting from the combination of personality and situation factors, namely the expectation of success and avoidance of failure.
4. Emotional reactions: all athletes want to live the feeling of pride and to reduce the feeling of shame;
5. The behavior of achievement as a result of the interaction of the four factors listed.

Using Sport Psychology to Enhance Motivation in Judo
(Mike Buckle, ***http://www.usja-judo.org/GrowingJudo/GrowingJudo2009_07.pdf***)

Two growing concerns in the field of youth sport are that of retention and skill development. Many coaches wonder what the best method is to retain students while teaching the importance of effort, skill development, and competitiveness, all while maximizing enjoyment. For over 25 years, researchers worldwide have explored these questions and the results have provided surprising insights and recommendations for optimizing student motivation in sport settings.

Through socialization in sport settings, children develop dispositional motivational orientations. These orientations are fully developed around the age of 12(6). The two primary

achievement dispositions, ***ego-orientation*** and ***task-orientation,*** are differentiated in terms of the individual's underlying perceptions of success and perceived ability.

An ***ego-oriented*** person feels successful when they can do better than others, seeks strategies, whether appropriate or not (cheating), to win, and doesn't equate effort with success. If there is a chance they might lose and look incompetent, they tend to withdraw or give minimal effort. This inability to use effort often hinders skill development. If the ego-oriented person perceives their ability to be low, they can experience anxiety in the form of worry, disrupted concentration during competition, low engagement in challenging tasks, reduced effort, and ultimately a lack of persistence (dropout).

On the other hand, the ***task-oriented*** person feels successful and confident when they learn something that is fun or a skill that they have done correctly. They work hard to achieve self-improvement in skills or performance. Their feeling of success and competence is self-referenced. Therefore, the task oriented person tends to be more intrinsically motivated, reports greater enjoyment in their activity, and is less likely to worry about making mistakes, or parental criticism. Over time, task-oriented people show greater persistency in sport involvement, seek challenging tasks, and give greater effort. Sport settings created by significant others (Sensei, parents, coaches, peers) can influence motivational processes of participants. There are two types of motivational climates operating in sport settings, namely, task-involving and ego involving climates. In Task-involving climates, leaders (Sensei, coaches) emphasize personal skill improvement, cooperative learning, and participants feel that each individual has an important role to fill. In this climate, winning is a by-product of hard work and teamwork. In Ego-involving climates, however, leaders encourage intra-team rivalries, doing better than others, give recognition only to the best performers, and punish players for making mistakes. Winning is emphasized and sometimes, at all costs.

Whether you work with developmental Judoka or elite competitive Judoka, the consensus of researchers in the field of motivation in sport settings is that task involving climates are the most conducive to developing optimal motivation, enjoyment, skill mastery, and athlete retention. A keynote for coaches and parents is that children naturally tend to be more task oriented.

Some of the highest rated reasons for youth involvement in sport are to have fun and learn skills. Task-involving climates have been shown to have a high correlation to enjoyment and positive skill development in individual sports like Judo. A common problem in youth sport is that children specialize in one sport too early and are thrust into highly ego-involving climates of competition and practice. This can be a barrier to learning new skills as they adopt ego oriented goals and spend more time in training phases than skill development phases. This approach also de-emphasizes the two most important reasons that youth join sports, as ego-involving climates are less likely to correlate with enjoyment or skill development.

Competition can absolutely be fun and challenging for kids . If you are going to let children compete, I recommend stressing personal improvement, skill development, having fun, and giving positive feedback after performances. This will likely enhance their enjoyment, skill level, and intrinsic interest to stay involved in Judo. It should also be noted that as Judoka climb the competitive ladder and move into the elite ranks, training environments (national training centres) naturally degrade from task-involving to ego-involving. This is understandable as there are certain aspects of ego-involvement that are helpful at the highest competitive levels, such as placing a high value on winning. Therefore, it is recommended that elite coaches make a strong effort to simultaneously create task-involving climates to buffer any possible detrimental effects of ego-involving climates. This strategy can improve your athletes' desire to persist and help reduce stress during the challenging training phases they will encounter

In a recent study of highly competitive elite French Judoka, researchers examined the differences between those that persisted in national training cites from those that dropped out in

terms of their perceptions of motivational climates. Not surprisingly, dropouts perceived the roles of parents, peers, and coaches as less task-involving and were less task-oriented.

Over two years, the athletes that stayed perceived that the coach, parent, peer-induced task-involving climate decreased. Importantly, the perceptions of a coach-induced ego-involving climate and the intentions to dropout increased. Results indicated that a high egoinvolving climate was not necessarily detrimental to motivation as long as taskinvolving climates were simultaneously sustained.

The goal of this research is to optimize the preparation of psychological research in the training of Judo by promoting ways and means of modern sports psychology, improving sports performance level of judoka athletes, implementing and optimizing training strategies using specialized programs. Also investigates the benefits that these strategies have on the athlete both in terms of performance to which they aspire and social perspective, the athlete being also a member of the community.

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POTENTIAL CONTRIBUTIONS REPORTED TO THE LATEST REALISATIONSFROM THE MAIN

The topic of the mainstream publications not found in the direction that we have decided to act, but I found some information that may be theoretical basis. Psychological preparation, although in recent years was recognized value, yet not a necessity accepted by most coaches at all Format and age. Scientific value is conferred on the topics for research aimed at obtaining the actual final, concrete we can do to promote the growing psychological training as a permanent component of the process towards preparation sports performance Judo. The extent to which scientific activity in the field, the results already achieved, creates the premises to fulfil the research objectives of the program will complete resultant research best practice in optimizing the preparation of athletes by manipulating independent variables identified by our psychological preparation.

OBJECTIVES AND PROGRAM RESEARCH ACTIVITIES

STAGE	Objective (Denumirea obiectivului)	Associated Activities * *	Period	The amount requested by activity (RON)
I	**I.1 Theoretical basis and methodological research**	I.1.1 Documentation on emotional intelligence	Present -20 May2010, and continues until thesis is completed	150
		I.1.2. Documentation on the rationality and emotions		150
		I.1.3. Documentation on concepts of training in Judo training		150
		I.1.4. Specific features of selection system in Judo		150
		I.1.5 The development, proliferation and application of the questionnaire for the first study "Study on design of the training coaches psychological judo".		50
	I.2 Research report I	I.2.1 Developing the research report	20 May -10 June 2010	
		I.2.2 Completing research report	10-15 June 2010	
		I. 2.3 Rapport presentation	15 June 2010	
a-II -a	II.2 Study realisation	I.1.1. Test multiplication for the second study	15 March 2010	150
		II.1.1. Subjects selection		
		II.1.2. Application of the tests and evaluation of anthropometric and fitness tests		
		II.1.3. Analyses methods		
		II.1.4. Statistics		
		II.1.5. Study on the expression of dominant response tendencies predominantly rational or emotional and emotional intelligence in adolescents 15-16 years of Judo		
	II.2. Raport II of research	II.2.1 Developing research report	1 -30 September	
		II.2.2. Develop applied intervention	30-10 October 2010	
		II.2.3 Complete research report	1-10 October	

			2010	
		II.2.4 Research raport presentation	16 October 2010	
a-III -a	**III.1. Preparation and realisation of the experiment**	III.1.1 Establish the operational (research methods, assumptions, subjects Place intervention of applied model)	20 October 2010	
		III.1.1 Program development	1 Nov 2010- -1 March 2011	
		III.1.2 Final testing		
		III.1.3 Analysis and data processing		
		III.1.4 result presentation		
	III.2.Results of the research	III.2.1 Participation in national and international professional conferences		
		III.2.2 Publication of the results obtained in magazines of specialty		
		III.2.3. Presentation of results in the meetings with coaches		
	III.3. Research Report	III.3.1 Develop research report	2- 20 March 2011	
		III.3.2 Complete research report	20-25 March 2011	
		III.3.3 Research raport presentation	30 March 2011	
a-IV-a	COMPLETE THESIS	IV.1. Completion of the Thesis VI.2 Thesis submission VI.3.Thesis presentation in the Department VI.4. Public thesis presentation	30 March – 19 July 2011 20 July 2011 **September 2011** **September 2011**	

METHOD OF CAPITALIZATION / DISSEMINATION OF THE RESEARCH RESULTS (PUBLICATION OF ARTICLES, PARTICIPATION IN CONFERENCES, FINALIZING PHD)

- conferences, congresses and scientific sessions;
- Presenting a lecture at the Meeting of coaches;
- Publishing articles in professional journals and volumes made at various scientific meetings.
- Creation of a booklet methods:
- Preparation of a book.

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CONTRIBUTIONS REGARDING THE INCREASING OF TEHNICHAL - TACTICAL CAPACITY BY MOULDING THE PHYSICAL TRAINING FOR JUNIOR SOCCER PLAYERS.

Vişan Paul

Key words: capacity, moulding, technical, tactichal, psychal

Project summary:

The research project that we are proposing to you it is focousing on the sport performance level, following the increasing of thehnical - tactical capacity in soccer game trough the moulding programs of physical trainings with and without using the ball in the training level of juniors. elaborating specific physical training programs with and without the ball corectly rationallazed and dosaged to the rithm and tempo of the soccer game having as a final goal the incresing of tehnical - tactical capacity and not at last to increase the sport performance of the junior level team. we desire to achieve at juniors level modern soccer game models of players specific positions in the field tracing the specific physical training with and without the ball having in mind models created by tehnical comission of romania soccer federation by the standards compulsived at annual tests but also the practical applications of researching project on experimental behalf.

Scientific description of the project:

The main goal

The actual phase oh phd degree determined by fullfilling the initial legs set at the beginning of this stahe of preparation. the first aspect reffers to the gathering of the informations regarding the scientific bases, theoretical and methodological of the project, wich is made in a determined proportion to make a outilne of the scientific support of the research. still as a defined aspect of acomplished periods of stages overwhelmed in elaborating the project of phd degree is one of setting the operational picture of the research wich defines itself affective and efiicient in setting the colaborating both licensed sport clubs and children and junior centres involved in the research, defining the environnment and the team who helped to end the research. continuing with acomplished phase of themes is to build up and to apply the opinion poll by a chestionnaire, wich constitute the premise of fallowing the hypothesis, the purpose and objectives of the research project. it needed to be mentioned the fact that the conclusions after the results of the chestionnaire was brought up for the research project the purpose, the objectives and hypothesis. in present by the content of the research program it it still rolling for achieving the preliminary study, materialized by the elaboration of the specific training programs with and without the ball by the standards made by tehnical comission of romania soccer federation, to see and to check the performance progress level wich later will be applyedby trainings to juniors level (14 – 16) yers old

The importance and relevance of the scientific content.

The current status in the field will be specified, emphasizing the unsolved issues. The motivation, relevance and degree of interdisciplinary (if applicable) of the project will be clearly described (based on concrete references to articles published mainly in the last 5 years, in the mainstream publications in the field

Degree of originality/novelty/innovation and expected impact of the project.
The degree of originality and complexity of the solutions and methods proposed with respect to the recent achievements in the field. The impact of the anticipated contributions.
presenting the phd degree :
The title of phd degree: contributions regarding the increasing of tehnichal - tactical capacity by moulding The physical training for junior soccer players.

The importance of the theme

Tthe importance of modern game presents an important characteristic by contuning and multiple interference of the lines and to the positions, made with the contribution of the players, both in defence and attack (douge b., hastie p.1993, frantz p. 1989, hochmut h g. 1989). thanks to soccer the borders relationships between states, sports clubs and specilists. rhe soccer game it is a social phenomenon of international superstructure, that compel all participants to race in equals conditions, demonstrating the the game is psyco-social and sportive is valuable.
This orientation takes in consideration the characteristics of the contemporary of soccer and the dominant tendency evolution of this worldwide.

The evolutions promoted by the game concept involves a multitude of aspects of the game components from physical, technical, tachtical, theoretical point of view.

This preparation leads to creating and maintaining of an performing capacity, setting and perfecting of a different motrical acts but also the development of a physical capacity as a structural side of training and an important meaning factor. bompa t., the specifical physical training it is a selective processing of the biggest functions and of motrical concordance with the specific effort charactheristic to the game and performance. the exercices and motrical actions useful to this objective are chosen in such a manner by form and content and it represents phases, parts, important moments of the contest exercices, of the game and not just an importance in supporting the performance and evelop the capacity of performance of the players.

Our intention it is that one to realise o moulding of technical and physical training at juniors level will contribute at increasing efficienty of the trainining to obtain superior results in competions.

The motivation peaking the theme research project:

- obtaining high quality performance results cannot be conceive without a rationalized of the
- entire process of training convenient according to some request well known to every single level of training.
- the neccesity of making better the methodology preparation juniors teams from soccer game in our country,
- by introdunction in work-out of physical programs training with and without a ball
- rationalise and feed regulator to the rhythm and tempo from modern soccer.
- the model identification of physical training specify with and without the ball at
- juniors b level, through rationalised elaborating to the programs of training planification from 3 factor perspective:
- tehnical, tactical and physical dominant which algorithm of training applied
- and valuable determined through test and attempts check specify performing teams of juniors level.

Research project hypothesis

If in juniors soccer training we use with carefully programs of physical training specify with and without the ball we believ that we can identify more easily the phusical training models but in the same time with the players at the juniors b level, wich through work-out applicative we can increase performance efficency in the game also the tactical capacity of the team.

We believ that if will introduce the planification of the training programs,programs of specify of physical training with and without the ball at juniors b level, rethinking and remodelling after the modern football aspects, we can contribute at the increasing tactical capacity

By modelling physical training from the work-outs onto the rhythm and the official games time tempo, all that going finally to the increas of the soccer team performance level.

The purpose of the project

The purpose of the project it`s focused on many directions of development and evolution:

- rationalized elaborating of certain work-out programs by physical training with and without;
- the ball and applyed in practice with de purpose to rate the effects of physical trening;
- specify applied in soccer game work-out, they will be transpose in to a visible game
- by the increas of the tactical technical and obtained at european and national level.

Creating and identification certain models by physical preparation with and without the

ball at juniors b level wich determinate the effects after the training in work-outs of certain and programs of soccer game specify with the purpose of obtaining training level, in full spred of campionship from the tactical tehnic point of view.

Adaptation of certain methods by the aplication in work-outs through riguros elaboration of physical training programs specify with and without the ball in pursue of process rewind describe upwards,which may lead to increase technical - tacthical capacity and to increasing the performance capacity.

Elaborate objectives and tasks os experimantal research performance in soccer requires from the beginning a large number of children and juniors by which are choose individuals by predisposed or materialised aptitude of somato, motrical, physiologica and psyhical, to favorize obtaining performance.

Knowing aptitudinal sistems of objectify in the behavior on children and juniors is decisive for scientific leading of intruction process.

in soccer high performance the follow up to discover and to mould skilled elements,by a good bio-psyhi-social development and to a process rational trening led and organized scientifically, wil allow to the beginner to achieve higher performences trhough his intructions.

The implementation/management plan of the project:
Working plan. Objectives and activities (scientific and complementary)

YEAR	Objectives		Activities	Requested value per activities (lei)
YEAR 2010	1	ORGANIZATION RESEARCH	1. DOCUMENTATION ABOUT THE ASPECTS OF KNEW THEORETICAL AND PRACTICAL APPEARANCE ON NATIONAL AND INTERNATIONAL PROJECT IN CONCORDANCE WITH RESEARCH THEME	
			2. SETTING IN DETAIL OF WORKING METHODOLOGY DIRECTING AND ORDERLY THE ACTIVITIES, DISTRIBUTYING THE TASKS	
			3. SETTING THE EXPERIMENTAL LOTS IN SPORTS CLUB INVOLVED IN EXPERIMENTAL RESEARCH 4. FEASIBLE THE SPECIFIC CHESTIONNAIRE CONCEIVED TO CATCH DATES WEIGHT OF USING IN PLANNING BUT EVEN PRACTICAL APPLICATIONS IN SPECIFIC PHYSICAL TRAININGS WITH AND WITHOUT THE BALL AT JUNIORS LEVEL	
	2	2. ELABORATING SPECIFIC PHYSICAL TRAINING PROGRAMS WITH AND WITHOUT THE BALL AT JUNIOR LEVEL, BASED ON A PILLOT STUDY ACHIEVED APPLYING THE CHESTIONNAIRE TO CHILDEREN AND JUNIORS COACHES FROM SOCCER CENTRES AT JUNIORS LEVEL	1. APPLYING THE SPECIALITY CHESTIONNAIRES TO THE COACHES FROM MAJORITY CENTRES OF CHILDREN AND JUNIORS OF OUR COUNTRY	
			2. SETTING SI COMUNICATING THE TYPES OF TRAINING PROGRAMS MADE BY US, FOR EXPERIMENTAL GROUPS, BUT ALSO THE APPLICATION OF THE INITIALLY TEST FOR TAKING CONTACT WITH THE SUBJECTS MOTRICAL , TECHNICAL-TACTHICAL, PHYSICAL AND THE BATTERTIES OF TESTS USED BY F.R.F. AT CHILDREN AND JUNIORS CENTRES LEVEL	
			3.PROCESSING THE RESULTS OF THE DATES FROM APPLYING THE SPECIALITY CHESTIONNAIRE THAT WILL SHOW THE WAY OF ROLLING OF THE RESEARCH PROJECT	
	3			

YEAR 2011	1	1. APPLYING THE SPECIFIC PHYSICAL TRAINING WITH AND WITHOUT THE BALL FOR JUNIORS LEVEL IN TRAININGS	1. RATIONALISED ELABORATING OF A SORT OF SPECIFIC PHYSICAL TRAININGS PROGRAMS WITH AND WITHOUT THE BALL AND PRACTICAL APPLYING WITH THE PURPOSE TO VALORIFY THE ALGORITHM EFFECTS OF SPECIFIC PHYSICAL TRAINING APPLICATED IN THE GAME BY INCREASING THE TECHNICAL-TACTHICAL CAPACITY AND OBTAINING PERFORMANCES AT EUROPEAN AND NATIONAL LEVEL	
			2. ACHIEVING MEASURES FUNCTIONAL AND MOTRICAL IN THE INITIAL AND FINAL TEST, PROCESSING THE RESULTS AND MAKING A CONCLUSION FROM THE EXPERIMENTAL GROUP ANF THE WITNESS GROUP	
			3. APPLYING THE PROGRAMS IN PHYSICAL TRAINING IN CONCEIVED AND DOSAGED TRAININGS IN A RHYTMN AND TEMPO OF A OFFICIAL GAME, FOR THE EXPERIMENTAL GROUP	
	2	2. APPLYING THE FINAL TEST FALLOWING THE EFFECTS OF SPECIFIC PHYSICAL TRAINING PROGRAMS WITH AND WITHOUT THE BALL TO THE EXPERIMENTAL GROUP, CAMPARE WITH THE WITNESS GROUP OF THE EXPERIMNT	1. IDENTIFYING THE MODELS OF SPECIFIC PHYSICAL TRAINING WITH AND WITHOUT THE BALL AT JUNIOR LEVEL, BY ELABORATE A PLAANNING PROGRAMS IN TRAINING FROM POINT OF THREE FACTORS: TECHNICAL. TACTHICAL AND MOST OF IT SPCECIFIC PHYSICAL	
			2. FINAL TEST FOR ALL THE PROSPECTS OF THE EXPERIMENT	
			3. PRESENTING THE RESULTS OBTAIN IN A SPECIALITY MAGAZINES AND SCIENTIFIC PUBLICATIONS	
	3	3. ELABORATING THE PhD DEGREE AS A FINAL FORM	4. ELABORATING OF A MONOGRAPHY TO PRESENT THE THEORETICAL AND PRACTHICAL ASPECTS OF APPLICATION OF THE NEW SPECIFIC PHYSICAL TRAINING WITH AND WITHOUT THE BALL SHOWING THE RHYTM AND THE TEMPO IN THE MODERN SOCCER GAME INCREASING THE CAPACITY OF PERFORMANCE. COMPLETING THE PhD DEGREE	

The way of haruess the finalisation of the research project:

- optimizing the methodology of training at juniors level in performance soccer
- reformultaing the scomplishment of the materials and ways of planning, by applying the specific physical training with and without the ball having as a purpose to see the results of programs level applyed in trainings acomplish models of practice of physical training and theoretical models of players having as a purpose the quality nad efficienty to increase the instruction process.
- programs generalization of specific physical training with and without the ball by publishing speciality documental experimantal asa a manual of speciality.
- publishing a monograhy of speciality of soccer game in one of the publishing house in romania cncsis

publishing the articles of speciality in comunication session of federal coaches school in romania but also in formulating of the programs for increasin that includes the coaches from children and juniors soccer centres.

The justification of the asked budget:

Nr. crt.	Costs category	Annual amount € (Euro)
1.	Costs for annual corespondence (fone and postal services)	200 €
2.	Costs acqcuisition for usefull marial (paper, xerox, fax, ink)	300 €
3.	Printing and wording multiplication	200 €
4.	Costs for procure of documentary material.	300 €
5.	Costs for entering into the scientific sesions of comunication	1000 €
6.	Costs for carrige	300 €
7.	Costs for realisation of tehnical-tactical, pshisycal-special tests but also phiszilogical	600 €
8.	Other costs	600 €
Total general		3500 €

NR CRT.	DENUMIREA LUCRARII	PUBLICATIA/ANUL
1.	OPTIMIZAREA MIJLOACELOR MODERNE DE EDUCARE A APTITUDINILOR PSIHOMOTRICE ÎN LECȚIA DE EDUCAȚIE FIZICĂ ŞI SPORT	SESIUNEA ŞTIINȚIFICĂ STUDENȚEASCĂ, PITEŞTI, MAI 2005
2.	OPTIMIZAREA PREGĂTIRII MUSCULARE ÎN DEZVOLTAREA FORȚEI ÎN JOCUL DE FOTBAL LA JUNIORII –I	REVISTA- CITIUS, ALTIUS FORTIUS, NOIEMBRIE 2005
3.	INTEGRONICA- ŞTIINȚA SISTEMELOR INTEGRATE, (DE LA SUBSISTEMUL CIBERNETIC LA INTEGRON)	REVISTĂ DE REFERATE- ACTA ACADEMICA, PITESTI, 2006
4.	OPTIMIZAREA PREGATIRII MUSCULARE IN DEZVOLTAREA FORTEI IN JOCUL DE FOTBAL LA JUNIORI - I	REVISTA- CITIUS, ALTIUS, FORTIUS, Nr. 6/2007
5.	ASPECTE PRIVIND OPTIMIZAREA SELECTIEI PRIMARE IN JOCUL DE FOTBAL PRIN JOCURI DE MISCARE	Buletin ; Ştiințific; Seria: Educație Fizică şi Sport Nr. 11(1/2007) Volumul I pagina 232
6.	IMBUNATATIREA CAPACITATII DE EFORT LA COPIII SI JUNIORII DIN FOTBALUL ACTUAL PRIN MIJLOACE SPECIFICE ATLETISMULUI	Buletin ; Ştiințific; Seria: Educație Fizică şi Sport Nr. 11(1/2007) Volumul II pagina 410
7.	ASPECTE PSIHOLOGICE PRIVIND EVALUAREA POTENTIALULUI DIN FOTBALUL PROFESIONIST	Comferin'a Ştiințifică Internațională – Perspective în Educație Fizică şi Sport Pag 476 UNIVERSI TATEA OVIDIUS Constanța Facultatea de Educație Fizică şi Sport 30-31 MAI 2008
8.	OPTIMIZAREA PREGATIRII FIZICE SI TEHNICO-TACTICE IN FOTBALUL JUVENIL	Comferin'a Ştiințifică Internațională – Perspective în Educație Fizică şi Sport Pag 470 UNIVERSI TATEA OVIDIUS Constanța Facultatea de Educație Fizică şi Sport 30-31 MAI 2008
9.	THE INFLUEENCE OF THE PLYOMETRIC EXERCICES ON THE TRAINING OF JUNIOR BASCKETBALL PLAYERS	ICPESH 2008 PROCEEDINGS INTERNATIONAL CONFERENCE: PHYSICAL EDUCATION, SPORT AND HEALTH PITESTI, 21-23 of November 2008 Vişan Paul; Pârvu Veronica; Pag. 125

10.	**OPTIMIZING THE ANAEROBIC CAPACITY OF CHILDREN AND JUNIOUR FOOTBALL PLAYERS BY USING THE ATHLETICS SPECIFIC ALGHORITMS**	**ICPESH 2008 PROCEEDINGS INTERNATIONAL CONFERENCE: PHYSICAL EDUCATION, SPORT AND HEALTH PITESTI, 21-23 of November 2008 Pag. 159**
11.	**THE DIFFERENTIAL DEVELOPEMENT OF THE FORCE-SPEED QUALITES OF FOOTBALL PLAYERS**	**ICPESH 2008 PROCEEDINGS INTERNATIONAL CONFERENCE: PHYSICAL EDUCATION, SPORT AND HEALTH PITESTI, 21-23 of November 2008 Pag. 161**
12.	**ODOLOGICAL CONTRIBUTIONS REGARDING TO THE PRIMARY SELECTION INSIDE FOOTBALL USING MOVEMENT GAMES**	**ICPESH 2008 PROCEEDINGS INTERNATIONAL CONFERENCE: PHYSICAL EDUCATION, SPORT AND HEALTH PITESTI, 21-23 of November 2008 Vişan Paul, Cojanu Florin; Pag. 66**
13.	**MĂSURARE ŞI EVALARE MOTRICĂ ÎN SPORTUL DE PERFORMANŢĂ – STUDIU PRIVIND IMPLEMENTAREA UNOR METODE MODERNE DE EVALUARE A CALITĂŢILOR MOTRICE FORŢĂ-VITĂZĂ PRIN TESTE SPECIFICE**	**PROIECT CU C.S.M. -ul Anul 2008**
14.	**CONTRIBUTIONS TO THE PHYSICAL TRAINING SPECIFIC TO JUNIORS "A" INSIDE MODERN FOOTBAL**	**Contributions to the physical training specific to juniors "A" inside modern footbal Journal of Physical Education and Sport Vol 22 no 1 March 2009 - Citius Altius Fortius – Journal of Physical Education and Sport, University of Pitesti**
15.	**SPECIFIC AEROBIC CAPACITY OPTIMIZATION OF FOOTBALL PLAYERS BY PHSICAL TRENING PROGRAMS WITH AND WITHOUT BALL** OPTIMIZAREA CAPACITĂŢII AEROBE SPECIFICE JUCĂTORULUI DE FOTBAL PRIN PROGRAME DE PREGĂTIRE FIZICĂ CU ŞI FĂRĂ MINGE	**Nr. 1, Anul X, 2009, Faculty of movement sport and health science – GYMNASIUM – Journal of Physical Education and Sport – Achievements and prospects in the field of physical education and sports within the European education system – pagina 37.**
16.	**- STUDY ON PREPARATION OF THE INDIVIDUAL POST IN PLAYING SOCCER AT THE SPORTS CLUB –FOOTBALL SCHOOL GICA POPESCU**	**ICPESH 2009 –SCIENTIFIC REPORT SERIES PHYSICAL EDUCATION AND SPORT - BULETIN ŞTIINŢIFIC SERIA EDUCAŢIE FIZICĂ ŞI SPORT – Nr. 13. (1/2009) –PARTEA I – ISSN: 1453 – 1194 Vişan Paul – Stoica Doru, pag. 317**
17.	**STUDY ON THE USE OF HELPFUL EQUIPAMENT IN IMPROVING TECHNICAL –TACTICAL PROCESSES IN PALYING FOOTBALL**	**ICPESH 2009 –SCIENTIFIC REPORT SERIES PHYSICAL EDUCATION AND SPORT - BULETIN ŞTIINŢIFIC SERIA EDUCAŢIE FIZICĂ ŞI SPORT – Nr. 13. (1/2009) –PARTEA I – ISSN: 1453 – 1194 Vişan Paul – Stoica Doru, pag. 321**
18.	**METHODOLOGICAL CONTRIBUTIONS REGARDING TO THE PRIMARY SELECTION INSIDE FOOTBALL USIG MOVEMENT GAMES**	**ICPESH 2009 –SCIENTIFIC REPORT SERIES PHYSICAL EDUCATION AND SPORT - BULETIN ŞTIINŢIFIC SERIA EDUCAŢIE FIZICĂ ŞI SPORT – Nr. 13. (1/2009) –PARTEA I – ISSN: 1453 – 1194 Vişan Paul – Cjanu Florin, pag. 66**
19.	**SHAPING THE TACTICAL TRAINING OF FOOTBALL PLAYERS AT JUNIOR - A – LEVEL**	**ICPESH 2009 –SCIENTIFIC REPORT SERIES PHYSICAL EDUCATION AND SPORT - BULETIN ŞTIINŢIFIC SERIA EDUCAŢIE FIZICĂ ŞI SPORT – Nr. 13. (1/2009) –PARTEA I – ISSN: 1453 – 1194 Vişan Paul , pag. 348**
20.	**THE IMPROVEMENT OF THE TEHNICAL AND TACTICAL SKILLS OF THE B JUNIOR PLAYERS IN THE FOOTBALL GAME THROUGH THE APPLICATION OF THE TRENING PROGRAMS CORRELATED TO THE SPACE – TIME EQUIILIBRIUM EQUIPMENT**	**ICPESH 2009 –SCIENTIFIC REPORT SERIES PHYSICAL EDUCATION AND SPORT - BULETIN ŞTIINŢIFIC SERIA EDUCAŢIE FIZICĂ ŞI SPORT – Nr. 13. (1/2009) –PARTEA I – ISSN: 1453 – 1194 Vişan Paul , pag. 491**
21.	**OPTIMIZING THE ANAEROBAE CAPACITY OF CHILDREN AND JUNIOUR FOOTBALL PLAYERS OF NOW-A-DAYS BY USING THE ATHLETISM SPECIFIC ALGORITMS**	**SESIUNEA INTERNAŢIONALĂ DE COMUNICĂRI ŞTIINŢIFICE *"Activităţile psihomotrice din perspective interdisciplinare"* Bucureşti, 4 decembrie 2009 - *Vişan Paul /Stoica Doru pag. 168***

SCIENTIFIC STUDY IN BADMINTON FIZICAL PREPARATIN THROUGH ATLETISM OF JUNIORS

Milon Alexandra **Teacher of PhD** **Lador Ioan**

Key words: Atletism, Fizical preparation, Specific phisical preparation, Badminton, Training

Research sumary: The scientific project is for a thesis of PhD, about fizical preparation in badmintont hrough atletism for juniors and a new way of training through the ‘ core stability’ concept

The PhD thesis: The PhD, thesis is at begining, the theoretic preparation was made and now I start the research step by step.

In first period I will bring all the informations what I can found and what I can use aboute this thesis. The bibliografy it will be about the: fizical preparation, specific fizical preparation of badminton players, pedagogy, management in sport, statistics, etc.

In the second period I will found out what is the coaches opinion about fizical preparation in badminton during practices, when they make fizical preparation and how long.

In this thesis the comunication and observation will be verry important. In the same time with this I will try to make a plane of general and specific fizical preparation training for badminton players.

In the third period I will try to make an experiment what will represent a model of badminton players fizical preparation through atletism.

For now I look to find as much as possible about the national and international reserches.

THE CURRENT STAGE OF NATIONAL AND INTERNATIONAL KNOWLEDGE IN THIS SPECIFIC FIELD, RELATIVE TO THE MOST RECENT REFERENCES IN SPECIALIZED LITERATURE

The Romanian Badminton Federation was established in January 29, 1990 and was reorganized according to the Law regarding the Physical Education and Sports no. 69/2000.

Its formative qualities can enlarge the number of possibilities of practicing this sport during leisure time, as a popular sport, as well as a competitive sport, by the students - future adults.

Badminton is a game that can be played by anyone, regardless of age, gender, or strength. Unlike many other sports, Badminton is a game in which the new players can achieve success in a short time. The weight of the racquet, the floating speed of the shuttlecock and the relatively small court allow students of all ages to experience the satisfaction of the game very fast. Although it is relatively easy to learn the basis of the game, acquiring the knowledge of the hits and strategies can be quite difficult.

The results obtained by the Romanian athletes at an international level are relatively few, but in the last two-three years the junior players have obtained much better results.

In Romania there are a small number of authors who wrote about Badminton, but none of them made any reference to an improvement of physical training for Badminton through different means that are specific to athletics.

In Romania we cannot see a good knowledge of perfecting the physical training in Badminton through specific athletics techniques. Moreover, there is no approach of the concept of core stability, neither as a notion, nor as a working principle, regarding specific Badminton physical

training. The references I have identified in some specialized publications are founded on translations of certain materials from the international specialized literature, but they are reduced only to propositions for specific exercise structures.

In Romania we can observe a reduced interest of the trainers regarding the improvement of the physical training through specific athletics techniques.

In foreign literature we can see a good knowledge of Badminton physical training, through athletics techniques in junior players and there is a great accent put on the physical training of the players, especially for the abdominal area, which has a very important role in Badminton. Although the concept of core stability is relatively often encountered in the international specialized literature, training programs founded on this principle have not been conceived for badminton.

The objectives of this paper:

- to discover the newest physical training methods
- to discover the most effective physical training methods
- to prove that the principles based on the concept of "core stability" can improve and
- increase the efficiency of specific Badminton physical training programs

1. Components of the Badminton physical training centred on specific motor qualities.

In Badminton, the basic motor qualities are: speed (of reaction and of movement), stamina during speed, explosive force and spring (both in upper and lower members).

According to many specialists, both Romanian and from abroad, the fitness of the athletes has a very important role in sportive training. The exercises for reaction and movement speed occupy a very important place in training.

2. Motor qualities promoted, developed and centered on core stability.

In recent years, core stability has become one of the hottest trends in conditioning, fitness and rehabilitation. Contrary to traditional methods, where the emphasis was put on strengthening the limbs, the focus of training turned to the centre of the body – the core.

Why? Simply because good core stability helps to maximize performance, prevent injury and protect the spine - in sport as well as in everyday life. Biomechanical researches proved that, "power is derived from the trunk region of the body and a properly conditioned core helps to control that power, allowing for smoother, more efficient and better coordinated movement in the limbs." Also, medical evidence suggests that, "decreased core stability may predispose injury, while appropriate training may reduce the risk of injury." Apart from that "the muscles of the core help to protect the spine from extreme ranges of movement and from the excessive or abnormal forces acting on the body." (Zoltan Marzinka – Core stability).

The Badminton, in particular, is very demanding on the body. The combination between moving around the court by running forwards-backwards, lateral movement, added steps movement, lunges, jumps and actual hits of the shuttlecock – puts a lot of pressure on the musculo-skeletal structure. Because of the changes in direction that appear permanently in Badminon, a solid grounding, a strong core, is essential. A stable core can add a lot of value to any part of the game.

The modern Badminton needs for the player to develop "an athlete body" and this development should start from the basic elements, and why not start with the core.

ELEMENTS OF FUNCTIONAL ANATOMY OF THE CORE

In anatomical terms, core stability describes the "*muscular control required around the lumbopelvic - hip region to maintain functional stability.*" In practice, the core serves as:

- A **muscle corset** that works as a unit to stabilize the body and spine with and without the movement of the limbs.
- The **centre of the kinetic chain**, where the large muscle groups meet and cross into each other, providing stability for the rotating force
- The **powerhouse**, where all movements are generated from and transformed to the extremities

The main muscles involved in core stabilization can be divided into two categories:

Global (dynamic, phasic) **muscles** are the large muscle groups lying close to the surface. They link the pelvis to the rib cage and apart from providing general trunk stabilisation, their *main function is movement*. These are:

• ***External Obliques*** - lying on the side and front of the abdomen around the waist, helping to twist the torso.
• ***Internal Obliques*** - the muscles lying beneath the external obliques, running in the opposite direction, also acting in the twisting motion.
• ***Rectus Abdominis*** - is a long muscle that extends along the abdomen, in the middle section of the torso, helping to curl the trunk.
• ***Erector Spinae*** - is a group of three muscles running along the spine and the ribcage, from the lower back to the neck, acting when the back is in extension.

Local (postural, tonic) muscles are smaller muscle groups lying deep in the abdomen. They attach directly to the lumbar vertebrae and are responsible for providing segmental stability by controlling the lumbar segments during movement. These are:
Transverse Abdominis - the deepest lying muscle around the abdomen which acts like a corset, protecting the organs and stabilizing the spine**.**
Multifidus - small muscles which lie along the spine with short fibres, connecting one vertebra to the other.
Iliopsoas - two muscle groups, originating from inside the pelvis and from the vertebrae column join, and together exert on the femur, taking an important part in hip flexion.
Quadratus Lumborum - strings of muscles connecting the pelvic crest to the ribs and to the vertebras in the lower back, helping the side movements of the trunk.
Pelvic floor muscles - short and strong muscles lying deep at the bottom of the pelvis, responsible for letting go or holding urine.
While previously the major emphasis of exercising the core has been put on strengthening the global muscles, now the theory is that both the global and the local muscle groups must be working together efficiently. Also, working on the activation and endurance of the muscle are just as important as strength, when exercising the core. (Zoltan Marzinka).

During the game, a Badminton player will have to have:
• agility;
• flexibility;
• power/strength;
• speed (of reaction, of movement, of execution);
• leg movement;
• stamina

All of these elements must be completed with certain vigour in order to give the player enough endurance for competitions and tournaments. Dynamic warm-ups, created just to prepare the player's body for the demands of the game, constitute a moderate method of warming up, covering all of the elements mentioned above.

Muscle strength

Muscle strength is the force a muscle or a muscle group can exert on a resistance during

maximum effort. Generally in Badminton the specialists are using 1MR (maximum repetition) strength tests, like 1 MR knee bending and bench push-ups, in order to measure the parameters of the player's fitness. It also counts the weights or the maximum number of exercises you can do.
Other strength tests include measuring the strength of the back, by using a dynamometer for the hand clutch (hand squeeze).

Power

Power represents the rate of performing work. Muscle power is the product between muscle strength and speed of action.
P = work/time
In other words, the power can be defined as completed work (strength x distance) over a time unit, or strength x speed. In Badminton, a few examples of power tests are weight throwing or shuttlecock throwing.

Stamina

Stamina represents the ability of a muscle to perform repeated contractions using a sub-maximal weight for a long period of time. A muscle stamina test in Badminton is the repeated execution of back extensions, push-ups and crunches.

Aerobic capacity

The aerobic capacity represents the quantity of effort one person can make, determined normally by the rate at which the oxygen is used during the exercise. The ability to produce energy depends on the cardio-respiratory system, which gives the oxygen, and on how well the muscular system can use that oxygen. The aerobic capacity, also known as "VO_2max." is usually measured directly by using laboratory equipment, including the gas analyzer and the ergometric cycle.

There are, however, other ways to measure the aerobic capacity, indirectly, in the court, by using tests like the Cooper test, 2.4 km. running, and 20 m. shuttlecock running, which was considered more appropriate for the Badminton players, since the game implies numerous "stopping-starting" actions.

The main adaptations to the aerobic training are:

Cardiovascular
- increase in blood volume
- increase of VO_2max
- decrease of heart rate
- decrease of blood pressure

Muscular
- increase of muscle fibre
- increase of the oxidation capacity of muscle fibres
- increase of the muscle ability to keep carbohydrates and to burn fat

Cellular
- increase in the number of enzymes that help generating ATB aerobically
- increase of glycogen and glucose reserves

Others
- decrease in fat level
- increasing the body efficiency through heat transfer
- improving the performances !!!
- a positive mental state

Anaerobic capacity

The anaerobic capacity is the quantity of effort exerted using the primary anaerobic energy system. The anaerobic power is greatly linked to the explosive moments. This is the

capacity to perform a short, maximal muscular activity and the capacity to give energy without the presence of oxygen.

In Badminton there are a variety of tests for measuring the anaerobic capacity for the lower and upper parts of the body. There is the 250-300 m shuttlecock running test and the 5 m multiple shuttlecocks running test or the Wingate test (direct laboratory measurements).

Flexibility

Examples of flexibility tests are the Eurofit test, marked flexibility tests and goniometric measurements.

Body composition

In Badminton, the body composition refers to the proportions relative to weight of the body fat and of the muscle mass without fat.

Anthropometry

Anthropometry is given by the measurement of dimensions, including height, weight, and the proportions of the human body segments.

Energy system

The physiology behind the aerobic and anaerobic energy systems is complex. The energy we obtain from the food is decomposed in the end in a chemical element called adenosine triphosphate, or better known as ATP. The muscle cells use the ATP molecules as a direct and primary energy source for muscle activity.

The three types of systems are:

- ATP-CP (phosphagen)
- Glycolysis (lactate)
- Aerobic

The ATP-CP system

At a maximum level of effort, the ATP quantity stored in the muscles is enough only for 1 – 2 s. of activity. The ATP-CP system is immediately activated, at maximum effort. Still, this is a short-term system, limited to 6 – 9 s. of the total ATP stored in the muscles. Examples of ATP-CP systems in Badminton are the smash performed by jumping or net jumping in order to catch a shot.

The ATP-CP system offers the phosphate compound the great energy of the adenosine triphosphate (ATP), which is sent immediately in the muscle, to compensate what is needed for fast and strong movement in the immediate vicinity area of the muscle.

In the performing muscles, the ATP concentration is not raised relatively to the ATP demand, because the products of the ATP hydrolysis – adenosine diphosphate (ADP), inorganic phosphates and hydrogen ions – they all participate to a reaction with the creatine-phosphate in order to rebuild the ATP.

This type of energy is vital for short-term activities during the game, such as the jump smash or the net jumping. The training programs increase the phosphagen content in the muscle. The increase of ATP and creatine-phosphate takes place only in trained muscles and only during high intensity training activities.

In order to develop the ATP-CP system, there are necessary physical exercises of 5 to 10 s. Any recovery after a maximal effort must allow a complete resynthesis of the CP and is helped by a relative inactivity, preferring walking to jogging. The recovery rate of the CP resynthesis will be determined by the quantity of CP that has been used. As a clue regarding the recovery duration, we must take into consideration the fact that 50% of the CP is resynthetized in 30 s, and the 100% resynthesis can take up to 2-3 minutes. During repeated sets of maximal intensity exercises, such as jump smash, the cool-down must allow sufficient time for the CP resynthesis.

Glycolysis

Glycolysis is the decomposition of glucose in pyruvic acid and its immediate transformation, in absence of oxygen, into lactic acid. The series of reactions necessary for

decomposing the glucose into lactic acid creates a larger delay in energy production relatively to the phosphagen system. In other words, the phosphagen system has a greater potential for covering the energy production regarding the very quick and strong short-time muscle movements.

Aerobic system

The aerobic system is a complex system that uses carbohydrates, fats and sometimes proteins as starting point for energy production. The glycolysis process decomposes the muscle glycogen into glucose, and the glucose transported by blood into the muscle is transformed into pyruvate, with the help of glycolitic enzymes

The pyruvate enters the mitochondria and transforms itself into another substance called Acetyl-Coenzyme A. This enters the second phase of metabolism of the carbohydrate, known as the Krebs cycle. The main function of the Krebs cycle is to produce ATP by decomposing Acetyl-Coenzyme A. Thus it produces carbon dioxide and hydrogen ions. The hydrogen atoms produced by the Krebs cycle are oxidized in the electron transport chain in order to produce energy for creating larger quantities of ATP by combining ADP with the phosphate.

Speed, with its different forms of manifestation is, in my opinion, one of the most important qualities that a Badminton player must have.

The speed is defined as being the quickness with which the motor actions are made, during the most diverse structures and combinations.

The speed is measured by:

The necessary duration of before the motor reaction appears, the time consumed from the signal emission up to the response time (latency time).

The speed of a singular action (one step, one stroke)

The maximum frequency of movements, determined in one joint, the movements being made with a maximum amplitude and minimum resistance, within a certain time interval. (A. Demeter).

The speed value is conditioned by the level of development of other motor qualities.

Speed being conditioned by strength. Between the movement speed and load size there is a disproportionate relation, the speed increasing with the conquest of the external resistance (C. Florescu and others). By increasing the strength, this resistance is more easily conquered.

Nonetheless, starting with this form of speed manifestation (performance speed), this quality must be analyzed together with the other motor qualities, the performance speed and the repetition speed depending largely on the dynamic force, mobility, skill.

Speed being conditioned by elasticity. A good muscle elasticity reduces the breaking of the movement by the antagonistic muscles, and in the case of running speed ensures the winning of the court.

Speed being conditioned by stamina. In order to maintain a rapid tempo, at a maximum level of manifestation of the speed capacity, for a long time, it is necessary a certain specific stamina. And this factor is perfectible. The 5-6 s. speed drills involve this V-R couple.

Speed being conditioned by skill. This limitative factor must be analyzed in a tight dependency with the level of the performance technique of the motor action. Learning a more rational technique, making the movements that are a part of the action structure becoming automatic will allow a rational use of levers, a relaxed performance of movements, relaxing the antagonistic muscles, placing the weight centre correctly, etc.

On the other hand, the coordination of excitation and inhibition in the motor centres will determine the synchronisation of contractions and relaxation of the muscle groups, ensuring a more efficient cooperation of all the body functions involved in that action.

Of all the forms of manifestation of the speed, the most important is in my opinion, the reaction speed.

The motor reaction speed (N.G.Ozolin, C.Florescu and others) refers to the quickness the body responds to signals (excitants, orders), to the quickness it perceives and receives the signals and the time it takes to engage in action (elaborating and emitting the response).

The main factors conditioning the value indexes of the motor reaction are: the duration of the latent period, the precision of the analyzers (sight, hearing, sense of balance, the proprio-receivers, etc.), the quality of the conductors, the main nervous processes.

Receiving the excitants and transmitting them rapidly in the areas of the motor centres, the quality and multitude of the information received at the cortex level, the complex links made between the areas of receiving organs and motor centres, the richness of the anterior experience, the observation skill, creative thinking, imagination, initiative, etc. are decisive for elaborating a response in a very short time.

That is why during the training process it is necessary for the attention to be stimulated, the mental activity to be concentrated, to elaborate, in dependency to the objectives, response reactions in standardized conditions (e.g. the start), but also complex response reactions (movement games with 2-3 responses, dependent on the final part of the signal).

From the studies regarding this form of speed manifestation, it results:
The reaction speed indexes do not correlate with the indexes of other forms of speed manifestation, meaning improving reaction speed will not go favourably for the execution speed or the repetition speed. (R.I.Toomslan, V.M.Zațiorski).

In the case of simple reactions we can see a larger degree of transfer. The individual who reacts quickly in some situations will manifest the same quickness in others (A.N: Krestovnikov, A.A.Semkin).

The reaction speed is not identical for all the body segments, the upper limbs presenting the highest indexes of reaction speed (A.K.Korobkov, S.A.Kitum).

In athletes we can see superior reaction speed indexes in comparison with non-athletes (Gaderman), an observation that leads to the conclusion that within certain limits, this form of speed is perfectible.

The most favourable period to educate the speed, especially the reaction speed, is between 6 – 18 years old, at a younger age existing the largest number of possibilities, because the fundamental mental processes are not established, and the analyzers, especially the motor analyzer, can perfect the basic functions and especially the ones linked to the motor activity.

The main way to develop speed is the use, during different exercises and activities, of high speeds and efforts for performing certain tasks (relatively small loads). (A. Demeter, N. G. Ozolin).

Taking into consideration the fact that for developing speed the most favourable conditions are the ones in which the nervous system is in a state of optimal excitability, the activity for speed development must be placed immediately after the link for selective influence of the motor system, before any other tiring activity.

Because during Badminton the court movement is done quickly, on relatively short distances and with frequent changes in the direction, the player must develop the reaction speed at a young age.

Educating the reaction speed can be done both during the pre-competition period, and during the break period.

During pre-competition trainings, we can do speed runs, on short distances(10-15 meters), with different stimulus (auditory, visual) and with starts from different positions.

Speed during Badminton training can be educated through court movement without shuttlecock (simulations).

3. Research methods and their way of use.

Observation method

It represents the easiest way of knowledge. The observation can be divided in: random (empiric) and systematic (scientific).

The purpose or aim of the observation is to collect concrete data, based on which analysis can lead to a generalisation.

Although a lot of material has been written about observation, and even if at a first glance it may seem a simple and modest method, we dare to believe that the methodology of research has not touched all the richness of aspects and subtleties of this ancient instrument of scientific knowledge.

Between observation as a "technique" of investigation and observation as a psychological phenomenon, we shall find much closeness, much of it coming from its psychic background.

Observation is the intentional contemplation (perceiving) of an object, document, phenomenon or process. The scientific knowledge of a reality through intentional and methodical contemplation is conditioned by the rational analysis of the obtained data.

In observation there are engaged, in various degrees, both the sensory processes of the knowledge and the logical ones. As Beveridge observed (1968), in scientific observation a sensory element, a perceptual, and an intellectual one – conscious or even unconscious participate.

Usually, the observation is visual, but there are many cases in which other analyzers participate, depending on the characteristics of the observed phenomena, it being itself a plurimodal, active process that presupposes interest, live and sustained attention and an intention (purpose).

The characteristics of observation

THE SPONTANEOUS OBSERVATION is:

- random, unselective, unsystematic, insufficiently critically controlled.
- fragmented, it retains isolated cases
- vague and imprecise, often confuse and inaccurate
- subjective,
- uncritical
- unrecorded (usually)

THE SCIENTIFIC OBSERVATION is:

- theoretically founded
- systematic and complete
- analythical
- methodical, conducted by rules
- repeated and verified (Mihai Epuran).

4. SWOT Analysis

The sport ensures greatly a healthy lifestyle in society for the people, families and individuals: the optimum level of motor activity, rational eating, sleeping, hygienic rules, habits, refusing to smoke, to use drugs, to abuse alcohol.

Objectives and methods

Objectives:

- establishing new sportive associations;
- developing and sustaining the variation of continuous practice of physical activities, in general, and Badminton in particular, with the involvement of local public administration;
- ensuring an optimaum motor activity of the citizens during their whole life and, mainly during the early ontogenesis stages, their fitness, health indexes of the reproductive age citizen category;

motor activity at pre-school age (house and pre-school institutions conditions); ensuring a physical training, recreation, rehabilitation; monitoring and making public the indexes for organizing sports events involving Badminton.
Strenghts:
- a large number of school and university population;
- a relatively large number of active population (institutions, schools, universities, banks, factories);
- an average culture and life standard, superior to average standards;
- the accessible and agreeable character of the physical activity, as perceived by the population at a superior level;
- the possibility of extending the offer for sportive services to the population, preoccupations for producing sportive materials
- the existence of a cooperative tradition between town halls, local councils, sportive clubs, - - - NGOs for organizing sportive activities.
Weaknesses:
- a negative natural growth;
- a negative link between the spaces for recreational sportive activities and other spaces for leisure time activities (bars, clubs, restaurants);
- a lack of coherent and conjugated programs of attracting the population towards organized practice of sports;
- a lack of media involvement;
- the low support of the local companies from the local budget, for these programs.
Opportunities:
- capitalizing the financial resources of the inhabitants;
- promoting national programs regarding this sportive branch, with the help of the media, to the local authorities, by involving the companies in the development of these programs.
Threats:
- a decrease in the population's interest for sportive activities, given a lack of offers; an increase in the number of drug-addicts, alcoholics, smokers.

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THE EFFECT OF SELECTED TEACHING METHODS IN THE DEVELOPMENT OF PHYSICAL ABILITIES FOR CHILDREN BETWEEN 10 TO 12 YEARS OLD

Written by Solomos Asterios

Aim

The aim of this study is to determine which of the two teaching methods, the direct teacher wise approach or the wholistic approach, is more effective in the development of physical abilities for children between 10 to 12 years old.

Methods and materials

Fifty (50) boys took part in this study, separated in two equal groups of twenty five (25) persons each. The first group (A) received a teaching program through the direct teacher wise approach while the second group received a teaching program through the wholistic approach.

The examinees undertook three tests: i) controlled handling of the ball, ii) trolling accuracy pass, iii) slalom through nine cones. Both groups took the tests twice in the beginning and twice in the end of a 30 day training program.

The persons that took part in the tests were not members of organised football associations, but had the normal, usual physical activity. The training program lasted thirty days for both groups and was applied to both groups at the same time. Group A was treated with the direct or teacher wise approach while group B was treated with the wholistic approach.

The examinees undertook three (3) tests. Each test helps in the development of a specific physical ability.

1. Controlled handling of the ball
Description:

In the circle, in the center of the football court (radius = 9,15m) we put a pole in every quartile and we do the same in the center of the circle. The examinee must run from the starting point, kicking the ball with his/her feet towards the perimeter of the circle and passing it around every pole in the perimeter and then around the central one (center point).

While running, each examinee must keep the ball on the line of the perimeter. “Cutting” the arc of the circle is not allowed until the next pole. The examinee’s effort is being timed. The total time of each effort is the performance in this test.

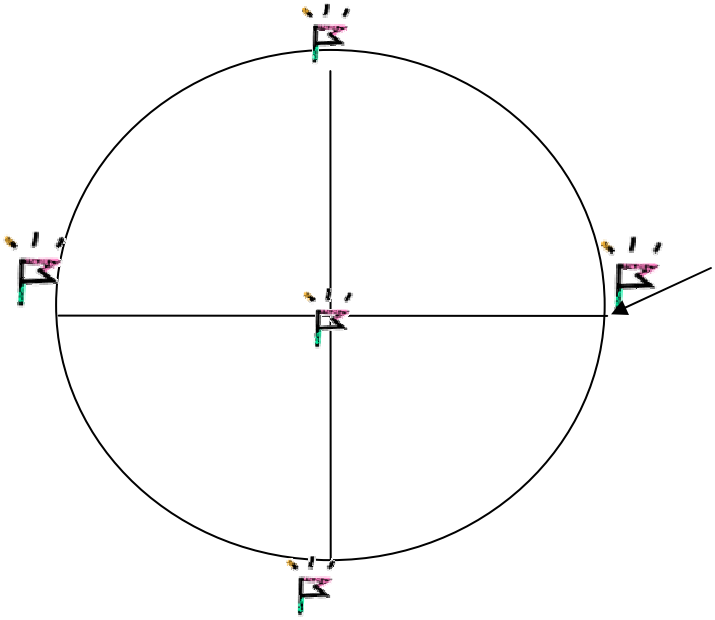
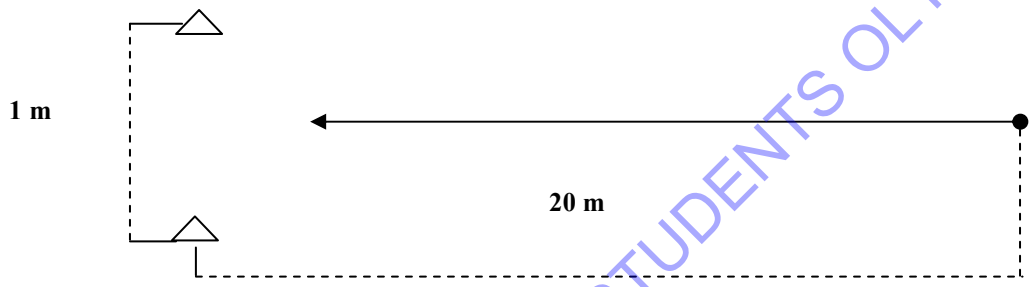


FIGURE 1: TEST 1

2. Trolling accuracy pass:
Description

In a 20 meters distance from the point of the pass we create a 1meter goalpost using cones. Each person performs 5 ground-level passes. We count the times the examinee manages to send the ball between the cones (distance between the cones = 1m). The number of the successful passes represents the examinees performance in this test.

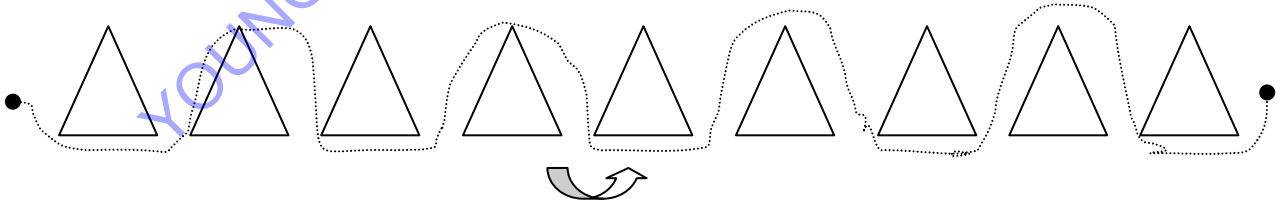
FIGURE 2: TEST 2



3. Slalom between nine (9) cones
Description

We locate 9 cones along a straight line. The cones are put in pairs and the distance between the pairs is 1.5m. the examinee starts running with the ball in his feet and, after passing the first cone, he/she performs slalom between the cones that follow as fast as he/she can. Each examinee takes the test twice – full resting between each effort is required. The best time represents the examinee's performance in this test.

FIGURE 3: TEST 3



1,5 m

Natural Characteristics

Table A
Direct Approach (N=25)

Age (in years)	Height (cm)	Weight (kg)
10 - 12	144,34±5,83	42,15±4,92

Table B
Wholistic approach (N=25)

Age in years)	Height (cm)	Weight (kg)
10 - 12	144,87±5,30	42,63±4,62

Statistic Analysis
The student test was used for the statistic analysis of the data. For dependent samples, while the importance level was set for $p<0.05$

Results:
In group A, the results of the three tests show a clear improvement after the end of the training program.

Table C
Direct approach
Group A

Test	Before (time: (sec)	After (time: (sec)
Ball control	57,65±3,89	55,21±3,45
Trolling accuracy pass (five training sessions	1,48±0,87	3,75±0,98
Slalom	8,95±0,97	8,03±0, 71

Table D
Wholistic approach
Group B

Test	Before (time: (sec)	After (time: (sec)
Ball control	56,49±2,71	54,16±2,58
Trolling accuracy pass (five training sessions	1,60±0,96	3,32±1.05
Slalom	9,98±1,71	7,04±1,62

After analyzing the results of this study, the conclusion that we are lead to is that, the most effective method of helping 10 to 12 year old children to develop physical abilities is the direct

or teacher wise approach. 10 to 12 year old is the best age for children to develop these physical abilities concerning controlled handling of the ball, ground level pass and the dribbler. As we can see the results of the direct or teacher wise method surpass those of the wholistic method.

Conclusions:

The conclusions bear a very high practical value for Sports Science teachers who pursue the development of physical abilities through various sports. Moreover, this teaching method should be practiced by Football trainers that are responsible for children of that age and want quicker results and greater development in a specific timeline.

CONTRIBUTION WITH RESPECT TO THE RECOVERY OF PREHENSION MOVEMENT IN PATIENT WITH CEREBROVASCULAR ACCIDENT

GHINEA CĂTĂLINA MIHAELA Georgescu Luminița

Key terms: recovery, prehension, cerebrovascular accident, evaluation

The abstract of the project: **(Max 2000 letters)**

Through the theme approached, through the implications thereof both at science level, as well as at interdisciplinary and applied fundamental research level, the project falls under the category of projects for young doctoral students.

It aims at performing a study regarding the prehension movement recovery in patients who have been afflicted by cerebrovascular accidents.

The hand is the most important attribute of humans as it is indispensable to complicated prehension and labour processes and there is no doubt it is the most perfected segment of the human locomotor system.

Prehension is a movement of the segment in which the thumb compulsorily participates for the purpose of immobilising or mobilising between the same an object that may be grasped.

Cerebrovascular accidents are acute neurological conditions manifested through the blocking of blood supply to a cerebral area or through cerebral haemorrhage.

Cerebrovascular accidents are among the first leading causes of death according to the World Organisation of Health, while survivors are up against serious disabilities of lower limbs and especially of upper limbs. The incapacity to perform prehension movement is an after-effect that leads to the decrease of patients' life quality, bringing about the social involution thereof and the occurrence of inferiority complexes.

The project shall be carried out initially on a limited number of subjects divided into three groups according to the prehension recovery degree. Subsequently, this study shall be applied on a larger number of subjects.

This project aims at improving recovery act and at implementing new recovery strategies of prehension movement. .

Budget structure:

Number	The name of the budget section	Value 2009 (lei)	Value 2010 (lei)	Sum value (lei)
1.	**Personnel expenses** ***- max. 850 lei/ month uncut, employe and employer contribution***	**9600**	**12000**	**21600**
2.	**Overheads** ***- max 5% of the project value***	**500**	**500**	**1000**
3.	**Dissemination expenses** *(dissemination of the obtained results and informing – documentation.)*	**1000**	**2000**	**3000**
4.	**Expenses for mobility** *(Study visit, participation at international conference, transport costs, travel costs, various fees)*	**900**	**1700**	**2600**
5	**Logistics expenses** *(Consumable items, the expenses related to equipment)*	**1000**	**1000**	**2000**
	Total	**13000**	**17200**	**30200**

The stage of the doctoral thesis:

The current stage of the doctoral thesis is consistent with the stages laid down at the beginning of the training period. A first aspect refers to the collection of information regarding the theoretical and practical bases of the theme approached, necessary in order to shape the scientific support of the research. Bibliographical references aim at permanently supplying information that may generate the premises of the research.

Also a materialised aspect of the period when the stages were carried out, stages that are included in the development of the doctoral thesis elaboration, refers to the establishment of the operational research framework, which is effectively fulfilled by creating a pattern regarding the improvement of prehension movement in patients who have been afflicted by cerebrovascular accidents.

The building and application of tests of questionnaires that are consistent with the hypothesis and the purpose of the research project are also in the stage where they are actually carried out.

Currently, in the contents of the research programme the performance of the preliminary study is underway and the same is materialised through the elaboration and application of tests with respect to the assessment of prehension movements in patients who have been afflicted by cerebrovascular accidents.

The presentation of the doctoral thesis:
The current stage of the knowledge fild, in the national and international plan, related to the most recent references from the foreign literature .

The hand is the most important attribute of humans, as it is defined by some authors as an "additional eye and brain of man". It is indispensable to complicated prehension and labour processes and there is no doubt it is the most perfected segment of the human locomotor system.

The multiple movement possibilities that the hand has render it a genuine means of expression. Hand gestures are sometimes more significant than words. In the case of deaf-and-dumb persons, the hand has become a real speech organ, as each letter of the alphabet is illustrated by a certain position of the hand. The hand is the main expression organ of the deepest feelings, rendered by musical language.

The hand is not only a perfected manipulation organ, but also a specialised sensitivity organ. Aristotle used to call it an "investigation organ and a locomotion organ as well".

Since old times to this day, the studies regarding the functions of the hand and regarding the re-education of prehension movement, have represented an important chapter in researches carried out especially by foreign authors.

Prehension is the action of grasping an object, usually by using the fingers of the hand and an essential role in this motion is played by the action of the thumb, which acts as opposable finger. Prehension is the movement with which a child is born. Children are capable of grasping and maintaining themselves in the air from the very first days of their lives.

Most recent studies show an obvious increase of the number of techniques and methods used for the re-education of prehension movement.

In 1993, Kujiroi et al, described the "high frequency magnetic cerebral stimulation" as a technique that modulated the excitability of the motor cortex, determining the facilitation or inhibition of motor activity that has an important role in restoring the prehension movement.

In 1999 Jeannerod et al. published a study regarding the use of "mental therapy" in the re-education of prehension in hemiplegic people. Mental therapy is the conscious representation of actions, which is based on subliminal activation of the motor nervous system. It is involved in both the performance of movement, as well as in the visualisation of movement, in the recognition of the role of action, in the understanding of behaviour and movements of other people. This technique influences the functional capacity of prehension movement, but it does not influence the motor deficit.

The robotic orthesis is another means of re-educating prehension movement. The study regarding the "unimanual robot", as it is called by Fasolis, appeared in 2003 as an ideal sensorimotor support. Therapy through assisted robot offers advantages that reside in the multiple modalities of facilitating voluntary movement, according to the motor command, namely: passive action, active-passive action, active, active action involving resistance.

In 2005 Hummel described the cerebral electrical stimulation as another technique capable of improving prehension in chronic hemiparesis patients, technique based on transcranial electrical stimulation of the affected motor cortex.

In 2006 Cordosa de Oliviera published a study from which it resulted that 2 hours of stimulation of the transcutaneous sensitivity were enough to improve the functions of paretic hand. In addition, the thermal stimulation brought about important benefits and promoted the recovery of movement of distal segment of the upper limb. During the very same year, Merians used the concept of "virtual reality" that offered a major sensorial feedback through the introduction of the subject in a virtual environment by means of which the subject saw his or her own body in motion.

Mirror therapy is the most recent technique and it is described by the creation of an illusion and of a perfect bilateral synchronisation. Subjects are trained to carry out the flexion and extension of fist and fingers of both hands for 30 minutes each day, for a period of 4 weeks.

This study was performed on 40 patients suffering from dominant hemisphere cerebral lesion and the conclusion of the study was that if this therapy was applied in the early stages, a considerable improvement of prehension was obtained.

Reasons for the choice of theme

Currently in Romania cerebrovascular accidents are the second leading cause of mortality and approximately 80% of survivors are more often than not up against important after-effects that lead to a decrease of the quality of life of patients and of life of the families thereof. Hand recovery, namely prehension recovery requires a lengthy period of time and a substantial effort from both the kinetotherapist as well as from the patient.

This research is a continuation of personal studies initiated in 2006, when as part of my major, Kinetotherapy, I carried out training periods within the Nursing and Care Centre for Handicapped People. There I met many people with after-effects set following cerebrovascular accidents, especially at the level of the upper limb that could not perform the prehension movement. This problem made up the theme of my bachelor thesis and then I carried on with my in-depth studies through the dissertation paper written during the master studies programme in Kinetotherapy – people with disabilities, starting from a study that was initially limited and that was subsequently extended to collateral issues involved in the study of the phenomenon that is going to be the subject matter of my in-depth doctoral studies.

This research aims at forming, applying and promoting new models of prehension movement recovery in patients suffering from cerebrovascular accidents.

The scope of the work are:

- Prehension movement recovery through kinetotherapy-specific methods applied on patient groups,
- Implementation of therapeutic models that perform the re-achieving of hand functional capacity, improvement of quality of patients' life and social reintegration thereof.

In all modern human communities cerebrovascular diseases have become a major health issue and survivors thereof are severely marked and require care and long-term recovery.

Motor deficit of the upper limb is more often that not severe during the first days after a cerebrovascular accident. Spontaneous re-appearance of voluntary motor functions of upper limb is gradual and for the majority of people progress is achieved during the first 3 months. Proximal motor functions are normally recovered sooner than the distal ones.

In the upper limb the degree of motor function recovery achieved within 30 days following a cerebrovascular accident is a clinical predictive factor and it makes up the most precocious factor of long-term prehension attitude. Thus the patient may evolve towards one of the following 2 cases:

- Low recovery, with deficient motor functions and spasms, preventing the hand from performing prehension movement.
- Good recovery, with possibility of performing prehension movement.

The precociousness of the programme is a fundamental issue since the post-lesion cerebral plasticity is maximum during the first 3 months. Recent studies have shown that intensive training initiated during the first month following the accident manages to restore significantly the capacity of upper limbs.

Experimental research shall be carried out within a Nursing and Care Centre in Piteşti on a sample of 30 patients aged between 50 and 70, subjects who have suffered a cerebrovascular accident. Experimental research shall be preceded by a pilot study performed on a smaller number of patients divided into three groups according to the degree of the hand functional degree, who shall benefit from the proposed recovery programme.

During research several series of tests and questionnaires shall be applied with a view to carefully following the evolution of recovery, both from a functional deficit point of view, as well as from a patient life quality point of view. The tests applied are as follows: numerical scale of thumb opposition, testing the joint mobility, testing the prehension movement, testing the types of grasp, dynamometric test of prehension and manual ability questionnaire, Michigan hand questionnaire, life quality assessment questionnaire. In the actual performance of research there is a series of applicative objectives:

- Re-achievement of hand functional capacity.
- Improvement of capacity to perform daily activities.
- Social and professional reintegration.

The recovery programme shall be organised according to the needs of each group and according to the objectives set. Within the recovery programme the following specific objectives are rendered evident: fighting against pain, reducing spasms, increasing mobility, strengthening hypotonic muscles, correcting and improving vicious and compensatory attitudes, educating and re-educating finger pincers, educating and re-educating thumb opposition.

Methods and means used shall be part of the kinetotherapy-specific methods, physiotherapy-specific methods and of other complementary techniques. Kinetotherapy methods shall be the following: massage, passive mobilisation, auto-passive mobilisation, active mobilisation, neuro proprioceptive facilitating techniques, occupational therapy, active exercises, exercises involving resistance, exercises involving objects, hydro-kinetotherapy. Physiotherapy-based methods shall be: thermotherapy, electrotherapy, hydrotherapy.

Classical massage is defined as a series of various manual manoeuvres systematically applied on the surface of the hand for therapeutic purposes. It may also be deemed as a series of manual mechanical processing carried out on the surface of the segment in a certain sequence according to the region, the therapeutic purpose and the general and local state of the segment.

Mobilisations are actions that aim at putting in movement one or several muscles, limbs or articulations.

Neuro proprioceptive facilitating techniques: neuromuscular proprioceptive facilitation means making the voluntary motor response easier, encouraging or accelerating the same by stimulating the proprioceptors in the muscles, tendons, articulations. To this the external and telereceptor stimulation is added. Neuro proprioceptive facilitating techniques are divided according to the four stages of motor control (namely mobility, stability, controlled stability and ability), to which the fundamental ones are added and the special ones with a general character.

Occupational therapy is a non-medication treatment with important role in rehabilitation and social and professional reintegration of patients with functional disability. Occupational therapy is the art and science of directing ill individuals towards the participation in certain activities in order to restore, strengthen or improve the performances thereof, in order to facilitate the assimilation of those abilities and functions that are necessary for adaptation and productivity and diminution or correction of pathology, for maintaining the state of health.

Physical exercise is the motion act consciously and systematically repeated for the purpose of increasing the biological potential of humans, expressed through the improvement of physical development, the increase of motor capacity, the correction of physical deficiencies and motor recovery.

Hydro-kinetotherapy is the execution of physical exercises in water; this is a method that uses plain water, thermal water or sea water. Partial hydro-kinetotherapy is used with a view to increasing joint mobility by carrying out various types of movements (passive, passive-active, active) in warm water, which generates muscle relaxation and pain relief. It is applied into individual pools for partial immersion for the purpose of extremity recovery;

Hydro-thermotherapy aims at performing heat energy exchanges between a certain segment and various environments for the purpose of achieving adaptation reactions and in order

to obtain some effects on the tissues of the segment concerned. These heat exchanges use water to which in certain situations gas, mineral salts, specially prepared vegetable substances are added so as to act on the region concerned through physical factors.

Electrotherapy is a form of physical conservatory therapy that uses various forms of electric currents (galvanic current, low frequency current, average frequency current) and various forms of energy derived from high frequency current (short waves, microwaves, ultrasounds, infrared radiations, ultraviolet and laser) or low frequency (magnetic fields). These are destined for treatment area and for functional recovery programmes in various pathologies.

Conclusions:

The increasing interest in the recovery of hand functional capacity determines the quality improvement of recovery act, the decrease of recovery costs and the increase of patient accessibility to these treatments.

New recovery strategies through kinetotherapy determine the increase of life quality and contribute to the improvement of the general state of health and to the social integration of subjects.

Potential contributions related to the most recent achievement existing in the main flow of the publications.

In recent foreign specialised literature various articles may be found that are dedicated to hand recovery in patients who have been afflicted by cerebrovascular accidents. But new techniques are very expensive and require cutting edge equipment, while the number of those benefiting from such treatments is quite small.

This study aims at approaching this issue in a profitable manner, both from a financial point of view, as well as from a social point of view.

We want to implement prehension movement recovery programmes at group level. These groups shall be organised according to the deficiency degree of subjects and we shall use kinetotherapy-specific methods and certain auxiliary complementary therapies.

The study is based on the premise that group therapy has important benefits from a therapeutic standpoint and from a social and financial standpoint. Recovery achieved when in a group determines an increase of the will to recover, socialisation is produced between persons suffering from similar deficiencies and a better cohesion is achieved between patient and therapist, while recovery costs are much lower.

Targets and activities of the researche programme:

Year *	Targets	Related activities * *
2009	The identification of the general approach context from a kinetotherapy point of view of prehension recovery in patients who have been afflicted by cerebrovascular accidents.	1. Establishment of theoretical framework through the study of specialised literature published inside the country and abroad.
		2. Objectifying the kinetotherapy strategies applied in prehension recovery in recovery centres.
2010	1. The implementation of kinetic prehension recovery programmes in patients with cerebrovascular accidents at the level of nursing and care centres according to general and local necessities with the setting of the target group, of the group subject to preliminary research and to	1. Establishment of the theoretical recovery pattern applicable and the adjustment thereof to concrete necessities of the subjects.
		2. Improvement of kinetic programmes, applied to target group and correlation of the same with the improvement degree, resulted following the application of the series of functional tests.

	experimental research.	
		3. Rendering evident the efficiency of proposed kinetic programmes applied to the experimental group through the follow-up of autonomy improvement, of life quality improvement and of social integration improvement of subjects.
	2. Completion of the doctoral thesis	Elaborating the paper (contents and annexes).

The justification of the solicited budget:

Recovery devices:

- Arm bath tub 2500 ron
- Medical balls 15 ron – 25 ron
- Canadian board 1000 ron
- Gum ball 30 ron
- Occupational therapy kit 120 ron
- Dynamometer 2500 ron

Recovery expences:

- Hand massage: 10 ron- session
- Electrotherapy: 12 ron - session
- Kinetotherapy: 35 ron - session

Conference expences:

- International conferences (in Roumania) 900 ron (the registration fee for 2 studys: 740 ron, poster 160 ron)
- International conferences (abroad) 1700 ron (the registration fee 800 ron , poster 80 ron, transport 620ron, acomodation 220 ron)

Dissemination expences 3000 ron

Logistics expences 2000 ron

The exploitation and dissemination of the knowlege (publishing articles, to participate at conferences):

The results of the preliminary study and of the interpretation thereof are going to be published in the volumes of scientific conferences and in specialised magazines regularly published.

Specifically the following proposals are going to be completed:

- Application of prehension movement recovery programmes at group level; groups are selected according to the degree of recovery of prehension movement.
- Improvement of recovery act at the level of Nursing and Care Centre through implementation of new recovery strategies.

Participation whith studies at the scientific conferences.

Kinetic treatment strategie for the recovery of prehension of the patient with brain stroke – Physical Education Sport and Health, FEFS Piteşti 21-23 noimbrie 2008

Contribution of occupational therapy to the recoverz of the prehension movement – Physical Education Sport and Health, FEFS Piteşti 20-22 noimbrie 2009

Kinetic tretment strategies in the recovery of the anterior scapulo-humeral luxation – Physical Education Sport and Health, FEFS Piteşti 20-22 noimbrie 2009