



STUDIA UNIVERSITATIS  
BABEŞ-BOLYAI



# EDUCATIO ARTIS GYMNASTICAE

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**S T U D I A**  
**UNIVERSITATIS BABEŞ-BOLYAI**  
**EDUCATIO ARTIS GYMNASTICAE**

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## THE REALITIES AND PERSPECTIVES IN PSYCHIC PREPARATION FOR THE POLICE FACULTY STUDENTS

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**ABSTRACT.** This work is a part of the interest manifested by the „Alexandru Ioan Cuza” Police Academy regarding the battle against terrorism and organised crime by education, instruction and especialy research, having the central idea of discovering some realities that may plead the possibility of improving and orientating the instructive-educative process, with the purpose of obtaining better results at the level of the specialists’s worth, the material conditions, possibilities and the availability of the students, in the perspective of realising a more competitive human concept, mostly on psychic and physical area.

**Key words:** realities, special forces, psycho-morale profile.

### Preface

The frequency of terrorist attacks has grown especially on international level, Romania not representing a real target for the known terrorist organisations which, for some reasons have avoided it until now, even if lately our county’s name was spread on the list of potential targets, this meaning maybe, the opposite of the political and military benefits obtained by the presence of the romanian soldiers in different military operating fields<sup>4</sup>.

The proportion that characterizes this phenomenon, with alarming perspectives on the future of the society specific to a state of law, has imposed creating some specialized structures capable of solving very dangerous situations. According to the new defense doctrine, these structures are composed of people with superior level of driving and psychic preparation, compatible with the needs of the actions they are going to take part, capable of confronting any moment the acts of violence, to discover and eliminate them in time.

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<sup>4</sup> ANDREESCU A., RADU N., *The Genesis of terror*, Artprint Publishing house, Bucharest, 2007, pag. 111

In the context of the actual transformations that have reached the entire military system, in which the special services have been forced to change at all levels immediately, from technology and culture, to organization, strategy, tactics, preparation, doctrine and logistics it becomes more and more obvious the whole process of preparing these sort of structures must have a multi-dimensional, complex character and adequate to the new political-military events that take place in the world, the psychic part must have an essential role.

The future calls for an intelligent anti terrorist fighter, well trained physical and psychic, very well educated, instructed and motivated, capable of using arms and advanced technologies at their full capacity and also to resist at the great pressure generated by the difficulties specific to the battle zones. At present, the role of the psychological factors in the conditioning of the success or failure in anti terrorist interventions are recognized, but from the simple recording of these, to their correct identification, evaluation, explanation and then mastery, there is a big distance, which requires still systematic research.

The main responsibility in preventing and fighting against terrorism by education, instruction and especially research, goes to the state institutions that want to join the international campaign of eliminating the phenomenon, this activity being pleaded by „Alexandru Ioan Cuza” Police Academy, where the professors have the main objective of preparing the future police officers.

## **1. Purpose and objectives**

Knowing the particularities of student's life and being close to those that come from the duties of the special units, we tried to describe the specific personality traits of anti terrorist fighters, and by comparison to clarify if the graduates, after the instructive-educative they have got abilities, qualities and attributes in accordance with the profile necessary to employ in such a structure.

The subject of future looking into, this work is a study organized and unfolded with the purpose of showing the differences between different stages of psycho-social evolution/training, by comparing the two psycho-morale profiles. So, through the applied methods, the scores obtained by the graduates and their classification by some factors specific to the profile mentioned have been monitored: social presence, responsibility, self control, tolerance, intellectual efficiency, flexibility, femininity.

## **2. The presentation of the subjects**

The comparative study has been made on a pattern of 200 graduates of the Police Academy and had as a orientative base an initial research and has

been made in a group of protection and anti terrorist intervention<sup>5</sup> (36 subjects), afterwards resulting an optimal specific psycho-morale profile of the anti terrorist fighter which includes the following factors: psychic balance, responsibility, capacity of fulfillment/capacity of statute, tolerance to frustration – it reveals the absence of prejudice and opening to surface, intuitive, with a logical thinking, willing and unselfish, the anti terrorist fighter accepts the others how they are; self control – it indicates that the person is confident, accurate and has a good capacity of adapting to the rules of social cohabitation; intellectual efficiency – the person has a logical thinking, curiosity for what's new and a good capacity of understanding the situations; flexibility – it shows the adaptability in thinking and social behavior, a tolerance to ambiguity and incertitude; the person is not formal, with need for movement and action with the sense of humour and possible oversize of their own qualities; the feeling of personal welfare – it presents the optimism, confidence, the person is energetic, confident, with a high level of aspiration, has the capacity of facing tests.

The 36 tested anti terrorist fighters' (officers) age is between 22 – 45 years old, age characterized by stability and full biopsychic maturity, professional and social integration for the person being dependent of their qualities, but also of the objective conditions. The level and the extension of the integration reveals capacity of adaptation, and the satisfactions contribute to keeping the health and stimulating the personality development<sup>6</sup>.

The graduates that have been tested are between 22 and 25 years old, age at which Ego assertion and manifesting an own and personal style are prevailing, even though the person is still dependent of his family. In this period tensions, conflicts, frustration aren't absent. The personality doesn't evolve straight. It does it with oscillation, with periods of inequality from which it develops a series of positive or negative structures, dependent of the educational factors' conditions<sup>7</sup>.

### 3. The presentation of methods and interpretation of dates

For realizing the purpose we have used a quiz of personality, *California Personality Inventory (C.P.I.)* and the *professional monography (M.P.A. I)*, which represents a set of psychic-morale qualities of the human personality.

*C.P.I. (California Personality Inventory)* – is a quiz of personality used in evaluating people with a normal behavior. Appreciated as one of the

<sup>5</sup> RADU N., *The anti terrorist fighter, a psychic-morale profile*, Spirit Militar Modern, Bucharest, 1999.

<sup>6</sup> VERZA E., *The Psychology of ages*, Hyperion XXI Publishing house, Bucharest, 1993, pag. 120, 122, 123

<sup>7</sup> Idem 3, pag. 114

best inventories of personality at present time, *The California Psychologic Inventory (CPI)* is an instrument created by Harrison G. Gough and has met during 50 years a series of versions (CPI 480; CPI 462; CPI 434; Gough, 1957; Gough, 1987; Gough & Bradley, 1996). In Romania, the activity of adaption of CPI started in 1970, and continued with a series of periodic reevaluations (Pitariu & Helm<sup>8</sup>; Pitariu & Iernuțan<sup>9</sup>). Also CPI has made the object of some interesting native research, which made it well known for the romanian psychologists and it got used in very different contexts (Pitariu & Sîntion<sup>10</sup>; Minulescu<sup>11/12</sup>).

CPI 480 is one of the most prevalent and appreciated instruments of personality investigation although it is appreciated in comparison with the SPECTRUM model – 260 CPI, slightly old. This test has 480 questions, grouped in 18 scales: dominance (Do); capacity of statute (Cs); sociability (Sy); social presence (Sp); self acceptance (Sa); sentiment of social welfare (Wb); responsibility (Re); socialization (So); self control (Sc); tolerance to frustration (To); good impression (Gi); communality (Cm); achievement by conformism (Ac); achievement by independence (Ai); intellectual efficiency (Ie); psychological intuition (Py); flexibility (Fx); femininity (Fe). These scales are grouped in 4 categories, regarding:

- aspects of interpersonal efficiency;
- control values, style and personal confidence;
- measurement of resistance to tests and intellectual efforts;
- measurement of intellectual expression and attitude towards life.

As you can see in table *nr. 1.*, for every characteristic(scale) we calculated the average (m) on pattern ( the subjects from the anti terrorist structure – noted with G1, students from the Police Academy – noted with G2), and this was reported at standard representative at a national level<sup>13</sup>.

So for anti terrorist fighters from group G1, the first characteristic, dominance (Do) has the average (m)=30,05, while for the students from group G2 the average (m)=28,05, standard E being 26,32.

<sup>8</sup> PITARIU H., HELM H., *Personality investigation with CPI*, The Psychology Magazine, Dacia Publishing house, Cluj-Napoca, 1980, pag. 461-473

<sup>9</sup> PITARIU H., SÂNTION F., *The fighter psychology*, Military Publishing house, Bucharest, 2003

<sup>10</sup> PITARIU H., SÂNTION F., *The fighter psychology*, Military Publishing house, Bucharest, 2003

<sup>11</sup> MINULESCU M., *Personality quiz in psychological evaluation*, Garrel Publishing house, Bucharest, 1996, pag. 145-164

<sup>12</sup> MINULESCU M., *Modern psycho-diagnosis. Personality quiz*, Fundația România de Măine Publishing house, Bucharest, 2004, pag. 50-70

<sup>13</sup> PITARIU H., *The psychology of selection and professional building*, Dacia Publishing house, Cluj-Napoca, 1983, pag. 77-82

**Table 1.**

**Average values obtained for the pattern at every characteristic(scale)  
of the California Personality Inventory**

Nr. Crt.		SCALE	GROUP 1	GROUP2	PATTERN (Pitariu)
1.	Do	Dominance	30,05	28,50	26,32
2.	Cs	Capacity of statute	19,80	19,86	16,31
3.	Sy	Sociability	28,36	26,41	22,05
4.	Sp	Social presence	35,69	33,00	27,50
5.	Sa	Self acceptance	21,05	21,15	18,41
6.	Wb	Welfare	38,88	38,35	34,51
7.	Re	Responsability	28,33	28,16	29,42
8.	So	Socialization	35,72	34,65	36,34
9.	Sc	Self control	35,25	34,30	30,60
10.	To	Tolerance	20,33	19,05	18,35
11.	Gi	Good impression	28,02	23,12	21,74
12.	Cm	Communality	23,05	22,15	21,93
13.	Ac	Achievement by conformism	28,72	27,8	25,40
14.	Ai	Achievement by independence	16,69	18,3	16,50
15.	Ie	Intellectual efficiency	40,05	36,5	35,48
16.	Py	Psychological intuition	13,38	13,06	12,29
17.	Fx	Flexibility	8,00	5,68	6,35
18.	Fe	Femininity	15,02	13,00	17,01

In this situation you can say that the anti terrorist fighter and also the Police Academy student are active persons, dynamic, with need of action and a good adaptability to the specific requirements.

*The capacity of statute (Cs)* high, above the average, indicates that both categories of subjects are ambitious, undertaking, with desire of professional perfection. Efficient in communicating, perspicacious, this type of individual doesn't content with little in everything he does.

*Sociability (Sy)*. The results recorded present us an image of some persons with partaking temperament, willing to interaction with the others. Although the result got by the students of group G2 (students) is over the national pattern average, from the interpretation of that scale's items have been observed tendencies to an attitude of caution towards the people around them, fact confirmed by item 34 from the scale of good impression.

*Social presence (Sp)* at the investigated subjects expresses itself by self confidence, emotional stability, efficiency in action, practical sense and decisional capacity at high level.

*Self acceptance (Sa)*, presents the subject's self acceptance, their tenacity in action and awareness of their own values, fact that can indicate the presence of a unique „caste spirit”.

*Welfare (Wb)*. The results we got present optimism, confidence in the own powers. Vigorous, original, with a high level of aspiration, the investigated subjects have the capacity to face the requirements of specific missions.

The results recorded at *communality (Cm)* mean a high level of optimism and compliance for the entire pattern. The investigated subjects can be appreciated as organised persons, with sense of duty and responsibility towards the missions they receive and a balanced psycho-behavioral conduct.

*Achievement by conformism (Ac)* indicates the fact that the investigated subjects have a high level of aspiration. Ambitious, with a good orientation towards the authority (boss) and established rules, they tend to professional prestige. The Ac/Ai comparison reveals independence in thinking and action, intellectual brightness and determination in achieving the objectives set.

*Achievement by independence (Ai)* reflects the interest of the subjects for those situations in which they can use their own potential, independence in action and thinking. Confident, the subjects prefer to act practical instead of making plans.

The results from *intellectual efficiency (Ie)* as well as those from *psychological inclination (Py)* are not different from that pattern. The investigated subjects have a logical thinking, curiosity for new and a good capacity of understanding situations.

*Self control (Sc)*, with those results indicate the fact that the subjects are accurate, sure of themselves in action and with a good capacity of adaptation to the rules of social living.

*Tolerance to frustration (To)* reveals the absence of prejudice and opening to the outer. Intuitive, with a logical thinking, willing and selfless, the investigated subjects accept the others the way they are.

The high score, above the average, at *good impression (Gi)* indicates a social wanted behavior, characterized by confidence in own powers and desire to make a good impression.

*Flexibility (Fx)* points out the state of flexibility and adaptability in thinking and social behavior. The under average score for the group G2 (students) indicate a lower tolerance to ambiguity and incertitude.

*The professional monography (M.P.A. 1)* – represents a set of psycho-morale qualities of the human personality. Depending on the importance that the investigated subjects give these qualities for the career in which they

work, you can build the psychological profile considered desirable for that kind of profession<sup>14</sup>.

*The abbreviation's meaning* from table nr. 2.: F.M.M.I. – in a very high value important; M.M.I. – in a high value important; m.m.i. – in a low value important; f.m.m.i. – in a very low value important.

**Table 2.**

**Results obtained after the application of the M.P.A. 1 test**

Nr. crt.	QUALITIES	LEVEL	Fighters (group G1) N = 36	Students (group G2) N = 200
1.	Self control	F.M.M.I. M.M.I.	29 (80,5%) 7 (19,4%)	170 (85%) 30 (15%)
2.	Analysis capacity	F.M.M.I. M.M.I. m.m.i.	28 (77%) 5 (13,8%) 3 (8,33%)	150 (75%) 40 (20%) 10 (5%)
3.	Synthesis capacity	F.M.M.I. M.M.I. m.m.i. f.m.m.i.	5 (13,8%) 16 (44,4%) 12 (33,3%) 3 (8,33%)	20 (10%) 100 (50%) 80 (40%)
4.	Attention	F.M.M.I. M.M.I.	34 (94,4%) 2 (5,5%)	190 (95%) 10 (5%)
5.	Creative thinking	F.M.M.I. M.M.I. m.m.i.	25 (69,4%) 11 (30,5%)	130 (65%) 60 (30%) 10 (5%)
6.	Visual and auditory memory	F.M.M.I. M.M.I.	31 (86,1%) 5 (13,8%)	170 (85%) 30 (15%)
7.	Resistance to stress	F.M.M.I. M.M.I.	27 (75%) 8 (22,2%)	160 (80%) 40 (20%)
8.	Physical health	F.M.M.I. M.M.I.	31 (86,1%) 5 (13,8%)	180 (90%) 20 (10%)
9.	Mental health	F.M.M.I. M.M.I.	30 (84,3%) 6 (16,6%)	160 (80%) 40 (20%)
10.	Reaction speed	F.M.M.I. M.M.I.	32 (88,8%) 4 (11,1%)	170 (85%) 30 (15%)
11.	Bravery	F.M.M.I. M.M.I.	33 (91,6%) 3 (8,4%)	180 (90%) 20 (10%)
12.	Special preparation	F.M.M.I. M.M.I.	34 (94,4%) 2 (5,5%)	190 (95%) 10 (5%)
13.	Loyalty	F.M.M.I. M.M.I.	30 (83,3%) 6 (16,6%)	160 (80%) 40 (20%)

<sup>14</sup> RADU N., *Petition to state safety*, Fedprint Publishing house, Bucharest, 2006, pag. 222

<b>Nr. crt.</b>	<b>QUALITIES</b>	<b>LEVEL</b>	<b>Fighters (group G1) N = 36</b>	<b>Students (group G2) N = 200</b>
14.	Discipline	F.M.M.I. M.M.I.	26 (72,2%) 10 (27,7%)	150 (75%) 50 (25%)
15.	Emotional balance	F.M.M.I. M.M.I.	34 (94,4%) 2 (5,5%)	190 (95%) 10 (5%)
16.	Firmness	F.M.M.I. M.M.I.	32 (88,8%) 4 (11,2%)	170 (85%) 30 (15%)
17.	Responsability	F.M.M.I. M.M.I.	33 (91,6%) 3 (8,4%)	170 (85%) 30 (15%)
18.	Resourcefulness	F.M.M.I. M.M.I.	32 (88,8%) 4 (11,2%)	160 (80%) 40 (20%)
19.	Confidence in own powers	F.M.M.I. M.M.I.	34 (94,4%) 2 (5,5%)	190 (95%) 10 (5%)
20.	Interpersonal relations	F.M.M.I. M.M.I.	31 (86,1%) 5 (13,8%)	160 (80%) 40 (20%)
21.	Practical and sport qualities	F.M.M.I. M.M.I.	32 (88,8%) 4 (11,2%)	160 (80%) 40 (20%)

Because of reasons that refer to the limit of space of this work, in the table above have been presented only the results obtained by subjects at the qualities considered to be key elements for the profession of anti terrorist fighter, and thanks to the results obtained you can easily see that regarding these, the portraits of the two tested groups are similar in the most part.

Therefore, in the subjects' opinion, the most important qualities the anti terrorist fighter must have are the next: bravery, emotional balance, physical and mental health, special preparation, practical and sport qualities, a very good attention, interpersonal relations, confidence in own powers, responsibility, loyalty, resistance to stress, firmness, resourcefulness, self control, reaction speed. Regarding the superior cognitive qualities (analysis capacity, creative thinking, visual and auditory memory), the majority of tested subjects consider these qualities important for the profession.

#### 4. Conclusions and recommendations

On the dates presented it can be appreciated that the subjects have a similar psycho-morale physiognomy to which psychic balance, responsibility, tolerance to frustration, self control, intellectual efficiency, flexibility and welfare all obviously detach.

Aware of the importance of this kind of missions, the subjects from group G2 prove a responsible and balanced behavior, integrated in average

patterns and social concordance. Taking part in, with team spirit, the graduate tends to present a positive *self image*, but most times, he acts with safety when it comes to unknown situations, *self control* being rather small because of the absence of confrontation with activities specific to the anti terrorist profession.

Guaranteeing a sure work place and the possibility of discovering new and complex things, puts the *welfare* at the level of motivating attributes, *tolerance* being also very good, the characteristic features and the instructing programs imposed by the Police Academy having a big influence.

Although this study doesn't exhaust this subject, on the basis of the obtained results it can be concluded that the possible existence of similarities at the level of the personality features of the two tested groups is relevant.

Taking notice of all these aspects, and the perspective plans of the Police Academy we consider that introducing in the educational plan a program according to the requirements of the special forces, meant exclusively for students that choose and fulfill the conditions imposed by the specialization in anti terrorist intervention, could have as a first result transforming a better system of instruction so that a part of the graduates can contribute to enlarging the basis of recruitment of staff, the ones that get this special training in anti terrorism from this educational institution, winning a lot of time by shorting the selection stage and the one for initial training, all these having positive and important consequences also under economical aspect.

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## THE EFFECTS OF THE VIBRATION TRAINING UPON THE EXPLOSIVE FORCE AND SPEED OF BASKETBALL PLAYERS

BOROS-BALINT IULIANA & MUȘAT SIMONA<sup>1</sup>

**ABSTRACT. Aims.** The term „vibration training” (Whole Body Vibration or WBV) represents a new concept of training, flexible and with high efficiency, that can be compared to physical therapies for medical recovery, to promotion and the maintenance of a well state of being, but it can also be considered a practice method for sportsmen (Tache G.O., 2008). **Objectives.** This paper has followed the effects of the vibration training, for the duration of three weeks, upon the development of explosive force and speed. **Method and materials.** Performance athletes participated at this experiment – team members of the basketball team CSS Viitorul Cluj-Napoca (average age  $15.06 \pm 0.68$  years old, height  $183.81 \pm 7.27$  cm, bust  $92.22 \pm 4.56$  cm, weight  $70.33 \pm 11.96$  kg). The athletes were divided in two groups: Group I – witness (8 athletes) and Group II – experimental (8 athletes). The following measurements were made for both Groups pre (T0) and post (T1) experiment: the Sargent test, 30 meters speed running. The measured indicators: high jump, measured in centimeters (cm); speed measured in seconds (sec). The experimental Group was subject to vibration practices for the duration of three weeks (5 times/ week). **Results and conclusion.** The vibration training has positive effects upon the explosive speed and force of the experimental Group. The explosive speed indicates significant pot experiment increases for Group II compared to the initial values. The vibration training can be considered an alternative method in the training of performance athletes and a way of maintaining motor functions at optimal parameters during the transition period.

**Key words:** explosive force, speed, athletes, vibration training.

**REZUMAT. Efectele antrenamentului cu vibrații Asupra forței și a vitezei explozive la jucătorii de baschet. Introducere.** Forța în sport trebuie văzută ca un mecanism necesar pentru executarea anumitor deprinderi și acțiuni sportive, scopul fiind satisfacerea anumitor nevoi specifice pentru creșterea performanței sportive la cel mai înalt nivel (Bompa T., 2001). **Obiective.** S-au urmărit efectele antrenamentului cu vibrații, timp de 3 săptămâni, asupra creșterii forței și a vitezei explozive. **Materiale și metodă.** La acest experiment au participat sportivi de performanță – baschetbaliști – ai echipei CSS Viitorul Cluj-Napoca (vârsta medie  $15.06 \pm 0.68$  ani, talie  $183.81 \pm 7.27$  cm, bust  $92.22 \pm 4.56$  cm, greutate  $70.33 \pm 11.96$  kg, BMI  $21.53 \pm 2.43$ ). Sportivii au fost împărțiți în două loturi: lotul I – martor (8 sportivi) și lotul II – experimental (8 sportivi). La ambele grupe s-au

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efectuat pre (T0) și post (T1) experiment următoarele măsurători: testul Sargent, alergarea de viteză 30 metri. Indicatorii mășurați: săritura în înălțime (centimetri -cm); viteza (secunde-sec). Grupa experimentală a fost supusă timp de trei săptămâni (de 5 ori/săptămână) la antrenamente cu vibrații. **Rezultate.** Forța explozivă crește postexperiment față de valorile inițiale la lotul II. Lotul II prezintă valori mult mai ridicate față de lotul I, la testarea finală(T1). Viteza explozivă crește postexperiment la lotul II, față de valorile inițiale. Si în acest caz valorile finale (T1) ale lotului II sunt mai ridicate față de lotul I. **Concluzii.** Antrenamentul cu vibrații are efecte pozitive asupra forței și vitezei explozive la lotul experimental. Viteza explozivă indică creșteri semnificative postexperiment la lotul II față de valorile inițiale. Antrenamentul cu vibrații poate fi o metodă alternativă de instruire la sportivii de performanță și o modalitate de a menține funcțiile motorii la parametri optimi în perioada de tranziție.

**Cuvinte cheie:** forță explozivă, viteză, sportivi, antrenament cu vibrații

## Introduction

In sports force needs to be seen as a „necessary mechanism for the execution of certain habits and skills, the goal being the satisfaction of specific needs in the growth of athletic performance at its highest level” (Bompa T., 2001, pg 22).

The term „vibration training” (Whole Body Vibration or WBV) represents a new concept of training, flexible and with high efficiency, that can be compared to physical therapies for medical recovery, to promotion and the maintenance of a well state of being, but it can also be considered a practice method for sportsmen (Tache G.O., 2008).

Domains which the vibration training can be used in: (a) the enhancement of athletic performance, especially through the effects that are due to the growth of the execution speed, flexibility and brawniness, and particularly to the growth of the explosive force; (b) domains regarding medical/functional recovery, through the development of motor performance, through the analgesic effects and the clear improvement of the venous and lymphatic system, systemic, peripheral and arterial circulation; (c) the growth of mineral density in bones and the development of joint mobility (Tache G.O., 2008).

## Objectives

This paper has followed the effects of the vibration training, for the duration of three weeks, upon the development of explosive force and speed.

## Method and materials

Performance athletes participated at this experiment – team members of the basketball team CSS Viitorul Cluj-Napoca (average age  $15.06 \pm 0.68$  years old, height  $183.81 \pm 7.27$  cm, bust  $92.22 \pm 4.56$  cm, weight  $70.33 \pm 11.96$  kg, BMI  $21.53 \pm 2.43$ , adipose tissue  $9.846 \pm 3.81\%$ , thighs perimeter – right  $51.12 \pm 5.42$  cm, left  $51.10 \pm 5.38$  cm, calves perimeter – right  $36.58 \pm 3.4$  cm, left  $36.91 \pm 3.19$  cm). The athletes were divided in two groups: Group I – witness (8 athletes) and Group II – experimental (8 athletes). All subjects were medically able to participate and they were going through a transition period. During the time of the experiment our subjects had not participated in any intense or medium effort practices. Before beginning the experiment, the coach was well informed and he signed the participation agreement. Trainings and measurements were made in the Laboratory of assessments and biometrical measurements of the Physical Education and Sports Faculty and at the Palestra Centre.

### Indicators

The following measurements were made for both Groups pre (T0) and post (T1) experiment: the Sargent test, 30 meters speed running. The measured indicators: high jump, measured in centimeters (cm); speed measured in seconds (sec).

### The program on the vibration platform

The vibration platform used in this experiment is called Fitvibe Excel Pro (20-60 Hz, 2 and 4 mm amplitude).

The experimental Group was subject to vibration practices for the duration of three weeks (5 times/ week). Before each training session our subjects did a specific worm-up. The program on the vibration platform consisted in:

- Week 1 – 2 mm, 25 Hz, 60 seconds;
- Week 2 – 2 days: 2 mm, 35 Hz, 60 seconds and 3 days: 4 mm, 35 Hz, 60 seconds;
- Week 3 – 3 days: 4 mm, 45 Hz, 60 seconds and 2 days 4 mm, 55 Hz, 60 seconds. Six positions were used, positions that followed the thigh (4 positions) and calf muscles (2x2 positions). Between each vibration session there was a 30 second break.

### Statistical processing

The group comparison was realized with the Student test - “t”, for quantitative data with normal distribution. To determine the correlation

between tests a Pearson (r) correlation was applied on the groups, the results being analyzed using Colton's rating. The bar of significance was  $p \geq 0,001$ .

Statistical analysis and processing was realized using the SPSS 15.0 program and the graphic representation and charting was done using Excel – Office 2007.

### Results

- a) The explosive force increases post experiment compared to the initial values for Group II (Table 1, Diagram 1).

Groups	Moments of measurement	Arithmetical mean	Standard deviation	Standard error
Group I	T0	54.63	3.462	1.224
	T1	56.25	4.496	1.590
Group II	T0	55.50	5.904	2.087
	T1	63.38	6.632	2.345

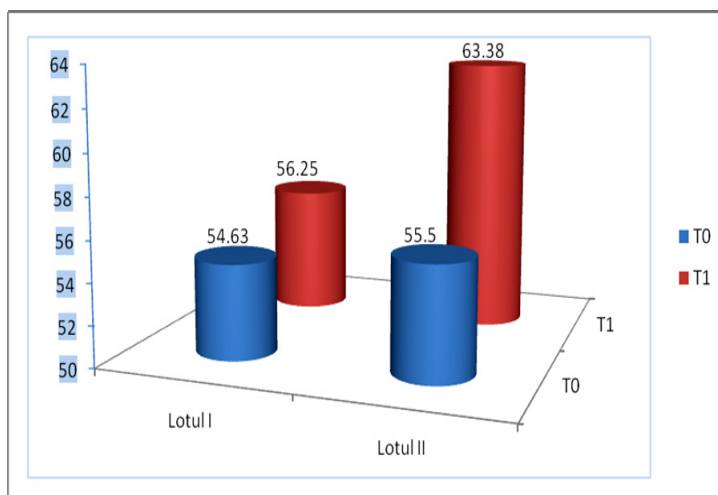


Diagram 1 – The Sargent Test for the two groups at different moments

- b) The explosive speed increases post experiment compared to the initial values for Group II (Table 2, Diagram 2).

Groups	Moments of measurement	Arithmetical mean	Standard deviation	Standard error
Group I	T0	4.7100	.18868	.06671
	T1	4.6088	.18826	.06656
<b>Group II</b>	T0	4.8112	.29739	.10514
	T1	4.2763	.13606	.04810

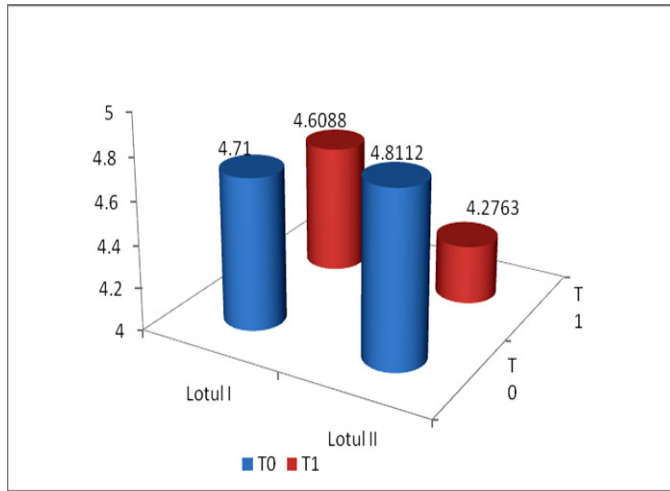


Diagram 2 – The 30 m speed running Test for the two groups at different moments

- c) We could notice a close correlation between the initial and final testing for Group II at the 30 m running speed test (Table 3). In all other cases this correlation is insignificant.

**Table 3.**

**Indicator correlation between Groups I-II.**

Groups	Measured parameters	Moments of measurement	Correlation Coefficient Pearson r
Group I	Sargent Test (cm)	T0-T1	.804*
	The 30 m speed running Test (s)	T0-T1	.827*
Group II	Sargent Test (cm)	T0-T1	.972****
	The 30 m speed running Test (s)	T0-T1	.045*
*weak relation, **a certain degree of relation, ***moderate relation, ****close relation (according to Colton' rating)			

- d) The indicators between Group I and II were compared, in both moments (pre and post experiment), the majority of these comparisons being insignificant. However, significant post experiment (T1) differences have been noticed for the 30 m speed run ( $p > 0,001$ ) (Table 4).

**Table 4.****Indicator comparison between Groups I-II; Pre and post experiment**

Indicator	Group I - Group II	p
Sargent Test (cm)	T0	.723
	T1	.025
30 m Run (s)	T0	.430
	T1	.001*

### Discussions

In the specialty literature, researchers study more and more the effects of vibrations upon the human body. Armstrong WJ and co. (2010) had studied the acute effect of vibrations upon the high jump, drawing the conclusion that the effect is minimal and variable, being influenced by the position of the body. Short period vibration trainings (several weeks) do not show visible effects upon the force development, suggesting that the usage of this method does not have significant advantages compared to traditional methods (Fernandez-Rio J, et. al., 2010). Four weeks of vibration training during the transition period in a competition, for performance athletes is considered to be a short term efficient stimulus for the improvement of power in knee and jump extensors (Colson SS, et al., 2010). Vibration training can be used for muscle and tendon warm-up, for the increase of flexibility and execution force (Bunker DJ, et. al, 2010). Significant increases can be obtained in the vertical jump if, during the athlete training, sessions on the vibration platform are introduced (Wyon M, Guinan D, Hawkey A., 2010).

In our research the explosive speed and force have increased after three weeks of daily sessions on the vibration platform. These increases weren't, however, significant.

### Conclusions

1. The vibration training has positive effects upon the explosive speed and force of the experimental Group.
2. The explosive speed indicates significant post experiment increases for Group II compared to the initial values.
3. The vibration training can be considered an alternative method in the training of performance athletes and a way of maintaining motor functions at optimal parameters during the transition period.

### Special thanks

We would like to thank Prof. Dr. Câmpeanu Melania for the kindness of letting us use the Palestra Centre equipment and to Ms. Deak Grațîela for doing the meseasurements. Also, we would like to bring thanks to coach Covaciu Florin who agreed for his team to participate at this experiment.

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## DYNAMIC EVOLUTION OF STRUCTURAL PARAMETERS IN PERFORMANCE GYMNASTICS

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**ABSTRACT.** To assess the structural features involved and influenced by performance in gymnastics, anthropometric factors such as weight, strength reported to active body mass, the hypertrophy and mobility level were analyzed together with functional elements such as the heart contraction rate during effort and globular constituents as hemoglobin(HGB) and hematocrit (HCT). The investigations were carried on a group of 10 elite male gymnasts belonging to the Male junior national gymnastics team that were examined over a period of 4 years, from 2007 to 2010. During the 2007-2009 interval the measurements were taken twice a year, in April and October, while in 2010 the data were collected in April. The outcomes were statistically interpreted using ANOVA: One-Way test and Pearson Correlation. The obtained values, although fall into normal, indicate a significant variance over the studied period. The gradual increase in weight ( $p = 0.001$ ) was complementary to the continuous ascend of active body mass, reaching a peak in 2010 ( $p < 0.01$ ) (mean =  $53.81 \text{ kg} \pm 3.77 \text{ kg}$ ). However, the strength level was highest in 2008 ( $p=0.0001$ ), as opposed to mobility and hypertrophy that maintained constant. The average blood viscosity indicated by HCT values, having maximum values in 2009 ( $44.56\% \pm 3.48\%$ ) ( $p=0.04$ ) has been positively correlated (corel. index. Pearson = 0.78) with the variations of the heart contraction rate during effort for the same year ( $p=0.04$ ). The degree of cell oxygenation revealed by HGB has reached its peak in 2008 (mean =  $16.14 \text{ g/dL} \pm 0.69 \text{ g/dL}$ ) ( $p < 0.01$ ), with a correlation of 0.8 with the strength level. In conclusion, the evolution of the anthropometric, functional and globular indicators has influences on the body's constitution and on the sportive performances.

**Key words:** gymnastics, anthropometric, globular constituents

**REZUMAT. Evoluția în dinamică a unor parametrii structurali în gimnastica de performanță.** Pentru a evidenția parametrii structurali care influențează și care la rândul lor sunt influențați de rezultatele performante obținute în gimnastică, factori antropometrici precum greutatea, forța raportată la masa activă, nivelul de hipertrofie și mobilitate au fost studiate împreună cu parametrii funcționali precum frecvența cardiacă în efort și constituenți globulari precum hemoglobina și hematocritul. Determinările au fost făcute pe un grup de 10 gimnaști care fac parte din Lotul Național Jr. Masculin Gimnastică Sportivă, examinați pe o perioadă de 4 ani, 2007-2010. În intervalul 2007-2009

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datele au fost preluate în lunile Aprilie și Octombrie, iar în 2010 în luna Aprilie. Interpretarea statistică a fost făcută cu ajutorul testului ANOVA: One-Way și Pearson Correlation. Valorile obținute, deși se încadrează în limite normale, au înregistrat fluctuații statistic semnificative în cadrul perioadei studiate. Creșterea graduală în greutate ( $p = 0.001$ ) a fost complementară ascensiunii continue a masei active, care a ajuns la un nivel maxim în 2010 ( $p < 0.01$ ) ( $m.\text{arit.} = 53.81 \text{ kg} \pm 3.77 \text{ kg}$ ). Totuși, nivelul de forță raportat la masa activă a culminat în 2008 ( $p = 0.0001$ ), spre deosebire de gradul de mobilitate și hipertrofie care nu au înregistrat modificări semnificative. Vâscozitatea sanguină reprezentată de valorile hematocritului a fost maximă în 2009 ( $m.\text{arit.} = 44.56\% \pm 3.48\%$ ) ( $p = 0.04$ ), și corelată pozitiv de indicele Pearson 0.78 cu fluctuațiile frecvenței cardiace în cadrul aceleiași an ( $p = 0.04$ ). Gradul de oxigenare celulară indicat de valorile hemoglobinei a atins punctul maxim în 2008, ( $m.\text{arit.} = 16.14 \text{ g/dL} \pm 0.69 \text{ g/dL}$ ) ( $p < 0.01$ ) cu un indice de corelație pozitiv de 0.8 cu nivelul de forță raportată la masa activă. În concluzie, evoluția parametrilor antropometrici, funcționali și globulari influențează dezvoltarea organismului și obținerea performanței sportive.

**Cuvinte cheie:** gimnastică, antropometrie, constituenți globulari.

## INTRODUCTION

Gymnastics is a competitive sport branch that involves a series of movements requiring physical strength, flexibility, balance, strength, grace and kinesthetic awareness. In order to achieve performance, elite gymnasts pass through their whole physical and intellectual development with intensive physical training, with consequences on their body development.

The aim of our study was to identify anthropometric variables correlated with gymnastic performance, such as weight, strength reported to active body mass, the hypertrophy and mobility level. Furthermore, we determined the fluctuations of functional elements such as the heart contraction rate during effort and globular constituents as hemoglobin (HGB) and hematocrit (HCT).

## MATERIALS AND METHODS

Our study refers to a group of 10 elite male gymnasts belonging to the Male junior national gymnastics team, that were examined over a period of 4 years, from 2007 to 2010. During the 2007-2009 interval, the measurements were taken twice a year, in April and October, while in 2010 the data were collected in April.

In order to statistically interpret the outcomes of our research, the SPSS 17 program was used and ANOVA: One-Way test and Pearson Correlation applied.  $p < 0.05$  was considered significant.

# RESULTS AND DISCUSSIONS

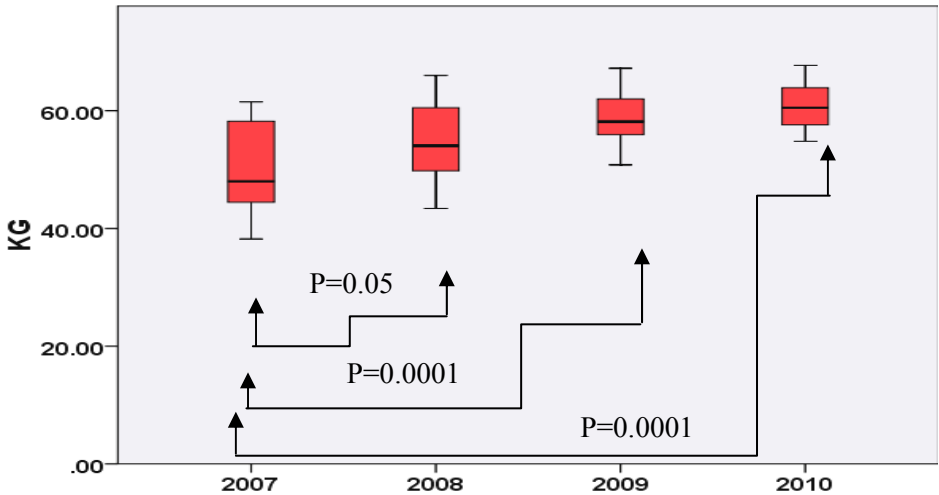
The studied indicators recorded significant changes over the 4 years period, despite the fact that their values remained situated between normal limits.

The weight as an index of the nutritional and health status, reflects the way in which food intake meets energy losses. In performance gymnastics this index is very important, so for each gymnast is recommended that establish an optimal weight and to maintain it at those levels. The regular increase in weight ( $p = 0.001$ ), as observed in **Figure 1**, was complementary to the continuous ascend of active body mass, that reached a peak in 2010 ( $p < 0.01$ ) (mean = 53.81 kg $\pm$  3.77kg )(Table 1)

**Table 1.**

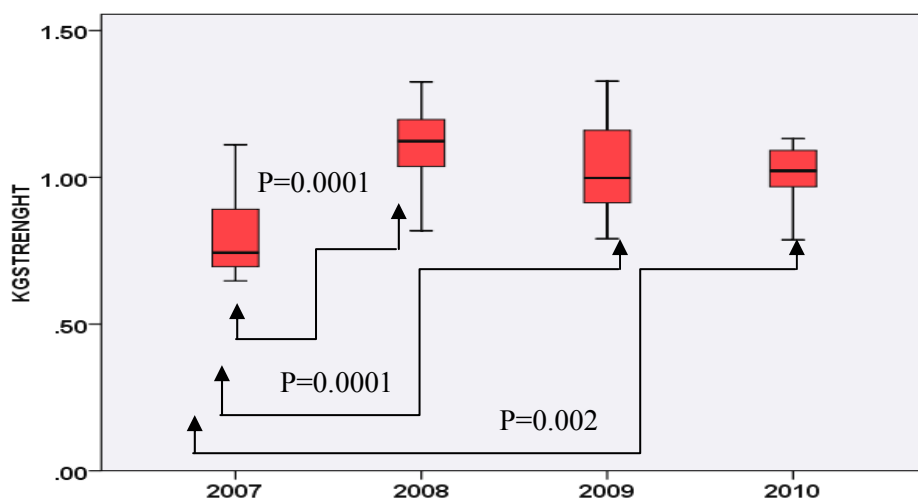
**Active body mass (mean $\pm$ standard deviation)**

	Minimum	Maximum	Mean	Std. Deviation
2007	34.00	54.90	44.95	6.83
2008	38.70	58.70	48.61	5.80
2009	44.90	59.50	52.08	4.37
2010	48.80	60.00	53.81	3.77



**Figure 1.**Weight evolution(kg)

However, as far as the strength related to active body mass is concerned, it appears that this indicator reached its maximum in 2008 (mean=1.1 kg strength $\pm$ 0.14 kg strength)( $p=0.0001$ ) and started to decrease gradually until 2010 (**Figure 2**). There are studies that indicate that the responsibility for generating forceful contractions at high velocity at male gymnasts is represented by the action of alpha-actinin-3 on the Z-disc of type II muscle fibers, enzyme that is encoded by the ACTN3 (R577X) gene. It was proven that elite man gymnasts have a low frequency of the ACTN3 XX genotype and therefore the absence of alpha-actinin-3 among gymnasts is very rare (Massidda M, 2009).



**Figure 2.** Strenght reported to active body mass (kg strength)

The One-Way ANOVA test applied on the mobility and hypertrophy indicators did not demonstrate any significant changes, revealing that both the variables had similar values during the studied period.(**Table 2**). This could be the result of the type of exercise performed by the gymnasts or a hereditary deficiency of athletes in fast or slow fibers, that does not allow them to change significantly their abilities. Some people have more fast muscle fibers faster than slow, while others have more slow fibers, that can result in determining the capabilities of athletes and their domain of interest.

**Table 2.**

**The evolution of mobility and hypertrophy parameters  
(mean±standard deviation)**

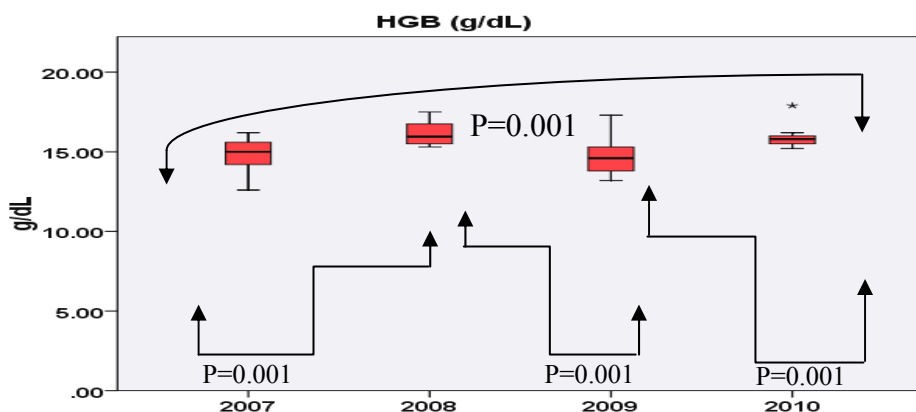
<b>MOBILITY</b>	Minimum	Maximum	Mean	Std. Deviation
2007	16	29	21.15	4.64
2008	6	30	20.65	6.33
2009	17	29	22.30	3.40
2010	13	28	20.00	5.09
<b>HYPERTROPHY</b>				
2007	3.00	13.40	7.07	2.81
2008	2.00	12.00	7.58	2.97
2009	1.30	11.00	7.11	3.07
2010	0.20	11.50	6.29	3.35

There is growing interest on the hematological changes following elite sports. Furthermore, our results indicate the fact that blood viscosity, revealed by the HCT levels, reached its maximum in 2009 ( $44.56\% \pm 3.48\%$ ) ( $p=0.04$ ) and has been positively correlated (corel. index. Pearson = 0.78) with the variations of the heart contraction rate during effort for the same year ( $p=0.04$ ) (**Figure 3**). This indicates that the enlargement of red blood cells in plasma induces an increase of the heart's capacity to contract and therefore to better sustain the effort. Other studies (Lippi G, 2010) that follow the HCT evolution immediately after exercise show that its levels return to the pre-effort values within 3 hours.



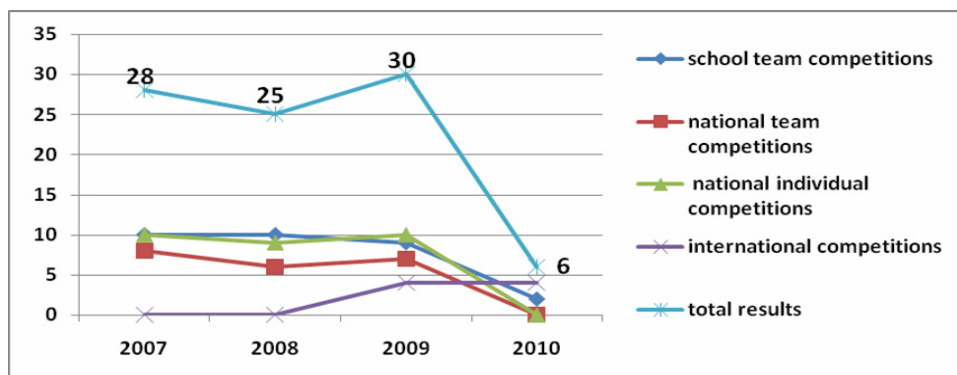
**Figure 3.** Evolution and correlation between HCT values and heart contraction rate during effort (mean±standard deviation)

The degree of cell oxygenation revealed by HGB has reached its peak in 2008 (**Figure 4**), with a correlation of 0.8 with the strength level, pointing towards the fact that an increase of the oxygen supply increases the maximum aerob capacity of the body with optimizing results on the strength intensity. Specific literature (Constantini NW, 2000) reveals that adolescent athletes of both genders, gymnasts in particular, are prone to nonanemic iron deficiency, which might compromise their health and athletic performance.



**Figure 4.** HGB evolution (g/dL)

The performance score that was acquired by the 10 elite man gymnasts is presented in **Figure 5**. For all the competitions they participated we considered they obtained **one** performant result (score=1) if they attained one or more of the 1<sup>st</sup> to 5<sup>th</sup> place as **individuals** for each competition, and **one** performant result if they acquired one or more of the 1<sup>st</sup> to 5<sup>th</sup> place as a **team** for each championship. Therefore they obtained a score=2 if for a competition they attained one or more of the 1<sup>st</sup> to 5<sup>th</sup> place as individuals and one or more of 1<sup>st</sup> to 5<sup>th</sup> as a team.



**Figure 5.** Performance score(1<sup>st</sup>-5<sup>th</sup> place) during 2007-2010 competitions

## CONCLUSIONS

1. Physical effort deposited by the gymnastic exercises represents a functional overload that causes a change in body homeostasis, in order to cover the increased metabolic needs of muscle during effort.

2. There is a relatively strong relationship between several anthropometric variables such as weight, strength reported to active body mass, the hypertrophy and mobility level and gymnastic performance of elite male gymnasts, but their variations are not sufficiently high to predict performance scores on an individual basis.

3. The variances of the hematological and functional parameters indicate the fact that intensity of the exercise during training has internal repercussions on the body, with influences on the effort capacity.

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## PROMOTING MOUNTAIN AQUATIC SPORTS WITHIN PRACTICAL WORK IN THE MASTER

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**ABSTRACT.** Seeing the level of intelligence and maturity of our master students, we can afford to promote more complex teaching activities, that can have a direct impact on the environmental protection and on their professional development. Water sports on rivers can contribute to students harmonious physical development and can also promote hydrotherapy as a way of life.

**Keywords:** water sports, professional development, environmental protection.

**REZUMAT.** La nivelul de inteligență și maturitate, la care se află studenții de la master ne putem permite să promovăm activități didactice mai complexe, interdisciplinare, cu impact direct asupra protecției mediului și al formării lor profesionale. Sporturile nautice pe râuri contribuie la dezvoltarea fizică armonioasă cât și la promovarea hidroterapiei ca mod de viață.

**Cuvinte cheie:** sporturi nautice, formare profesională, educație ecologică.

“The environment is a concept that refers to that part of nature who gives the chance to life forms to appear and to live through a very close connection of all its components. It's about more than just a straight contact; it's an intimate relation, in the way that many of the environment's attributes are parts of the anatomical and physiological qualities of the living organism.” (Ioan Mac 2000, General Geography, page. 418).

In the Environmental Geography and in the Environmental Science as well, a central point is represented by the relationship between the men and the environment.

Because of its knowledge, the men, as a life form, controls nature, conquers it and either changes it in a careful way, for his vital needs, or exploits it uncontrolled and in a very chaotic way, driven by his desire to expand.

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The Environmental Science notes the change of nature and the actions taken for its protection and its reconstruction. In this direction big efforts are done through legislation and technical solution to save the environment.

Through its nature, water, a main element of the environment, hides, moves, deposits and covers the damage done by humans through pollution. What humans don't know is that this damage will come back against them at one point.

From the river Romania looks dirty. Knowledge and education are the only ways to make people understand the importance of water so that his interventions will be done knowing the long term effect of his constructive or destructive actions. The acceptance of hydrotherapy, as a way of life, will lead, unavoidable, to a change of mentality from considering the river the garbage bin of the living areas, to building the house with the front towards the river. Human intervention on the rivers through water sports could contribute to the change of mentality towards the utility to the water front. The most sportive nations are also the cleanest ones.

Why can't the rivers also become natural reservations protected by law?

### **I. The present situation and perception of the rivers, in Romania.**

We all know that the rivers from our country are in very bad condition when it comes to protection, care and cleanness. Most of the times the rivers are considered sewages and their valleys a place to throw garbage. Too often they are seen as a simple and free way to get rid of unwanted materials. The fact that most people think that they get rid of garbage as soon as it went downhill and they don't see it, made the valley of most rivers in Romania to be fill with all kinds of "unwanted" materials that resulted from our daily activities.

### **II. The contribution of physical education and sport to the change of this mentality**

We consider that through the promotion of nautical sports like rafting and kayaking we can change this mentality. If our children will get to love these sports, then they will see the rivers from a different perspective. They will start to care if they are clean or not, if someone throws garbage on their valleys, if they are cared for or polluted.

The more we promote those sports the bigger the chances to change the mind of the new generation, so that the river and the forest from the edge

of the village will no longer be the “back yard”, were all the garbage and leftovers are thrown, but the most loved of all places, a place to spend the free time, a place where you can find your peace and tranquility, where you can move and play sports at the heart of the nature. In this way the people which do rafting and kayaking not only that will not throw garbage themselves, but will also take action against this phenomenon, getting involved in ecologic activities, to protect and preserve nature.

If we look around us we can see that the countries with the best sportive traditions are also the cleanest ones. In Austria 2 millions of people are skiing, ride bikes or kayaks daily. It's no wonder that the forests and rivers of this country are between some of the cleanest in Europe. If we look even further, to countries like New Zealand – one of the cleanest of the planet – we will see that the beauty and the cleanses of the country is close related to the life stile of these people, in which almost every person is born as a nature and sports lover.

### **III. What is rafting?**

The word rafting comes from the English word “raft”, but modern rafting means in fact traveling down fast water streams with special rubber boats.

### **IV. What is white-water-kayaking?**

White-water-kayaking is done in the same way like rafting but in kayaks.

There are 2 types of kayaks for white-water-kayaking: inflatable and hard shell.

**Inflatable kayak** is a type of kayak similar with the rafting raft. They are inflated with air but they have a hard floor and outside protective tubing. The water that enters the kayak flows through the holes between the floor and the tubing. They are more stable than the hard shell kayaks and can be used in touristy activities with all types of customers. They require minimal skills, easy to learn from the first descent.

**Hard shell kayak**, sometimes called the sports cars of the river world, are built from special, resistant materials (HTP). They have a hydrodynamic shape and are very fast, but require experience and a lot of practice. Water is no allowed to enter this type of kayak so a spray-deck is used.

## **V. Who can practice rafting and white-water-kayaking?**

Both rafting and white-water-kayaking can be done by anybody, but to do them on your own you will need special knowledge and special equipment that is not cheap. It's recommended to do rafting and white-water-kayaking with companies that are specialized in this type of outdoor activities. The advantage is that they can provide proper equipment and specialized guides, and they know how to organize this kind of activities so that the participants are safe at all times.

## **VI. Where can you do rafting and white-water-kayaking?**

In the first place you need a mountain river that has enough water flow. The ideal river should have a gradient of 20 m/km, give or take 5 m/km, because only these rivers would have rapids, waves, waterfalls and white-waters. Still the river should not go above the class III of difficulty (medium level) in order to make it accessible to a big number of people.

## **VII. River gradient**

The gradient of a river tells us what the inclination of the river bed is. In other words how much will the altitude drop every 1000 meters. It is measured in meters/ kilometer.

Most mountain rivers have a medium gradient somewhere between 3 and 30 m/km.

The ideal river for commercial rafting should have a gradient of 16 to 25 m/km.

With the kayak you can go even higher, on valleys with a gradient of 30-35m/km. But this doesn't mean that you will not see rafting and white-water-kayaks on rivers with gradients of 50 and 60 m/km.

As a general idea, the higher is the gradient, the steeper the river bed, and so the faster and more difficult the river.

## **VIII. Difficulty class**

The difficulty class of a river is decided based on a few factors like: gradient, debit and stream speed, the complexity of the actions required to save a person that falls into the river, etc.

The international scale of rivers difficulty has 6 classes: Class I-II – beginners, Class III – medium level, Class IV – advanced, Class V – experts, Class VI – extreme and exploration. For commercial rafting is recommended to use rivers that have class III of difficulty, maybe including one or two class IV passages.

## **IX. Rebra River – one of the best rivers in Romania for rafting and kayaking**

Bistrita-Nasaud County has one of the best rivers in Romania for rafting and kayaking. The Rebra River is 43 kilometers long, making it the longest river in Rodnei Mountains. He is guarded by the steep edges of Barlei and Craiului, which form two spectacular mini-canyons. The river has many waterfalls, steps and rapids. From the point of view of those who do rafting and kayaking, the river can be divided into four sectors, based on the degree of difficulty and the access points. Together they have 30 kilometers:

### **1<sup>st</sup> sector: Cretii Spring(km 0) – Rebra Gorge(km 8.8)**

Length 9 km, medium gradient 50 m/km , class IV

### **2<sup>nd</sup> sector: Rebra Gorge(km 8.8) – Black Spring(km 11.8)**

Length 3 km, medium gradient 11 m/km , class II

### **3<sup>rd</sup> sector: Black Spring(km 11.8) – Parva Village(km 23)**

Length 11 km, medium gradient 22 m/km , class III

### **4<sup>th</sup> sector: Parva Village(km 23) – Rebra Monastery(km 30)**

Length 7 km, medium gradient 11 m/km , class III

Rebra Valley has everything it needs to be a paradise of fast waters sports:

- Is a valley with a long course through the mountain area (30 km)
- Has an ideal gradient for rafting and white-water-kayaking (22 m/km)
- Has 2 mini-canyons, a number of jumps, waterfalls and rapids
- It still has (luckily) a natural and wild aspect
- Is relatively clean and unpolluted.

## **X. The birth of a turistic and sportive brand**

The Rebra River is a true gold mine in what concerns natural, sportive and turistic patrimony. This gold mine can sustain a turistic attraction uniq in Romania. Based on this premises, a sportive and turistic brand could be created with the folowing slogan:

*„Rebra River – the best river for rafting and kayaking in Romania”*

## **XI. Possible advertising activities**

In order to promote rafting and kayaking we can take in consideration:

- advertising the River Rebra in mass-media and on the internet

- organizing an annual rafting and kayaking camp on Rebra Valley
- organizing every year an international rafting and kayak competition on Rebra Valley
- trying to attract other sports and touristy entertaining activities into the area in order to create a rich calendar of events on the Rebra Valley (ex: mountain biking competitions, ski-touring, fishing etc.).

We are persuaded that through promoting water sports like rafting and kayaking to the young generation we invest in the future of our rivers, by changing the mentality towards their purpose. The number of the people who care of the aspect of our rivers will grow, and so we might make a difference, by leaning the balance towards having cleaner valleys and being more civilized.

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## STUDY ON THE ROLE OF DYNAMIC GAMES AS A METHOD OF LEARNING HANDBALL BY CHILDREN AND JUNIOR PLAYERS

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ŠIMONEK JAROMÍR<sup>2</sup> & DUŠAN CHEBEŇ<sup>2</sup>

**ABSTRACT.** The thought of writing this article arose two years ago, when we set grounds for the revitalization of handball activities at children's and junior player's level as coordinator of the programme HANDBAL TRANSILVANIA JUNIOR initiated by the foundation HANDBAL CLUJ TRANSILVANIA. Eight children's centers were created in different towns across Transilvania, such as: Cluj, Bistrița, Năsăud, Târgu Mureș, Alba Iulia și Câmpia Turzii. These centers provide excellent training facilities and they are led by experienced trainers using modern training methods for teaching the children. Already during the first training sessions we noticed the children's pleasure and joy while playing with the ball. As a consequence we recommended using dynamic and movement games as a main part of the training session in order to learn the main elements and technical procedures of the handball game. As we noticed outstanding results within a short period of time, we decided to conduct a comparative study between the classic training method for children according to the specific curriculum for their age and the method using dynamic and movement games within the training process. Thus the team „Universitatea Transilvania Cluj-Napoca” used the method of movement games, while the team „LPS Bistrița” used the classic training method. At the end of the training period which lasted one year the members of the two teams were evaluated using two different methods. On the one hand we compared the results from the national junior III championship, and on the other hand we studied the results in the different physical tests the athletes took.

**Keywords:** modern methods, training, dynamic games, handball, competition, performance.

**REZUMAT.** Ideea acestei teme de cercetare a apărut în urmă cu doi ani, atunci când în calitate de coordonator al proiectului HANDBAL TRANSILVANIA JUNIOR inițiat de Fundația HANDBAL CLUB TRANSILVANIA am pus bazele revigorării activității handbalistice la nivelul copiilor și juniorilor. Au fost create opt centre de copii în diverse orașe din Transilvania, cum ar fi: Cluj, Bistrița, Năsăud, Târgu Mureș, Alba Iulia și Câmpia Turzii. Aceste centre beneficiază de condiții foarte bune de pregătire, sunt conduse de către antrenori cu experiență care folosesc mijloace moderne de pregătire în instruirea copiilor. Încă din primele lecții de antrenament am observat plăcerea și bucuria

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copiilor atunci când se jucau cu mingea. Ca urmare am recomandat folosirea în cea mai mare parte a lecției de antrenament a jocurilor dinamice și de mișcare în scopul învățării principalelor elemente și procedee tehnice din jocul de handbal. Văzând rezultatele deosebite ce au apărut într-un timp foarte scurt, am decis să efectuez un studiu comparativ între metoda clasică de instruire a copiilor după programa specifică acestei vârste și metoda folosirii jocurilor dinamice și a jocurilor de mișcare în procesul de instruire. În acest sens, echipa Universitatea Transilvania Cluj-Napoca a folosit metoda jocurilor de mișcare, iar echipa LPS Bistrița a folosit metoda clasică de instruire. La sfârșitul perioadei de pregătire de un an, componenții celor două echipe au fost evaluați prin două modalități. Pe de o parte prin compararea rezultatelor obținute în campionatul național de juniori III, iar pe de altă parte prin studierea rezultatelor testelor și probelor de control la care au fost supuși subiecții.

**Cuvinte cheie:** metode moderne, instruire, jocuri dinamice, handbal, competiție, performanță.

## Introduction

Physical activity is a key component in the harmonious development of a child. Physical exercise does not only stimulate breathing and blood flow, it does not only strengthen the muscles and bones, but it also represents a bridge between thought and action.

Dynamic games have some advantages as compared to other physical exercises, as they help to simultaneously develop gross motor skills and specific motor skills, motor qualities, character traits and mental processes.

Due to their multiple instructive and educational features, dynamic games should be included as a basic means in training sessions, especially for the initiation of 8 – 11 year old children in different games, for achieving the specific goals of this age group according to their morpho-functional and mental particularities.

Dynamic games are an important means for the initiation in the handball game, especially of young children, but they are practiced with the same pleasure by elder players.

They are a ludic manifestation of physical exercise with an outstanding educational value. Their shaping feature is due to the fact that playing dynamic games combines the salutary influences and effects of physical exercise and the educational ones. This interaction of positive and multilateral influences and effects indicates the reasons why this kind of games are so popular and widely spread.

Dynamic games are based on simple or more complex movements, whose realisation is partially guided by rules. This way basic motor skills like: walking, running, throwing, jumping, climbing and balance are consolidated by dynamic games. Games also develop basic motor skills (speed, skillfulness, endurance, strength) and thus rhythm and coordination with a positive emotional state.

The child's activity in the games is usually linked to solving some tasks: catching a player, doing some movements as part of a competition, gathering points by hitting the opponent with the ball, outdoing the opponent regarding motor skills and so on.

Each dynamic game is individually organised and has its own course, according to the subject, the rules and the content of each game.

### **Assumptions**

1. Dynamic games are the most interesting and attractive activity for 8 – 10 year old children in order to achieve main goals of physical training.
2. It is indicated to use dynamic games during the training process of children in order for them to learn specific motor skills for the handball game.
3. While playing games initiative, independence, imagination, attention to detail and the ability to anticipate come through, all essential skills for the handball game.

### **Aim**

The aim of this study was to use *a different training method* for teaching handball to children, a training method less boring, which keeps the children focused throughout, and which reaches the training goals in a pleasant way for the children. Also we considered that one of the most efficient ways of developing feistiness in children is to use dynamic games specific for the handball game during the training sessions.

### **Methods**

As already mentioned above, when we started this study we decided that the team U Transilvania Cluj-Napoca use mainly dynamic games and movement games during the training sessions, whereas the team LPS Bistrița use the classic training method.

The members of both teams are children born in 1996-1997, that is junior IV players. They were selected on grounds specific for the handball game, and there are no big differences regarding their stature and motor skills.

The study was conducted from September 2008 – June 2010. During this period each team took part in five training sessions per week in gyms, using all necessary material for the training. During this period the subjects were tested four times with respect to their motor skills: on September 20 2008, on February 12 2009, on August 17 2009 and on March 11 2010. The results of these physical tests were essentially alike, without any significant differences between the members of the two teams. Nonetheless we noticed significant differences regarding the acquisition of technical elements and procedures specific to the handball game.

For the study we put together a „classic” training schedule for the team LPS Bistrița, together with professionals in the field of physical education and sport, according to the demands of the curriculum for this age group. For the experiment team, U Transilvania Cluj-Napoca we designed a training schedule based on dynamic and movement games, rigorously selected and structured according to two different categories:

- Dynamic games for the development of motor skills
- Dynamic games for learning technical elements specific to the handball game

Due to lack of space we cannot describe all these games in detail, therefore we will just mention them. Partly they are well known to professionals.

*Dynamic games for developing speed:* fighting for the cap; chase the ball, number race, place swap, relay with ball passing, ball transport, flags.

*Dynamic games for developing skillfulness:* rolling the ball on the ground; who's the most skillful?; relays with physical skill tracks and ball transport in different positions; ball squeezing; relay with balanced ball; dribbling with flags.

*Dynamic games for developing strength:* Dodge the feet; one leg race; rope pulling; relay with ropes; wavy ball; rabbit jump with rings; relays with obstacle jumping; little bears.

*Dynamic games for developing endurance:* team chasing; lap the person in front; team relays; relays with passing underneath obstacles; maze; paradise.

*Dynamic games for learning to hold, grasp and pass the ball:* travelling ball on rows; potatoe harvesting; rolling ball with simple place swap; rolling ball with flags; carrying ball; ball to the captain; pair passing with race; who passes faster; simple place swap, double place swap; area passing; zig-zag ball.

*Dynamic games for improving catching and passing:* fortress defence; ball on target; ducks and hunters; double defence; in between two fires.

*Dynamic games for improving the ball game:* relay with dribbling; number race with handballs; black and white; relay with dribbling and passes.

*Dynamic games for the motion on court:* stop with the whistle; relays with direction changes; relays with lateral running; the shadow; relay with wall passes; hit the target

*Dynamic games for improving goal shots:* ball in the tunnel; throwing over a wall; moving targets; sparrow hunt.

The evaluation comprised of:

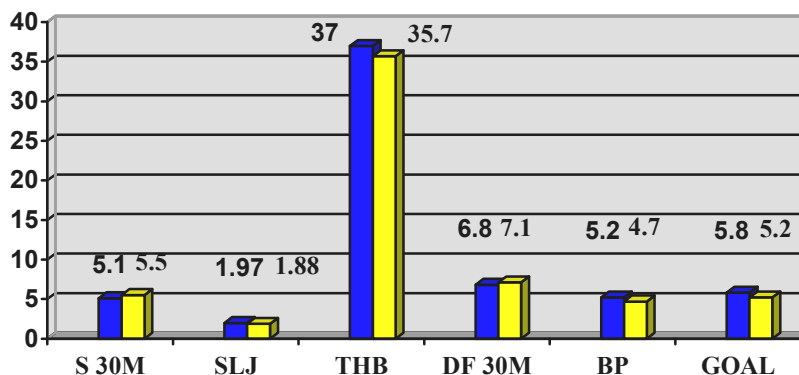
- Results at the physical tests
- Results of the two teams at the national championship.

## Results and discussion

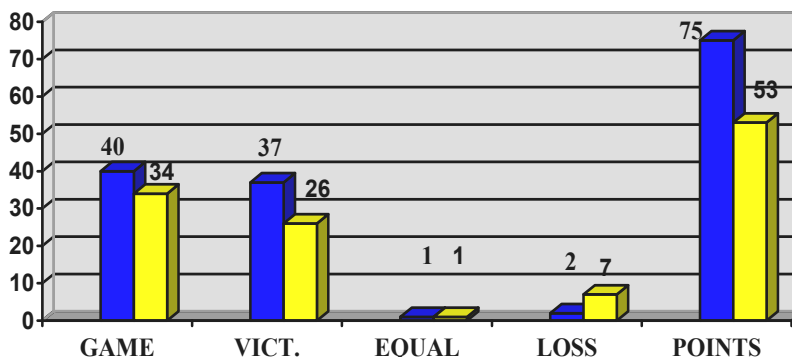
The physical tests conducted on the members of the two teams were:

- 30 m sprint
- standing long jump
- throwing the handball with 3 steps inrun
- dribbling with flags over a distance of 30 m
- ball passing with successive penetration for 30 seconds
- number of goals from 10 throws

After the data was gathered, it was centralized, analyzed and statistically processed. The means of the obtained results are presented in the diagrams below.



**Diagram nr. 1.** Comparative results for the teams U Transilvania Cluj-Napoca (blue) and LPS Bistrița (yellow) at the physical tests



**Diagram nr. 2.** Comparative results for the teams U Transilvania Cluj-Napoca (blue) and LPS Bistrița (yellow) in the national championship

As obvious from diagram nr. 1 the results of the members of team U Transilvania Cluj-Napoca in all physical tests were better than the results of the members of the team LPS Bistrița. When looking at the teams' means for each individual test we can even notice significant differences:

*30 m sprint (S30M)* the mean of the team from Cluj was 5,1 seconds as compared to 5,5 seconds of the team from Bistrița.

*Standing long jump (SLJ)* also in this test the members of the team from Cluj had better results 1,97 m, as compared to 1,88 m for the team from Bistrița.

*Throwing the handball (THB)* with 3 steps inrun, the results were as follows: 37,0 m for the Cluj team and 35,7 m for the Bistrița team.

*Dribbling with flags (DF30M)* over a distance of 30 m, with the following results: 6,8 seconds the U Transilvania players and 7,1 seconds the LPS Bistrița players.

*Ball passing with successive penetration (BP)* for 30 seconds. In this test the members of the Cluj team managed to achieve 5,2 compete laps from far left to far right and back, while the members of the Bistrița team achieved 4,7 laps.

*Number of goals from 10 throws (GOAL)* for each position was 5,8 for Cluj and 5,2 for Bistrița.

## Conclusions

As shown in the introduction, dynamic games present a couple of advantages as compared to other physical exercises, offering favourable conditions to simultaneously develop motor skills as well as learn certain technical elements of games.

Due to their multiple instructive and educational features dynamic games should be included as a basic means in training sessions, especially for the initiation of 8 – 12 year old children in different games, for achieving the specific goals of this age group according to their morpho-functional and mental particularities of the group of children.

This fact is also proven by the results of this study, which aimed at showing a different way of training, a different way of learning the technical elements and procedures specific to the handball game.

The feistiness of such games is taken over by the children and becomes a way of life for them, who prove to be more competitive in official competitions. This fact is shown by the results of the two teams in the national championship, where the team from Cluj reached the second position in the end, losing the title during the last minute of the extra playing time, while the team from Bistrița did not qualify for the final.

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## MUSIC AND DANCE IN THE DEVELOPMENT AND THERAPY OF CHILDREN

ISAC CARMEN ANETA<sup>1</sup>

**Motto:** “The character of a man can be judged after his musical tastes.” PLATO

**ABSTRACT.** From ancient times people have been preoccupied by the magic of sounds. First, they studied the sounds that originated from nature: the wind’s whistle, the water ripple, the fascinating explosion of the thunder, the birds twitter etc. Afterwards, they started to recreate the sounds, they learned to whistle, to “hit” certain objects, and they have created instruments that produce sounds: the pan pipe, the whistle, the violin, the organ etc. Napoleon Bonaparte said that, from all the arts, music has the most direct and powerful influence over the mind, being an integrating part of the human existence. Music therapy has been introduced and promoted by Plato, which used it to restore the health of those surrounding him. This is how music therapy started its “carrier”, but until the 19<sup>th</sup> century has been considered to be an empiric form of treatment and the doctors had not studied, until then, the curative effect of sounds, harmony and the rhythm of certain melodies in the treatment of certain physical illnesses and especially, psychic illnesses. The work of certain composers as Mozart, Bach, Beethoven, Schumann or Chopin has a demonstrated effect in the improvement of panic attacks, internal fatigue, nervousness and stress. All over the world, music is an instrument used by specialists to improve the health and people’s quality of life. The physical exercise must offer the child the good mood and practiced on music will have an even greater influence in the child’s development. The melodic line marks the connection between movement and inter and intra personal intelligence. In the execution of dance steps, the movements have a higher level of difficulty, which is why we have to respect the individual and age particularities. Even if it is about movement games or therapy, they all are based on four methods: the receptive method; the improvisation method; the method of reproducing the sounds; the composition method.

**Key words:** educating rhythmicity, motive musicality, music therapy

**REZUMAT. Muzica și dansul în dezvoltarea și terapia copiilor.** Din vechi timpuri oamenii au fost preocupați de magia sunetelor. Mai întâi au studiat sunetele provenite din natură: șuieratul vântului, susurul apei, explozia fascinantă a tunetului, ciripitul păsărilor, etc. Apoi, au început să recreeze sunetele, au învățat să fluiera, să „lovească” anumite obiecte, au creat instrumente care produc sunete, naiul, fluierul, vioara, orga,

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etc. Napoleon Bonaparte spunea că, dintre toate artele, muzica are influența cea mai directă și puternică asupra psihicului, fiind parte integrantă a existenței umane. Meloterapia a fost introdusă și promovată de Platon, care o folosea pentru a reda sănătatea celor din jur. Astfel, meloterapia și-a început „cariera”, dar până în sec. XIX a fost considerată o metodă de tratament empirică, iar medici nu au studiat până atunci efectul curativ al sunetelor, armoniei, ritmului unor melodii în tratamentul unor afecțiuni atât de ordin fizic, dar mai ales psihic. Operele unor compozitori precum Mozart, Bach, Beethoven, Schumann sau Chopin au un efect demonstrat în ameliorarea stărilor de panică, oboseală interioară, nervozitate și stres. Peste tot în lume, muzica este un instrument foarte folosit de către specialiști pentru îmbunătățirea sănătății și a calității vieții oamenilor. Exercițiul fizic trebuie să creeze copilului buna dispoziție, iar practicat pe muzică va avea o influență și mai mare în dezvoltarea copilului. Linia melodică marchează legătura dintre mișcare și inteligența inter și intra personală. În executarea pașilor de dans, mișcările au un grad mai ridicat de dificultate, de aceea trebuie respectate particularitățile individuale și de vârstă. Fie că este vorba de jocuri de mișcare sau terapie toate au la bază patru metode: metoda receptivă; metoda improvizăției; metoda reproducerii sunetelor; metoda compoziției.

**Cuvinte cheie:** educarea ritmicității, muzicalitate motrică, terapie muzicală.

Since Ancient times, people have been preoccupied by the magic of sounds. First, they have studied the sounds that came from nature: the whistling wind, the water's ripple, they learned how to whistle, how to “hit” certain objects and they have created instruments that produce sounds: the pan-pipe, the whistle, the violin, the organ etc.

Napoleon Bonaparte said that, out of all the arts, the music has the most direct and strongest influence over the psyche, being an integrated part of the human existence.

Music therapy has been introduced and promoted by Plato, who used it to restore the health of those surrounding him. Thus, music therapy has begun its “career”, but it was considered, until the 19<sup>th</sup> century an empiric form of treatment, and the doctors had not studied, until then, the curative effect of sounds, harmony and rhythm of melodies in the treatment of certain illnesses—physical and especially psychical.

The works of certain composers such as Mozart, Bach, Beethoven, Schuman or Chopin have a demonstrated effect in improving the state of panic, inner fatigue, anxiety and stress. All over the world, music is an instrument that is often used by specialists to improve the health and people's quality of life.

The physical exercise must put the child in a good mood, and practiced on music will have an even greater influence in his/her development. The melodic line is what marks the connection between movement and inter and intrapersonal intelligence.

Expression activities include art-therapy activities, which refer, mainly, at using the means of artistic expression for therapeutic purposes. These means prove their efficiency with the fact that they make an appeal to one self, thus realizing an optimal relationship between teacher and student. Music therapy is part of the vast area of psychotherapy through art.

Music triggers a series of various affective processes, from musical emotion, with a wide range of manifestations (joy, inner living, the sentiment of harmony etc.), to an explosive unloading of collective exaltation.

In the execution of dance steps, the movements have a higher level of difficulty, which is why we have to respect the individual and age particularities.

Either it is about movement games or therapy; they all are based on four **methods**:

1. the receptive method
2. the improvisation method
3. the method of reproducing sounds
4. the method of composition

**Hypothesis:** through the presented methods we desire to “break” the current degree of rigidity of the physical education classes. Consequently, the *hypothesis* is as it follows: the physical education class does not mean only physical exercises and games, often practiced mechanically, but also using other concepts that put the child in the situation of finding answers to different aspects, to “force” his/her sensibility and creativity to surface.

### **The objectives of the research:**

- using the elements of corporal activity
- using musical elements
- developing the capacity of space orientation – by forming a coherent inner image.

During the activities of music therapy that take place in the educational system, organized by kindergarten teachers – teachers – speech therapists, it is useful to follow this objectives:

- developing interest towards music and dance
- forming and developing the musical hearing
- educating the voice as the main mean of reproducing music

- forming certain musical practical skills (singing skills, rhythmic skills, melodic skills, interpretation skills, using instruments etc.)
- educating to listen to the music
- cultivating the imagination and creativity
- developing the sociability of the child through participation to the activities that are organized with groups of children
- educating the mimic-gest expressivity

### **The content of the experiment**

The specific means that are used for the acknowledgement of the body parts and the development of the musical sense have been applied to the students that were in the fifth and sixth grade from “George Coșbuc” school in Baia Mare, with the aproval of the school’s principal. The first group was formed by fifth graders and the second group was formed by sixth graders, each consisting of 50 children. The means used consisted in:

1. exercises for acknowledging the body parts
2. exercises to feel the effect of weight by acknowledging the phenomenas of gravity
3. exercises of contracting and relaxation
4. developing the capacity of spacial structure with accents on areas, directions, levels and trajectories.
5. exercises for acknowledging group relations
6. exercises for acknowledging the interactions depending of the space and time
7. exercises for developing facial and body expressivity through mimic
8. exercises for muscular and mental relaxation
9. exercises for composing the gesture

#### **For music therapy**

- ◆ Exercises for educating the rhythm:
  - applauding or hitting a percussion instrument at a certain word in a song.
  - rhythmic hitting at the hearing of certain words
  - applauding or hitting a percussion instrument in the rhythm of the metronome
- ◆ Forming the abilities that are needed for using musical instruments
- ◆ Stimulating the singing
- ◆ Assuring a suitable connection between singing and movement
- ◆ Restoring the base rhythm in a song, by clapping or hitting a percussion instrument in a measure of 2/4, 3/4, 4/4, 6/8.

### **Method**

In the study we have taken into consideration the temperament changes and developing the artistic and aesthetic sense, as a consequence to using music and dance in the physical preparation.

#### **I. Temperament questionnaire** (adapted by M. Caluschi and colab.)

The questionnaire investigates the following polar traits: extraversion introversion, rigidity–plasticity (mobility), emotional hyperactivity–emotional balance, the tempo of reaction (fast–slow), activism (high–low), the sincerity of the answers given to the questionnaire.

The etalon, realized by the authors of the test, refers to the degree of sincerity, as it follows:

**Etalon: sincerity:** high      13-20 points  
    medium      8-12 points  
    low      0-7 points (the answers cannot be taken  
    into consideration)

The results transformed in percentages were:

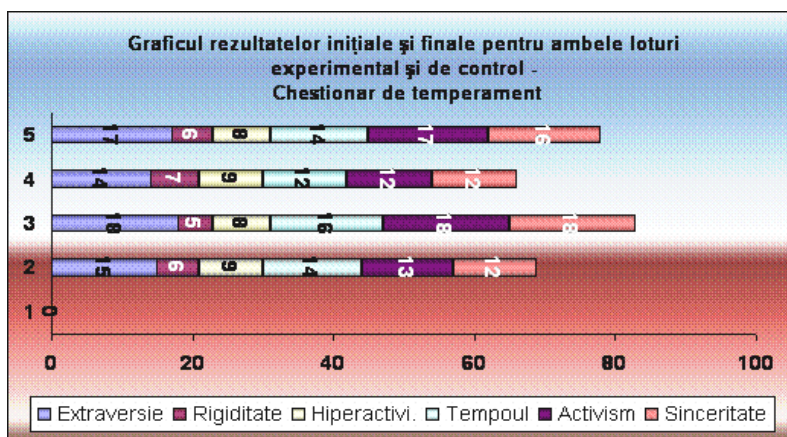
From the table we can observe that the level of sincerity for the answers to the questionnaire were equal 12 % at the initial testing, differing at the final testing, being greater for the **experimental group-18%**, rather than **16% for the control group**.

**The graphic for the initial and final results for both groups:  
 experimental and control -**

**Temperament questionnaire**

	Extraversion	Rigidity	Emotional hiperactivity	The tempo of reaction	Activism	Sincerity
<b>Le1</b>	<b>15</b>	<b>6</b>	<b>9</b>	<b>14</b>	<b>13</b>	<b>12</b>
<b>Le2</b>	<b>18</b>	<b>5</b>	<b>8</b>	<b>16</b>	<b>18</b>	<b>18</b>
<b>Lc1</b>	<b>14</b>	<b>7</b>	<b>9</b>	<b>12</b>	<b>12</b>	<b>12</b>
<b>Lc2</b>	<b>17</b>	<b>6</b>	<b>8</b>	<b>14</b>	<b>17</b>	<b>16</b>

The statistical analysis was made using the  $\chi^2$  test, being a nonparametric test, the value of  $p < 0.05$  considered significant.



### Experimental group $\chi^2 = 0.48$

- where “p” value has a probability coefficient of 0.975 as reported to the control group

### Control group $\chi^2 = 0.61$

- where “p” value has a probability coefficient of 0.950

As a conclusion we can say that the test has proven its probability hypothesis, being even greater than  $P=0.05$ , the groups being homogenous.

$P$ = the probability coefficient under which the **null hypothesis  $H_0$**  is true

## II. The analysis of the dynamic aspects of corporal expression

Themes taken into consideration  
(elements of observation)

The body	Timel	Far space	Interpretation
Points of support (which part of the body)	Tempo	Directions and trajectories	Coordinations (presence)
Corporal alignment, eliminating „tensions”, inhibitions	Accents	Movement amplitudes, orientation of the gesture in three dimensions	Execution of the desired images (to inflate as a balon, to indicate a point with the finger etc.)
Isolations	The measure – beginning and ends of gestures	Look and precision of orientations	Implication, personal game, felt, prolonged gestures, personal imagination

The following have been evaluated: memorizing the movement, corporal alignment, the amplitude of the movement, rhythm structure, and musicality

- Mimicking sensations and contrasts: sticky ground, slippery ground, cold/hot, small/large etc.

### Test 3:

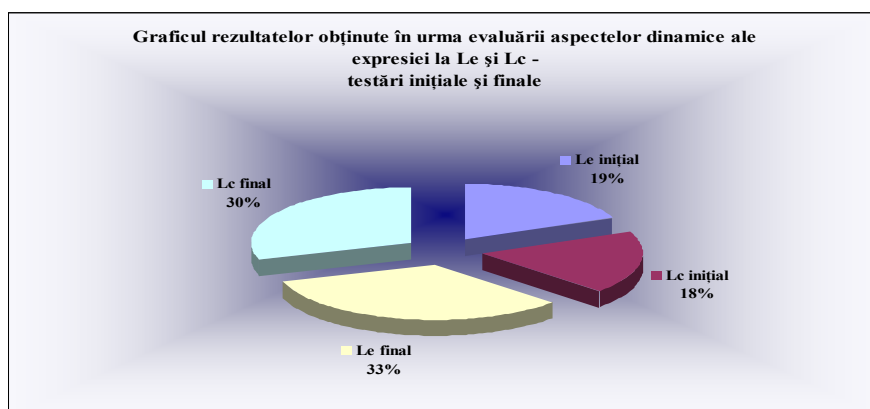
- Example of utility: in two, a boy and a girl;
- Exploring the sliding: girl – no.1/ boy – no.2, no.1 shows a slide, no.2 mimics it; no.2 shows a slide, no.1 mimics

Grading:

1. 3 points for memorizing the move (forgetting, stops, mistakes)
2. 2 points for corporal alignment
3. 2 points for the amplitude of the movement
4. 2 points for rhythm structure
5. 1 point for musicality, dynamism

Example for an evaluation form

Memorising the movement	Corporal alignment	Movement's amplitude	Rhythm structure	Musicality, dinamism	Total points Grade
3	2	2	2	1	10



- We can observe the percentage differences between the control group (Lc) and the experimental group (Le), with the mention that the same means of working were used with Lc, but only for three months.

- We can also observe that these differences are not large – 33% for Le and 30% for Lc at the final testing, but for us, they are important due to the fact that we have obtained these results.
- The explanation, in our favor, would be that it is hard to leave aside the things you have from preceding generations, to overcome certain stops and to “de-inhibit” feelings to transform them in motion.

### **Recommendations**

- the inclusion of practicing exercises of aesthetic culture in a system of lessons. We recommend practicing 10 minutes/ lesson, if not using it as a theme for the lesson. These lessons and moments can contain the following: mimic exercises, gesture, relaxation, recreation through rhythmic games.
- the use of creative force by fertilizing imagination and avoiding stereotyping, desensitization and dehumanization.
- the use of expressivity for both perspectives: internal and external
- the use of helping elements: music, drawings, for the correct formation of representing movements and elements of percussion.

### **Conclusions**

1. From the preliminary results we can observe the necessity of including in the preparation of school children of certain exercises of body language, which will represent the starting points concerning the elaboration, articulation and perfection the inner image and in depth of the effectuated movements.
2. Music can offer energy and may calm a person, with music therapy helping in the reduction of blood pressure, improving thought, memory and the ability to study. For children, music and dance are benefic; they help them express their feelings, in the case of aggressive behaviors, but also in the case of certain psychosomatic illnesses, like asthma or alimentation problems.
3. In the perspective of realizing an integrated education in our country, the activities with therapeutic effect will have to be organized during normal school time, which will transform in an inclusive school, that will answer to all the children's needs.
4. Some studies have shown that the lack of music in a person's life is strongly felt in his behavior and attitude towards life and that, together with other factors, may lead to him becoming sick. Music therapy is recommended to all age groups.

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## **DEVELOPING EDUCATIONAL VALUES THROUGH SPORT AND PHYSICAL ACTIVITY: A CASE STUDY WITHIN SCHOOL EDUCATION IN ITALY**

**ISIDORI EMANUELE<sup>1</sup>, VOSSEL TANIA<sup>1</sup> & MAULINI CLAUDIA<sup>1</sup>**

**ABSTRACT.** The aim of this research was to verify if, after a period of practice oriented to moral growth and fair play, pupils modified their behaviour increasing their self-esteem and self-efficacy and perceiving positive emotion during physical education lessons. The sample chosen was composed of students in the 7th, 8th and 9th grade, who attended a junior high school in a small mountain village in the province of Parma - northern Italy - and as well as a control group. The positive results of this study show how teaching sport values in physical education at school using specific learning program as a pedagogical tool can contribute in a very real way to a truly holistic education of children.

**Key words:** case study, sport pedagogy, moral values, fair play, children, critical reflective thinking.

### **Introduction**

Sport and physical activity are characterized by a strong component of human values and educational attitude (Steenbergen, De Knop, Elling, 2001). Therefore, the first aims of physical education through sport are not only technical competences or well-being, but also moral development (Isidori, Fraile, 2008). The intrinsic value of sport depends on various factors such as: sport agents (coaches, trainers, teachers), the organization of the learning context of their pupils, the human quality of the structured situations to teach sport, and also educators' attitude towards practice and competition. Pedagogical knowledge is the most important condition to develop, for instance, a simple coach into an educational sport agent. The aim of an educational agent is to be able to use sport not only as a physical activity, but also in a pedagogical relation with educational intentions. Nevertheless, structuring learning situations like this requires a continuous critical reflexion by educational agents who

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have to change into critical practitioners continuously reflecting on sport values (Isidori, 2008). Sport and physical education are strictly linked with values such as honesty, sense of justice, fairness, respect of others and of the person. Education to values through sport is crucial and essential theme of sport pedagogy.

Sport pedagogy, in fact, is a science studying sport in relation to *homo educandus* (man that need to be educated) and it justifies the educational choices made in relation to ethical principles regarding the development of human beings through sport and physical activity. Values represent a set of ideas and beliefs, belonging to a society, influencing human behaviour and the system of social norms. The acquisition of values goes through socialization and communication process in which human being is involved since he was born. Therefore, every action or event happening to a human being will always affect his/her own personality. Without values, it's impossible to realize any educational process. It is not possible to think of human being as a whole without education (Fullat, Isidori, 2002).

So it can be said, not only that values are the explicit and implicit content of education, but also that all of the values belonging to human being are always educational values (Burrows and Jumsai, 2001). Educational values represent the basis to build up human identity and the whole formation and personality (Payá, 2000). Sport activities in school have not very often innovative purposes. With regards to UNESCO, the modern education have to prepare pupils to spend their free time in an optimal way, and educators have to use physical activity as an original and innovative tool to promote not only values regarding health and body but only the social ones (Maulini, 2007).

Therefore, for example, it is always recommended to delay as much as possible the specialisation in school. School sport must deal not only with the development of psychomotor behaviours but also with affective, cognitive and social aspects. In the informal context, that is in society, concepts such as competition, selfishness, power and fight for victory predominate. For this reason, it is very important to know sport values at school because this knowledge it is the premise to provide physical education and sport a real pedagogical content (Laker, 2001). In order to develop a moral education, it is extremely important to use a teaching method based on participation, team working, dialogue and reciprocal exchange and responsibility in decision making (Morris, 2003).

### **Case Study in physical education: the case of Corniglio**

A case study involves the close examination of people, topics, issues or programs. These entities are known as particular cases unique in their contents and character (Stroot, 2000). Case studies are unlike ethnographies. They seek to answer focused questions by producing in-depth descriptions and interpretations over a relatively short period of time, a few weeks or a year. Ethnographies tend to ask much broader questions, observe and explain practices and beliefs, and make cultural interpretations in studies that may last for as long as a year or more. In addition, unlike biographies and other historical research approaches, case studies investigate contemporary cases for purposes of illumination and understanding (Isidori, 2009b).

In some instances, case studies are used to provide information for decision making or to discover causal links in settings where cause-and-effect relationships are complicated and not readily known, such as school reform or a particular government policy. In traditional research such as experiments, generalizing is a clear and main objective where findings are expected to apply to other similar settings and populations. Generalization is not a goal in case studies, because discovering the uniqueness of each case is the main purpose (Gratton, Jones, 2004). Case study researchers examine each case expecting to uncover new and unusual interactions, events, explanations, interpretations, and cause-and-effect connections.

In this study, we analyze the case of Corniglio. Corniglio is a small mountain village situated in the northern part of Italy, in the province of Parma (Emilia Romagna). Because of its geographical position, very few inhabitants and students live there and attend the local school. These students have few occasions to practice indoor sport and physical activity during the week and, above all in winter, these occasions are minimal since the local administrators do not organize activities nor provide sport operators and instructors. Due to this conditions, the importance of physical education at school becomes more evident and the school Planning Program of this Institute contemplates an increase of physical education hours: one hour in the 7th grade (from two to three hours) and two hours in the 8th grade (from two to four hours).

The improvement of physical education, especially at this particular age, in the adolescent period, allows to build a very complete program of activities with evident benefits for student's health. The study analysed school students of 7th, 8th, and 9th grade (American system), 1st, 2nd and 3rd grade (UK system). Classes were not equal and homogeneous because framed by students with different physical and motor skills as well as different attitudes and interests.

The aim of the study was to verify if, after a period of practice oriented to moral growth and fair play, pupils modified their behaviour, increasing their self-esteem and self-efficacy and acquiring positive emotions and experiences during physical education lessons. To evaluate this moral change by a scientific score, special tools reported below were adopted.

The limitations of this study were: lack of control of the same students outside the classroom or the gym hall (that is off the curricular subject's hours) and impossibility to verify the transferability of student's behaviours out from the school environment; observation time: this research extended into seven months, but it was a too short time if compared to the complete academic year, considering only two hours per week of PE on 36 curricular hours.

### **Materials and methods**

The research in Corniglio Junior High School was the result of multiple methods, the most evident of which was the observational one, which started in October 2008. A test was administered to all of the students. This test consisted of a simple self-esteem evaluation. The result obtained through the average of total self-esteem of the pupils was divided into the number of participants for each class.

For this kind of questionnaire, the *Rosenberg's Global Self-Esteem Scale* adapted to the context of Physical Education was used. Later, a second test including some questions regarding sport values with open answers was administered, and an assignation of a score to each value that the student considered as best was made.

Both of the tests administered were anonymous and anonymity was kept even during the second administering time at the end of the experience. The Reasons were two: the first one was to avoid the inhibition in answering due to fearing teacher's evaluation; the second one was that in this kind of study what is important is not to measure the "moral change" of a boy or girl, but a general change happening in all the context of their class (the individual student's score is not relevant). In test number two, some questions were submitted to students with regard to:

- 1) their opinion about their self behaviour during lessons in the gym hall;
- 2) their way to perform the games and to control their anger;
- 3) their interest about physical education as a school subject, describing the most beautiful experience had until that moment;
- 4) the experiences they would have liked to make in the future.

This second test was very useful to understand students' point of view and starting point about sport values. Questions with score allocation related to the point 3 were divided into three areas:

- 1) *affective* and *social relation area*, including the items: cooperation, participation, friendship with school mates;
- 2) area of *individuality*, including the items: individual performance; final victory; ability to play the game; to compete without mistakes; personal benefits obtained through the game (e.g. popularity);
- 3) area of *sportsmanship* and sport consciousness, including items: respect for the rules; loyalty; respect for the referees and their decisions; respect for the opponents.

Subsequently, after having obtained these results, a didactic program to promote sport values was carried out, integrating different methods suggested by the scientific literature. As a pedagogical tools for promoting sport values were used:

#### List of values

Students had to identify the idea of sport value and anti-value, drawing up an exact list and defining, by practical examples, every value identified. In values' list children were invited to draw up a list of values they consider more important and significant for themselves and that they appreciate the most, discussing their choices with their physical education teachers.

#### Fair-play competitions

After identifying fair play as an umbrella value in sport (Loland, 2002), the only one that describes and includes all the other ones, a multi-sport competition was organized, involving all the components of the classes, mixed into various teams, divided in white and coloured. These teams were the same during all the observation period and were very useful to observe students' behaviours in practice.

#### Using children's ideas

During the month of February 2009, another didactical strategy was used: «using children's ideas». This strategy implied that children, divided in little groups, created simple sport games including some specific requirements: involvement of all students; games based on rules and fundamental values as they emerge from the discussions during lessons.

### Sport movies

Two sport movies, *Coach Carter* and *A boy from Calabria* were chosen for their emotional impact on children, to whom two different questionnaires were administered in order to help them to reflect on sport values emerging from the movies and in accordance with the pedagogical methodology suggested by researchers (Isidori 2009a).

### Moral dilemmas and role/model playing techniques

These two pedagogical techniques aimed at helping children to reflect on and to discuss about sport values were used. The first technique consisted of a presentation of a brief story implying a dilemma regarding a value whose solution was complex, controversial and leading to two or more alternative choices. The second technique consisted of a dramatisation of situations presenting moral conflicts and outlining a solution which required dialogue and analysis of different perspectives, starting from a role or model identification (Gutiérrez Sanmartín, 1995).

### Learning to cheer

In order to help students to recognize sport games – football in particular – as an ethical value in itself and in order to promote the concept of respect for the opponents, a didactic teaching program sponsored by Volkswagen in cooperation with the Italian National Olympic Committee (CONI) was used as a mean to make children understand the principles of civic cohabitation in the context of sport system.

### Analysis of emotion

Because of the importance of emotion as a tool to learning values, a questionnaire aimed at surveying children's emotions when they play sport games was administered during the observation period.

## Results and conclusion

All the data obtained through the specific tests administered and the aforesaid activities are visually summed up in the graphs below (on the left, one can see the results of the control group):

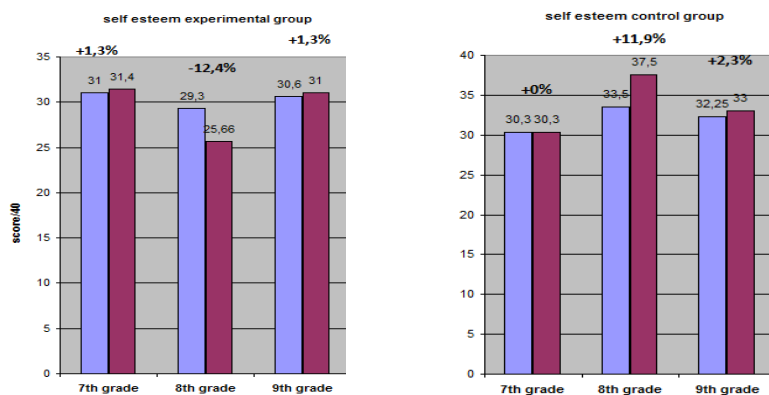


Fig. 1. Self-esteem

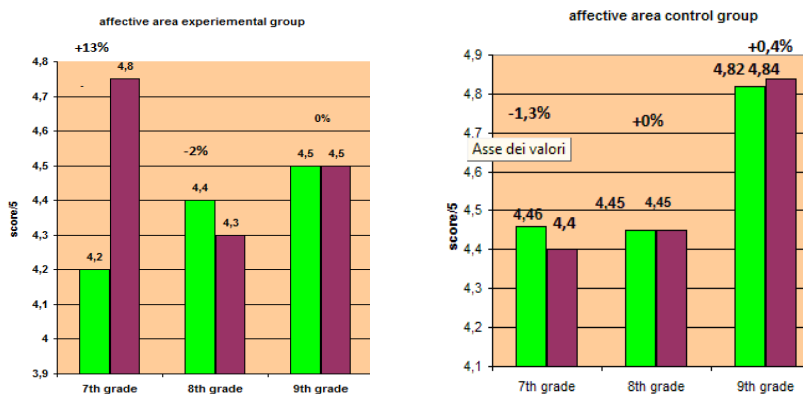


Fig. 2. Affective area

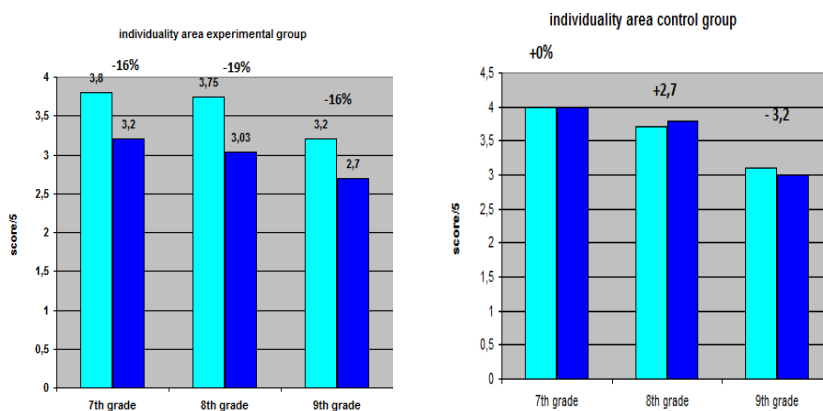
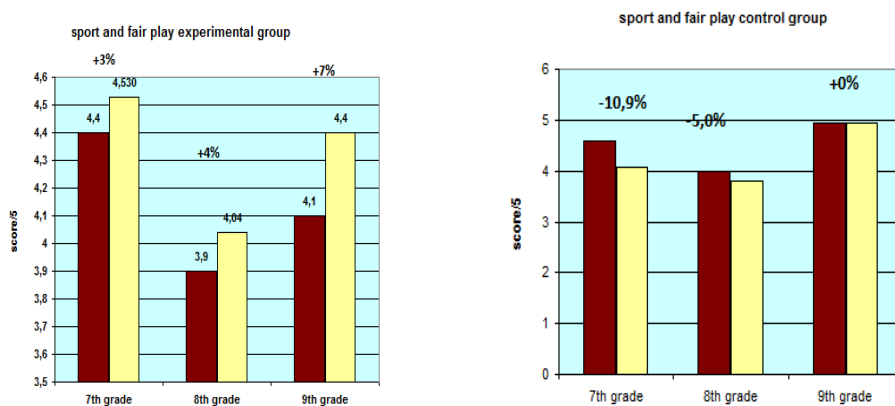
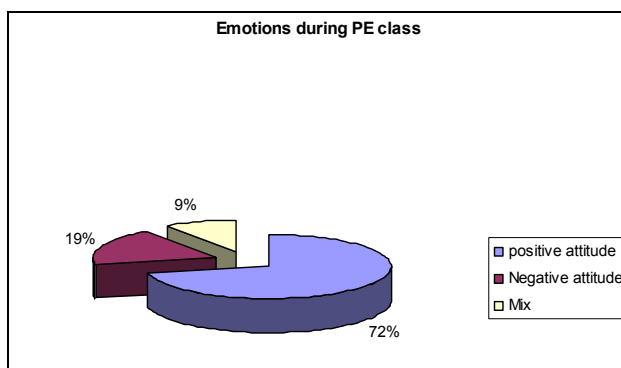


Fig. 3. Individuality area



**Fig. 4.** *Fair play area*



**Fig. 5.** *Analysis of emotion*

The aim of this study was to demonstrate that physical education in the school context had a really strong power and importance in the global education of children. As it can be noticed from the results, the areas of human development observed in the children changed in the following way.

1) In the 7th grade class, the affective area increased from 4.2 to 4.75; in the 8th class it decreased from 4.4 to 4.3, and in the 9th grade it remained stable in 4,5 score as it was at the beginning of the research (November 2007). It can be affirmed that in the 7th grade the experience was successful because the affective area increased of 13% of score, showing that children consider more important than before the idea of friendship, participation to the game and to play together; these elements were difficult to put into practice at the beginning of the school year. In the 8th grade, this parameter got worst decreasing of 2%. This can be explained only by considering that the group

of students studied was very particular and problematic: it was composed only by six students with very poor intellectual capacities and social and familiar problems; the brief intervention acted by this research could not change a rooted problematic situation.

Finally, in the 9th grade no wide changes occurred, but it could be considered that the starting score in this area was the highest of the three classes and that meant a general consideration of friendship and participation as main values in the opinion of the children belonging to this group.

In conclusion, it can be affirmed that the best result was obtained in the 7th grade, where there was a real change, thinking that the students of this class met physical education for the first time and they were not used to play together.

2) The individuality area passed from 3.8 score to 3.2 score in the 7th grade class with 16% of decrease, from 3.75 to 3.03 in the 8th grade (-19%) and from 3.2 to 2.7 in the 9th grade (-16%). As it can be seen from the data, in all the three classes scores decreased showing that the intervention was successful and that children reduced their egocentric way to behave in favour of an openness to their school mates and friends. Values such as "individual performance", "personal benefits obtained through the game" and "final victory" lost interest in children's opinion, showing that for them in a team game the most important thing is the total union of the participants and not the only single performance. In particular, the 9th grade class confirmed to have reached an high level of maturity at the end of the three school years.

3) The area of sportsmanship and fair play, very important for this study, starting from 4.4 changed into 4.53 in the 7th grade (+3%); into 4.04, starting from 3.9, in the 8th grade (+4%) and from 4.1 into 4.4 score in the 9th one (+7%). In addition, it can be affirmed that, in this last area, the intervention modified in positive this parameter and, even though percent score of increase were not really elevated as it was expected, the pupils denoted an increase of sportsmanship and fair play and consequently a better awareness and consciousness of some concepts like "respect" and "loyalty" in sport. Apart from the scientific results, the observation can confirm that pupil's behaviour has changed effectively: children looked like more both collaborative and respectful with each other; they cared about the "fair play card" very much. Pupils knew that at the end of the year, good behaviours would have been rewarded an higher evaluation in physical education, and this confirmed that the reward system worked well as a strong motivation to behave rightly.

4) The control group had not shown real changes in the three areas. Looking at the results of the 7th grade class, nothing happened and the parameters remained almost exactly the same as at the beginning of the year, showing that any intervention was carried out. Also in the 8th grade, values remained the same, with a small decrease in individuality and sportsmanship area, attributing the result to the fact that there were only two pupils in this class and there was no possibility of a real socialization. Dealing with the 9th grade, it can be said that the parameters have not grown neither decreased; anyway, they were very high at the beginning of the school year, showing that the children of this class were educated to sport values in the previous school year.

5) Dealing with the self-esteem score, it can be affirmed that no remarkable changes occurred, as it was expected, in the experimental group: in the 7th and 9th grade, there was an increase of 1.3%, while in the 8th grade a decrease of 12.4%. The Control group showed the same parameters of November 2007 in the 7th grade, and an increase of respectively 11.9% and 2.3% in both the 8th and 9th grade. The general increase in self-esteem can be considered as a consequence of physical education practice and as a symptom of a positive relation of each child with his own body and the changes occurred during preadolescence.

6) Finally, looking at the emotional aspects and sensations felt by the pupils during physical education lessons, it can be affirmed that during the period November 2007 – April 2008, 72% of the experiences were lived in a positive emotional way (with feelings of happiness, joy and fun); 9% of the experiences were felt as a mixed emotions, both positive and negative at the same time, or not well identified. Only 19% of the experiences, at the end, were felt as a negative emotions by children (incompetence, useless and anger in some situations).

We can conclude saying that the results of the study show that a programmed intervention in sport-values-based education combined with a critical reflective methodology in teaching physical education at school can modify a general moral attitude of pupils and their ideas about a subject matter. A consideration it cannot be neglected is that, especially in mountain areas, where there are very few opportunities to socialize because of the context, physical education becomes more important for pupils, as a socio-pedagogical tool to avoid isolation and social exclusion.

The study showed, in fact, that without any intervention (as shown by the control group) children don't have a real change. On the contrary, they risk to become more isolated in themselves. It can be also affirmed that critical reflective learning is a self-education of teacher who can learn more

and more about his/her pupils and reflect on his/her work and practice and that physical activity and sport at school can be an extraordinary means to pursue the goal of a holistic education (Schacklock, Smyth, 1998).

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## PSYCHOLOGICAL DIFFERENCES IN SPORTS MANAGERS FROM TRANSYLVANIA, ROMANIA. AN EMPIRICAL STUDY OF GENDER DIFFERENCES

MACRA-OȘORHEAN MARIA<sup>1</sup>, ZAMORA ELENA<sup>2</sup>& LUPU IUSTIN<sup>3</sup>

**ABSTRACT. Introduction:** Generally, sports managers are characterized by specific psychological traits. Among the strong points of female managers we can mention; conscientiousness, dynamism, personal charm, and physical presence. Among the weak points of female managers, and strong points of male managers we mention; intelligence, intuition, sense of responsibility and tenacity. **Objectives:** We tried to show the presence of some differences in psychological characteristics in male and female sport managers. Specifically we proposed the hypothesis of some differences in psychological traits of male and female sport managers. **Subjects and methods:** In our study we surveyed a sample of 200 sport managers from North-Western Region of Transylvania, Romania. On this sample we applied the Swedish personality instrument-Karolinska Scales of Personality (KSP) comprising 135 items and 15 scales. **Results:** Female sport managers reported higher scores on the psychic anxiety, psychasthenia, muscle tension, somatic anxiety, and lower scores on monotony avoidance. **Conclusions:** In the psychological profile of female sport managers we point out the high level of neuroticism, that's means, emotional instability, and the preferences of male sport managers for monotony avoidance and the intense need for sensation seeking and novel experiences.

**Keywords:** sport manager, gender differences, personality traits, KSP, emotional instability, sensation seeking

**REZUMAT. Introducere.** Managerii în general se diferențiază prin trăsături psihice distincte. Printre avantajele managerilor femei sunt specificate: conștiinciozitatea, dinamismul, farmecul personal și aspectul îngrijit. Între punctele slabe ale managerilor femei se pot reține: inteligența, intuiția, simțul de răspundere și tenacitatea. **Obiective.** Am urmărit prezența unor trăsături psihice distincte la managerii sportivi femei și bărbați. În mod specific am propus ipoteza existenței unor diferențe cu privire la trăsăturile psihice ale managerilor de gen masculin și feminin. **Subiecți și metode.** Am investigat un eșantion de 200 manageri sportivi din șase județe din Transilvania, Regiunea Nord-Vest. Au fost distribuite 310 chestionare, din care au fost returnate 250, din acestea 50 chestionare erau cu date incomplete ce le făceau inutilizabile în cadrul studiului. Au rămas 200 chestionare valide care au fost cotate și introduse în baza de

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date a studiului. Aceste date au fost grupate pe cele 15 scale ale chestionarului de personalitate Karolinska Scales of Personality (KSP). **Rezultate.** Managerii de gen masculin au scoruri mai ridicate la scalele KSP de anxietate psihică, psihastenii, tensiune musculară, de anxietate somatică și scoruri mai reduse la scala de evitare a monotoniei. **Concluzii.** În profilul psihologic al managerilor sportivi se evidențiază vulnerabilitatea psihică a femeilor manager, concretizată în aspecte ale instabilității emoționale și preferința managerilor bărbați pentru evitarea monotoniei și nevoia de senzații tari și palpitate.

**Cuvinte cheie:** manager sportiv, diferențe de gen, trăsături de personalitate, KSP, instabilitate emoțională, nevoia de senzații tari.

## Introduction

Generally, sports managers are characterized by specific psychological traits. Among the strong points of female managers we can mention; conscientiousness, dynamism, personal charm, and physical presence. Among the weak points of female managers and strong points of male managers we mention: intelligence, intuition, sense of responsibility and tenacity.

## Objectives

We tried to show the presence of some differences in psychological characteristics between male and female sport managers. Specifically we proposed the hypothesis of some differences in psychological traits of male and female sport managers.

We proposed the following hypotheses:

H1: The psychological profile of sport managers is different from other managers in Romania

H2: There are same differences between the psychological profile of male and female managers

H3: The personality profile of managers is different by sport domain where they are working.

H4: There are some psychological differences between sport managers considering the sport club where they are working.

## Subjects and methods

In our study we surveyed a sample of 200 sport managers from North-Western Region of Transylvania, Romania.

**Table 1.****Sample structure by occupation of sport managers**

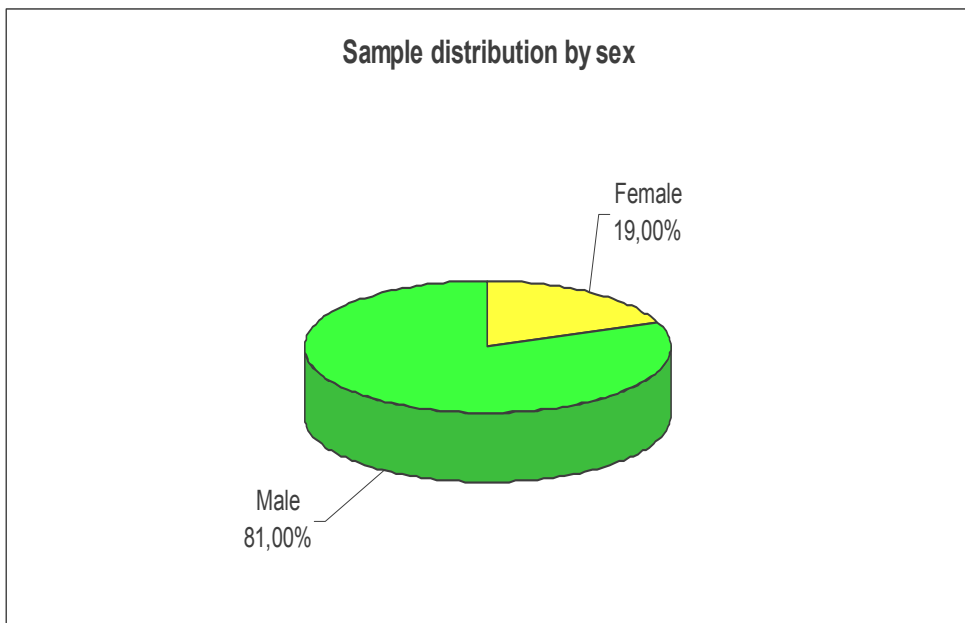
	Number of cases	Percent (%)
Principal coach	55	27,5
Director	38	19
Adjunct coach	30	15
President	21	10,5
Middle level manager	18	9
Professor of physical education and sport	14	7
General manager	9	4,5
Manager	4	2
Vice-president	4	2
Sport instructor	2	1
Secretary	2	1
Coach	1	0,5
Bookkeeper	1	0,5
Inspector	1	0,5

**Table 2.****Sample structure by sports**

	Number of cases	Percent (%)
Basketball	16	30
Football	34	17
Handball	23	11,5
Volleyball	15	7,5
Athletics	8	4
Judo	6	3
Free style wrestling	6	3
Rugby	4	2
Polo	3	1,5
Box	3	1,5
Table tennis	2	1
Weight lifting	1	0,5
Taekwondo	1	0,5

So as was shown by the studies dedicated to the analysis of practical management, male managers are in a greater number and proportion than female managers, in any branch of management. This is especially true for sport management domain. The same situation was found in our sample used in the empirical study. We remarked that female managers in our sample represent only 19% of study participants, and male sport managers have a gross majority, so as can be observed in the image from the figure no 1. This situation marks

the presence of professional discrimination of women in our society. These facts are especially relevant in the sport domain in the Romanian contest, where the female athletes had gained preeminence in big sport competitions, at the international and Olympic level. As a concrete illustration is the number of Olympic medals obtained by male and female Romanian athletes at the Beijing Olympic Games of 2008 (from a total of medals obtained, only a bronze medal was gained by a man, no one gold, and no silver medal for men, but only by female athletes- 4 gold, one silver and 2 bronze).



**Fig. 1.** Pie chart showing sample distribution of study participants by sex

On this sample we applied the Swedish personality instrument- Karolinska Scales of Personality (KSP) comprising 135 items and 15 scales. Personality traits were measured by the 135 questions Karolinska Scales of Personality (KSP) (Ortet & Torrubia, 1992), an inventory for assessing temperament traits associated with vulnerability for psychological deviance (Klinterberg et al., 1986). The 15KSP scales are classified into five groups (Schalling, Asberg, Edman & Oreland, 1987):

The KSP comprises 135 items (with four-point Likert scale, from 1 Does not apply at all to 4 Applies completely ) grouped into 15 scales (Schalling et al., 1987):

1. *Psychic anxiety* (10 items). Worry, insecurity, and anticipatory and social anxiety. Item example: It takes me an unusually long time to get over unpleasant events.

2. *Somatic anxiety* (10 items). Refers to autonomic symptoms, concentration difficulties, vague distress, and panic. Item example: My heart sometimes beats hard or irregularly for no real reason.

3. *Muscular tension* (10 items). Tenseness in the muscles, trembling, feeling stiff, and gnashing jaws. Item example: My hands usually tremble.

4. *Psychasthenia (lack of energy)* (10 items). Being easily fatigued, and feeling uneasy when urged to speed up and face new tasks. Item example: I think I get fatigued more easily than most people I know.

5. *Inhibition of aggression (lack of assertiveness)* (10 items). Nonassertive, sad rather than angry when scolded, and cannot speak up. Item example: I find it difficult going back to a store to ask if I can exchange an item I have bought.

6. *Detachment (distance)* (10 items). Avoiding involvement in others, withdrawn, and schizoid. Item example: I consider myself reserved and a little cold rather than kind and warm.

7. *Impulsiveness* (10 items). Acting on the spur of the moment, nonplanning, preference for speed rather than accuracy, and care-freeness. Item example: I usually talk before I think'.

8. *Monotony avoidance (sensation seeking)* (10 items). Avoiding routine, thrill seeking, and need for change and action. Item example: I am always keen on trying out things that are all new.

9. *Socialization* (20 items). Positive childhood experiences, good school and family adjustment, and general satisfaction. Item example: My home life was always happy.

10. *Indirect aggression* (5 items). Sulking, and slamming doors when angry. Item example: When I am mad, I sometimes slam doors.

11. *Verbal aggression* (5 items). Getting into arguments, and telling people off when annoyed. Item example: I can't getting into arguments when people disagree with me (reverse scored).

12. *Irritability* (5 items). Irritable, and lacking patience. Item example: I am irritated a great deal more than people are aware of.

13. *Suspicion* (5 items). Suspicious, and distrusting people's motives. Item example: I sometimes have the feeling that others are laughing at me.

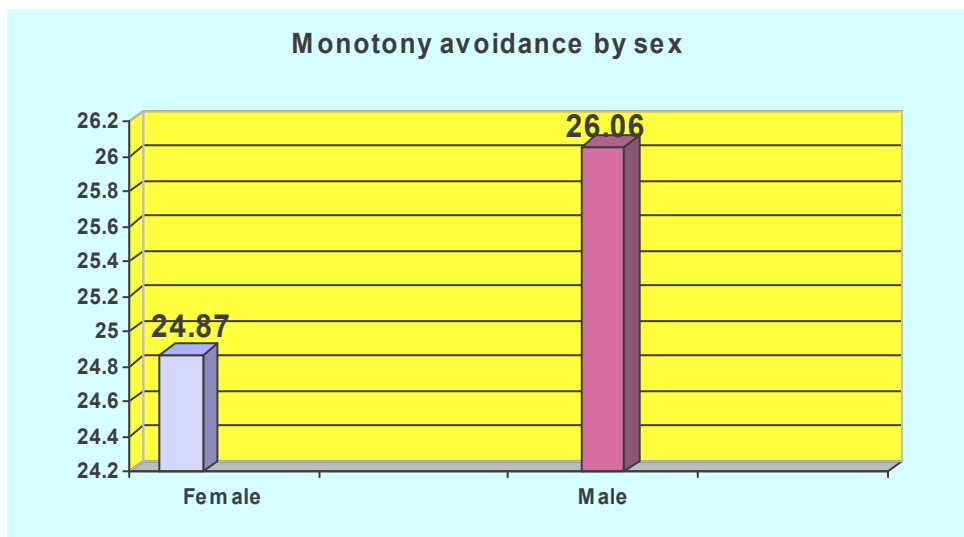
14. *Guilt* (5 items). Remorseful, and ashamed for bad thoughts. Item example: The few times I have cheated, I have suffered unbearable feelings of remorse.

15. *Social desirability* (10 items). Responding in a socially approved way, socially conforming, friendly, helpful, faking good. Item example: I have never deliberately said something that has hurt someone's feelings.

## Results

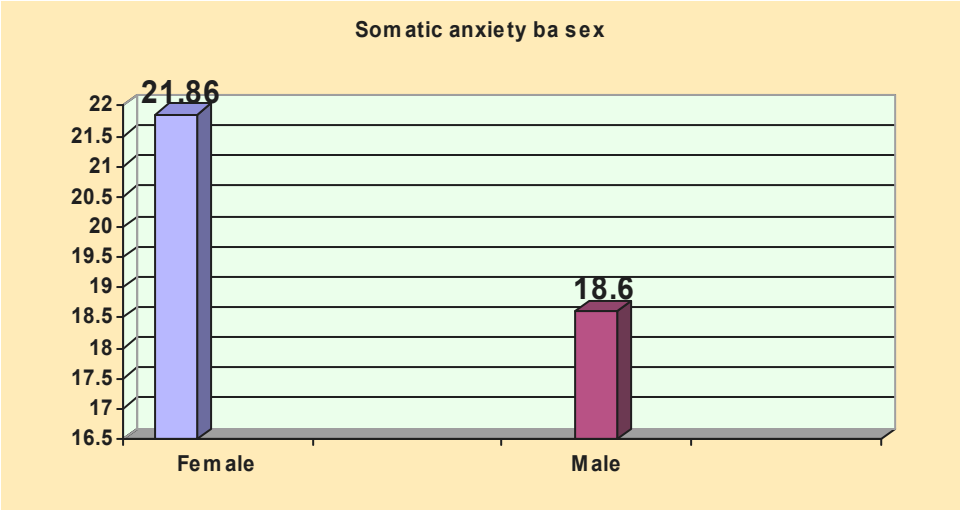
Female sport managers show higher sores to the psychic anxiety, muscular tension, somatic anxiety and lower sores on monotony avoidance scale of KSP personality questionnaire

Male gender subjects report a higher level of monotony avoidance or sensation seeking in contrast with female managers, so as can be seen in the figure no. 2



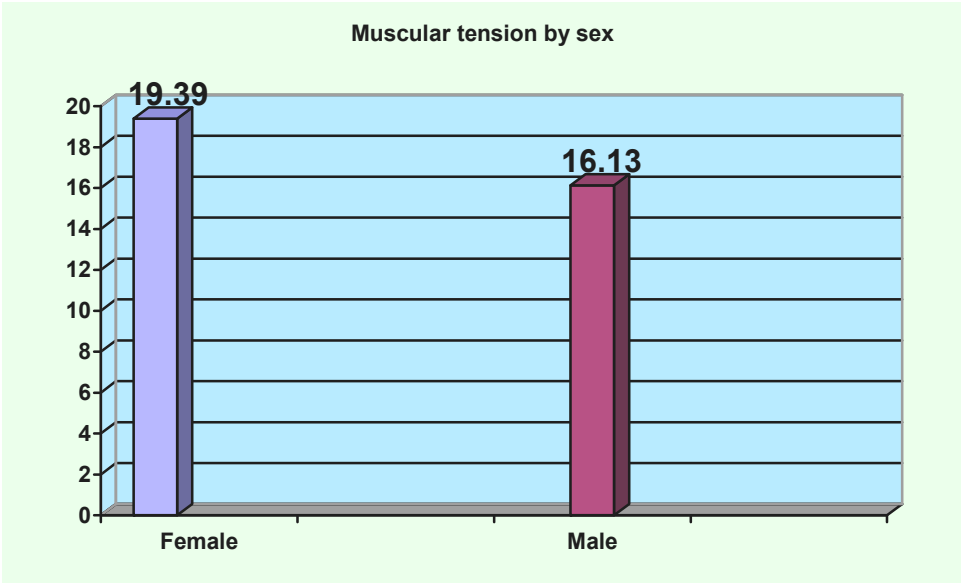
**Fig. 2.** Bar chart showing the mean values differences to the scale of monotony avoidance or sensation seeking of the KSP by sex ( $p = 0,10$ ).

Somatic anxiety is higher in female sport managers than in male managers, as displayed in the image from the figure no 3.



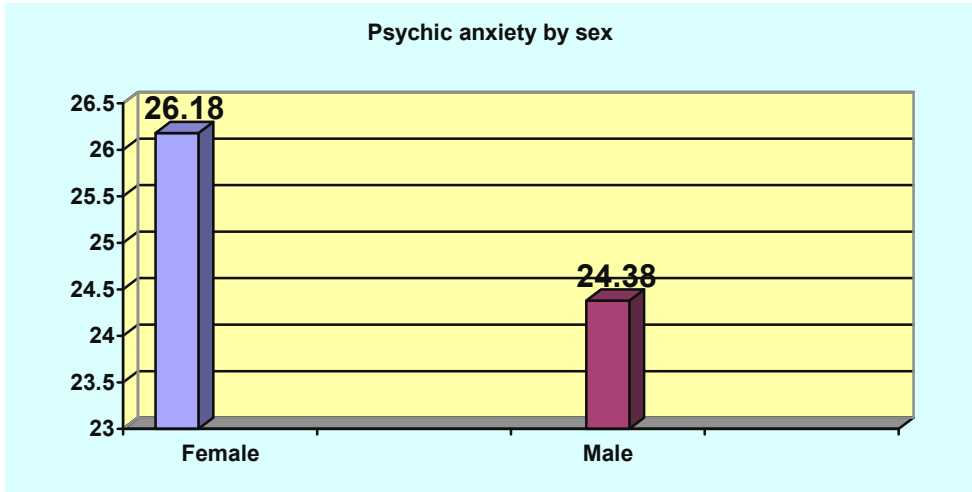
**Fig. 3.** Bar chart showing the mean values differences to the scale of somatic anxiety of the KSP by sex identity declared by study participants ( $p = 0,002$ )

In a similar manner, muscular tension is higher in female sport managers by comparison with male managers. The highly significant statistical differences are shown in figure no. 4.



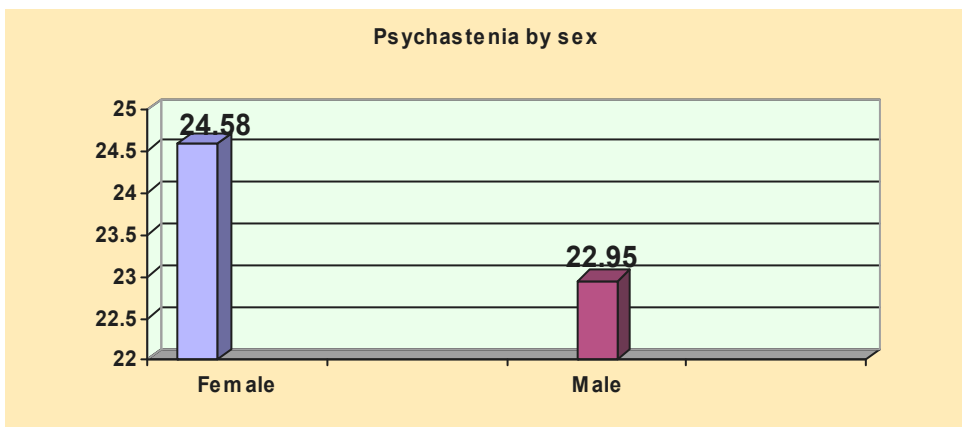
**Fig. 4.** Bar chart showing the mean values differences to the scale of muscular tension of the KSP by sex identity of study participants ( $p = 0,0002$ ).

Female sport managers displayed a higher level of psychic anxiety in contrast with the lower level reported by male sport managers. These differences are shown in the figure no. 5.



**Fig. 5.** Bar chart showing the mean values differences to the scale of psychic anxiety of the KSP by sex identity of study participants ( $p = 0,03$ ).

Sport managers of female sex showed a higher level of emotional instability in contrast to male sport managers, so as can be observed in the figure no. 6.



**Fig. 6.** Bar chart showing the mean values differences to the scale of psychasthenia of the KSP by sexual identity of study participants ( $p = 0,01$ ).

Female sport managers reported higher scores on the psychic anxiety, psychasthenia, muscle tension, somatic anxiety, and lower scores on monotony avoidance.

## Conclusions

In the psychological profile of female sport managers we point out the high level of neuroticism, that's means, emotional instability, and the preferences of male sport managers for monotony avoidance and the intense need for sensation seeking and novel experiences.

The consistence of present study results are confirmed by the good psychometric properties of instrument used, calculated with the aid of the Statistical Package for the Social Sciences-SPSS-version 17, 0., as can be seen in the table no. 3

**Table 3.**

**Comparative reliability levels (Cronbach  $\alpha$ , Cronbach, 1951)  
of Karolinska Scales of Personality**

KSP scale	Romanian sport managers (N = 200)	Spanish males (N = 111)	Spanish female (N = 388)	Swedish healthy employed female (N = 101)
1. Indirect aggression	0,48	0,55	0,54	0,61
2. Verbal aggression	0,36	0,67	0,63	0,36
3. Irritability	0,37	0,55	0,46	0,46
4. Psychic anxiety	0,65	0,75	<b>0,73</b>	0,84
5. Somatic anxiety	0,78	0,76	<b>0,77</b>	0,83
6. Detachment /distance	0,49	0,58	0,62	0,69
7. Social desirability	<b>0,55</b>	0,67	0,61	0,56
8. Monotony avoidance	0,57	0,76	0,77	0,80
9. Impulsivity	0,58	0,58	0,67	0,69
10. Inhibition of aggression	0,31	0,69	<b>0,56</b>	0,44
11. Psychasthenia	0,53	0,66	<b>0,56</b>	0,75
12. Socialization	0,62	0,76	0,77	<b>0,87</b>
13. Suspicion	0,33	0,48	0,42	0,39
14. Muscular tension	0,75	0,78	<b>0,81</b>	0,83
15. Guilt	<b>0,39</b>	0,35	0,36	0,10

In our study the highest internal reliability coefficient Cronbach  $\alpha$  were obtained to the scales of somatic anxiety and muscular tension, and the lowest levels of the same reliability index on the scales of inhibition of aggression, suspicion, verbal aggression and irritability. They are quite similar with the results of Spanish (Perez, 1986, Ortet, 1992, 2002) and Swedish studies (Af Klintenberg, 1990, Schalling, 1983, 1987).

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## SPINE TRAUMA PATHOLOGY IN COMPETITIVE SPORTSMEN

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**ABSTRACT.** The overstress imposed by competitiveness and the imbalance between the mechanical overstress and the functional resistance of the tissues are the causes of the high incidence of joint traumas in sports. The prevention methods that have been included in the training programme and their simultaneous use during the other training stages have resulted in increased flexibility, force, muscular resistance and articular mobility; this, in turn, has prevented traumas and has reduced the number of accidents. **Purpose.** To reduce trauma incidence in the studied sportsmen (2006-2009) through the identification of the risk factors and the introduction of prevention exercises and stretching methods in the training process, both during warm-up and post-effort rehabilitation, in order to prevent accidents and increase performance in competitive sportsmen. **Material and method.** The study included a batch of 155 sportsmen (52 (33.5%) female and 103 (66.5%) male) who practised athletics (sprint and hurdles), basketball, handball, football and volleyball in Leagues A1 and A2, in Timisoara and Lugoj. The sportsmen were between 13 and 42 years old and had been practising sports for 4-20 years. The study covered three competition years and it monitored trauma incidence, frequency and location, the causes that favour traumas and our intervention with prevention and rehabilitation methods. All injured segments (N = 11) were compared against the total number of traumas per sportsmen, age groups and longevity in sport practising, in order to reveal the age and longevity groups with the highest trauma incidence and the most frequently affected segments in the studied two periods (before and after starting the prevention exercises programme). **Objectives.** To identify and reduce the internal and external factors causing traumas in sportsmen.; to develop and implement prevention exercises in the sportsmen's training programme.; to detect musculo-skeletal traumas early, using ultrasound scan, MRI, CT.; the functional rehabilitation of the injured segment so that the sportsman can resume his/her competitive activity at best possible parameters and without the risk of relapse.

**Key words:** traumas, spine, competitive sportsmen.

**REZUMAT. Patologia traumatismelor coloanei vertebrale la sportivi de performanță.** Suprasolicitările impuse de marea performanță, dezechilibrele dintre solicitările mecanice ale efortului sportiv și rezistența funcțională a țesuturilor, a determinat o incidență crescută a traumatismelor la nivelul articulațiilor în cadrul

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ramurilor sportive studiate. Introducerea în programul de antrenament, a unor mijloace cu scop profilactic și respectarea realizării acestora la același nivel cu celelalte componente ale pregătirii, a avut ca efect creșterea elasticității, forței, rezistenței musculare și a mobilității articulare ceea ce a dus la prevenirea traumatismelor și reducerea numărului de accidentări. **Scopul.** Reducerea numărului de traumatisme la sportivii cuprinși în studiu, prin identificarea factorilor de risc și introducerea în procesul de pregătire a unor programe de exerciții profilactice și a tehnicilor de stretching, atât în încălzire cât și în refacerea postefort, în scopul prevenirii și a creșterii performanței sportive) la sportivii de performanță, în perioada 2006-2009. **Material și metoda.** Studiul a cuprins un lot de 155 de sportivi (52 de sex feminin (33,5%) și 103 de sex masculin (66,5%)), componenți ai ramurilor sportive: atletism (probele de sprint și garduri), baschet, handbal, fotbal, volei, divizia A1 și A2, din Timișoara și Lugoj, cu vârste cuprinse între 13-42 de ani, și o vechime în activitatea sportivă cuprinsă în intervalul 4-20 ani. Studiul s-a derulat pe o perioadă de 3 ani competiționali. S-a urmărit incidența, frecvența și localizarea traumatismelor specifice, cauzele ce favorizează producerea de traumatisme și intervenția noastră cu metode de prevenție și recuperare Am comparat toate segmentele traumatizate, (N=11) în funcție de numărul maxim de traumatisme prezentate de sportivi, pe grupe de vârstă și vechime în sport pentru a putea evidenția grupele de vârstă și vechime în sport cu numărul cel mai mare de traumatisme înregistrate, și segmentele cele mai afectate, pe cele două perioade de timp (înainte și după aplicarea programului de exerciții profilactice). **Obiective.** Identificarea și reducerea factorilor favorizanți interni și externi implicați în producerea traumatismelor sportive; elaborarea și introducerea unor programe de exerciții profilactice în programul de pregătire al sportivilor; depistarea precoce a traumatismelor musculo-scheletale cu ajutorul ecografiei, IRM, CT; recuperarea funcțională a segmentului lezat, astfel încât sportivul să-și poată relua activitatea de performanță la parametrii optimi și fără riscul unei recidive.

**Cuvinte cheie:** traumatisme, coloană vertebrală, sportivi de performanță.

## INTRODUCTION

Spine traumas are major injuries in the trauma pathology of the locomotor system. Many authors compare spine traumas with knee traumas in sportsmen, drawing analogies between meniscus and vertebral disk injuries.

Several individual predisposing factors cause spine changes in sportsmen. Such changes are phylogenetic variations in spinal development, cranial or caudal (the most common being the sacralization of the L5 vertebra), spina bifida occulta involving L1 and S5, congenital spondylolysis and spondylolisthesis; by modifying the biomechanics of the spine, they cause degenerative lesions in sportsmen with spine anomalies (1, 2, 3, 4, 5, 6, 7).

*Spine traumas occur in rugby, gymnastics, equestrian events, handball, volleyball, basketball, track and field events, swimming etc.*

Besides the bones, *spine trauma pathology* also affects ligaments (cervical sprains and strains, muscle elongations or soft-tissue contusions).



**Figure 1**



**Figure 2**



**Figure 3**

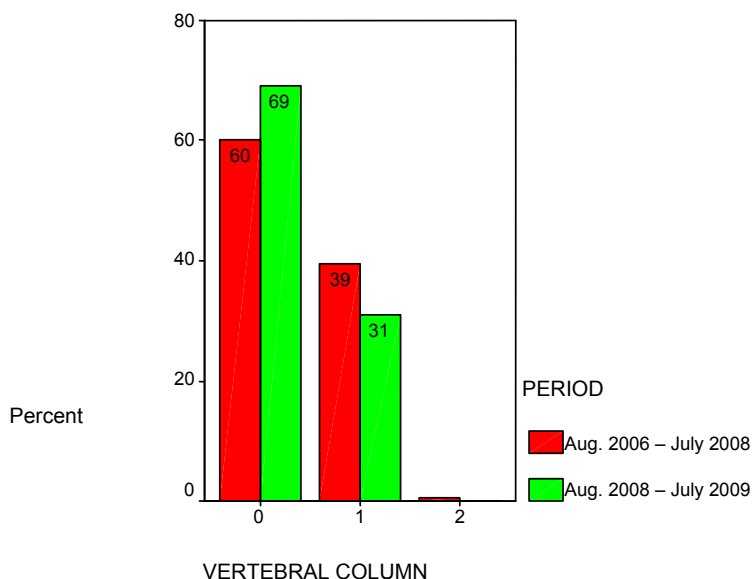
Spine traumas have an indirect mechanism involving a sudden movement of hyperflexion, hyperextension or torsion (figures 1, 2 and 3).

Affections caused by microtraumas include overstress lesions that are the result of small-intensity, but frequently repeated agents that affect the regenerative potential of the tissues and lead to anatomical microlesions.

The symptoms of these affections are pain after physical effort, progressive pain, though with remission periods (28, 31, 32).

**The sports with a high spine trauma incidence are rugby, swimming, skiing, surfing, equestrianism, motorcycling).**

**Musculo - skeletal distribution by the affected segment and the maximum number of traumas (1-5 traumas suffered by one sportsman in one segment), against the whole batch (N = 155) in the two studied periods.**



**Chart 1.** Spine trauma distribution (%) (0 = 0 traumas; 1 = 1 trauma; 2 = 2 traumas) in the two periods of time

## Interpretation

### Period 1

**61 sportsmen (39.35 %)** suffered **1** trauma in Aug. 2006 – July 2008

**1 female volleyball player (0.65%)** suffered **2** spine traumas in Aug. 2006 – July 2008.

### Period 2

**48 sportsmen (30.97 %)** suffered **1** spine trauma in Aug. 2008 – July 2009.

The number of sportsmen with spine injuries decreased with 13 (9.03%) in the second period.

## COMPARISONS ON AGE GROUPS AND AFFECTED SEGMENTS

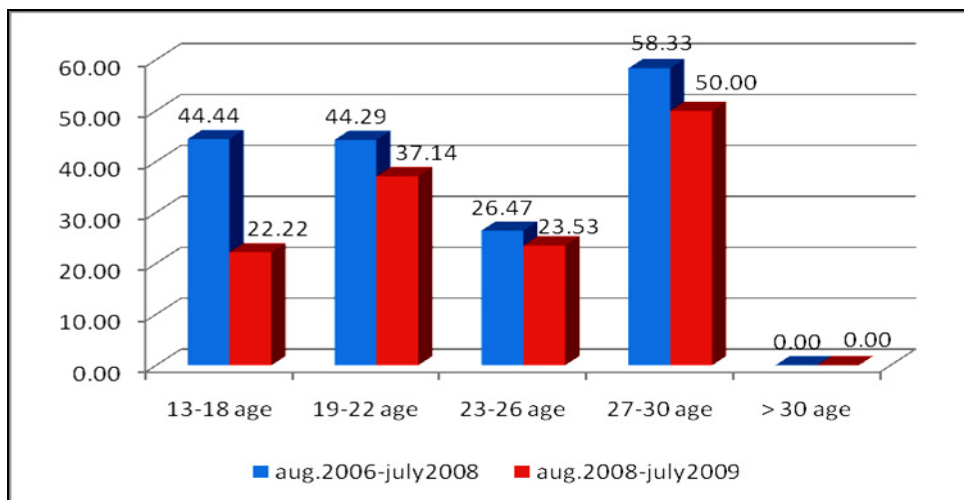
**Percentage distribution of musculo-skeletal traumas by affected segments and age groups, irrespective of sex or sport; a comparison of the two studied periods**

**Table 1.**

**Percentage distribution of spine traumas**

PERIOD	SPINE			Total no of sportsmen
	Age group	Number of traumas	% Traumas	
Aug. 2006 – July 2008	13-18	16	44.44	36
	19-22	31	44.29	70
	23-26	9	26.47	34
	27-30	7	58.33	12
	> 30	0	0.0	3
		<b>63</b>	40.65	<b>155</b>
Aug. 2008 – July 2009	13-18	8	22.22	36
	19-22	26	37.14	70
	23-26	8	23.53	34
	27-30	6	50.0	12
	> 30	0	0.00	3
		<b>48</b>	30.97	<b>155</b>

As shown in the table, the number of traumas in the **spine** segment decreased **insignificantly** in the second period.



**Chart 2.** A comparison of the percentage distribution of spine traumas by age groups in the two periods

As the differences between spine traumas by age groups are **insignificant**, the comparison of lesions by age groups is no longer necessary.

### COMPARISONS BY TIME SPENT IN SPORTS PRACTISING AND INJURED SEGMENTS

**Percentage distribution of musculo-skeletal traumas by affected segments and time spent in sports practising, irrespective of sex or sport; a comparison of the two studied periods**

**Table 2.**

**Percentage distribution of spine traumas by groups of time spent in sports practising**

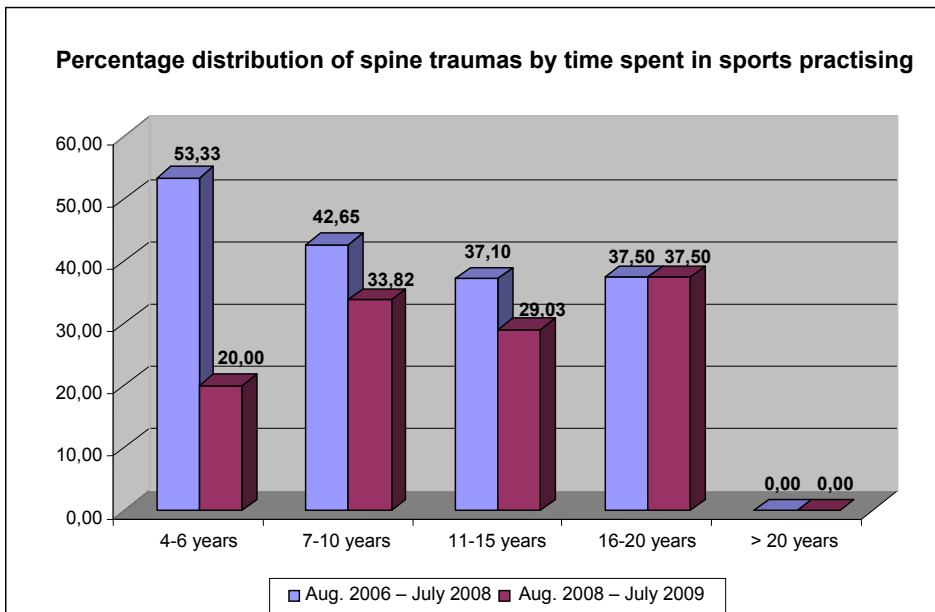
PERIOD	SPINE			Total
	Time spent in sports practising	Number of traumas	% Traumas	
Aug. 2006 – July 2008	4-6	8	53.33	15
	7-10	29	42.65	68
	11-15	23	37.10	62
	16-20	3	37.5	8
	> 20	0	0	2
	<b>Total</b>	<b>63</b>	<b>40.65</b>	<b>155</b>

# SPINE TRAUMA PATHOLOGY IN COMPETITIVE SPORTSMEN

PERIOD	SPINE			Total
	Time spent in sports practising	Number of traumas	% Traumas	
Aug. 2008 – July 2009	4-6	3	20.00	15
	7-10	23	33.82	68
	11-15	18	29.03	62
	16-20	3	37.5	8
	> 20	0	0	2
	<b>Total</b>	<b>47</b>	<b>30.32</b>	<b>155</b>

For the first studied period, the **spine** trauma comparisons between the groups of time spent in sports practising were made with the  $\chi^2$  test; the results were  $p = 0.585$ , with a significance threshold  $\alpha = 0.05$ , which indicates that there were **no significant differences** between the number of traumas in these groups.

For the second period, the **spine** trauma comparisons between the groups of time spent in sports practising were made with the  $\chi^2$  test; the results were  $p = 0.687$ , with a significance threshold  $\alpha = 0.05$ , which indicates that there were **no significant differences** between the number of traumas in these groups.



**Chart 3.**

In order to compare the percentage values for each group between the two periods, the Z test was applied and the following results were obtained:

**Table 3.**

<b>Time spent in sports practising</b>	<b>p value and significance</b>	<b><math>\alpha</math> significance threshold</b>
4-6	0.064 <sup>nsc</sup>	0.05
7-10	0.188 <sup>ns</sup>	0.05
11-15	0.222 <sup>ns</sup>	0.05
16-20	0.302 <sup>ns</sup>	0.05
> 20	0.99 <sup>ns</sup>	0.05

**Interpretation:** the decrease in the number of spine traumas is insignificant or stays the same in the second period, compared to the first.

**The pathology included the following:** the spine (effort-related lumbar pain and paravertebral muscle contraction), vertebral static changes, congenital spine anomalies, degenerative disk changes, which are the most frequent - 62 sportsmen = 63 traumas (40.67%) in the first period and 48 sportsmen = 48 traumas (30.97%) in the second period.

## CONCLUSIONS

The utility, necessity and beneficial effects of the prevention exercises included in the training programme have been proved.

The performance level and the number of training sessions influence the high number of traumas that occurred.

The extrinsic factors have a stronger influence.

Overstress traumas have had a higher incidence than accidental traumas, accounting for about 73% of the total injuries.

The early use of MRI, CT and ultrasound have helped us choose the best prevention and fast rehabilitation methods.

In order to avoid accidents and meet the requirements of daily training, the following factors must be taken into consideration: prevention exercises, diet, rest and proper warm-up.

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## INFORMATIONAL SYSTEM OF SPORTIVE CLUBS

MOCA COSMIN MIHAI<sup>1</sup>

**ABSTRACT.** This work has as its goal the identification of some elements which might lead to the improvement of the sportive clubs' informational systems. For this reason I have made a practical research at four sports clubs from Cluj Napoca. The method used in this research was that of a questionnaire regarding the identification of the requirements for a better informational system. Based on the data obtained from the questionnaires I was able to notice the deficiencies of the informational systems of different sportive clubs and the factors which cause these deficiencies. I have also presented some ways and methods of improving the informational systems of the sports clubs in order to improve their activity.

**Key words:** Sportive club, informational system, documents, data, information, informational deficiencies.

**REZUMAT. Sistemul informațional al cluburilor sportive.** Lucrarea de față își propune identificarea unor elemente de îmbunătățire a sistemului informațional al cluburilor sportive, iar în acest scop am realizat o cercetare pe teren vizând patru cluburi sportive din Cluj Napoca. Am abordat cercetarea prin aplicarea fiecărei unități statistice din eșantion a chestionarului privind identificarea cerințelor de perfecționare a sistemului informațional. În urma prelucrării datelor extrase din chestionare, am pus în evidență deficiențele existente în cadrul sistemului informațional al cluburilor studiate, factorii care cauzează aceste deficiențe și am formulat modalități de îmbunătățire care pot fi aduse sistemului informațional al cluburilor studiate în vederea optimizării activității acestora.

**Cuvinte cheie:** Club sportiv, sistem informațional, documente, date, informații, deficiențe informaționale.

Starting from the assumption that the informational system is an important component of any entity- besides the organizational system, decisional system and the management techniques- we can define it as being the whole data, information, informational circuit and flow, procedures and ways in which the existing information in a structure are considered, with the purpose of getting the necessary informational support for reaching the goals. (Nicolescu; Verboncu, 1999: p 241).

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The present work wants to identify those elements which might lead to an improvement of the sportive clubs' informational system; for this purpose I have made a practical study and research at four sportive clubs from Cluj-Napoca:

- Marc tennis Sportive Club ( tennis)
- Crecos Tennis Sportive Club (tennis)
- Galactica Sportive Club (basketball)
- University Sportive Club ( fitness-bodybuilding)

I have chosen to make an analysis based on questionnaires.

The study took a sample of 14 members of the sportive clubs as follows:

- 7 managers of the average age of 45 and professional experience of 8 years;
- 4 trainers of the average age of 33 and professional experience of almost 8 years;
- 3 people from the administrative departments of the average age of 46 and professional experience in the organization of almost 16 years.

79% from the subjects are male and 21% are female.

93% from the subjects have university studies.

I have applied the questionnaire technique regarding the identification of those requirements necessary for a better informational system.

In the questionnaire I have tried to underline all those aspects which, in my opinion, may lead to a better understanding and approaching of the informational system.

Based on the information gathered from the mentioned sportive clubs, I have tried to identify their deficiencies from the subjects' point of view regarding the data and information circulation and content. I have also paid a lot of attention to their opinions regarding the way in which certain changes in the informational system may have an influence upon the accomplishment of individual goals and to their suggestion for improving the informational system.

In the questionnaire I have tried to offer a lot of possible answers which, in my opinion, give a general view upon the actual existing parameters of the informational system and leads to a better understanding to its deficiencies and ways of improving it.

The gotten results at the questionnaire help me to get a clear image of the way in which the managers, the administrative personnel and the trainers perceive the problems which impede the better functioning of the informational system.

*The main used documents are:*

- Periodical activity plan;
- Competition calendars;
- Training schedule;
- Yearly training program involving the pre-competition period, competition training and recovery period;
- Rules and instructions;
- Sportsmen transfer documents;
- Documents which refer to material and sportive equipment acquisition;
- Rental contracts;
- Specific documentation for training sessions, competitions and deployments;
- Sportsmen nametags;
- Medical reports;
- Sportsmen's contacts;
- Advertising contacts;
- Sponsorship contracts.

*The main categories of data and information include:*

- Statistic data;
- Data and information taken from administrative departments;
- Information taken from the children and junior departments;
- Information about the value of some wanted sportsmen from other clubs;
- Data and information about the staff: doctor, psychologist, physical trainer;
- Information regarding the competitive system and the training strategies;
- Information offered by the Federation regarding the rules about the sportive clubs' activity,
- Their participation to different sportive competitions ;
- Information regarding the way in which the sportive competitions are organized;
- Information about the sportsmen's transfer;
- Information about the competitive sportive clubs.

Regarding the documents and information' content and circulation the following deficiencies were noticed:

- Some documents have a distorted content

Causes:

- the distortion, the filtering;
- low professional training, unfair competition, some sportsmen decision to undermine the training process;

Improving suggestions:

- low prepared people from different administrative departments must be replaced based on a careful process of selection with more competent ones;

- the sportsmen with high financial requirements or with a low sportive value should be replaced with others more appropriate with the sportive clubs' profile;

- the trainers should improve their methods and techniques so that to be able to make the best transfers.

- The data and information transmission is often delayed due to:

- the manager is informed with delay about the sportsmen training parameters; as a consequence some wrong decisions might appear regarding the competitive schedule ;

- indecision regarding the information transmission about some players' observation; this may impede some transfers to take place;

It is absolutely necessary a better communication and efficient information transfer between all the departments of a sportive club.

- old methods of calculus and old PC's can cause delays regarding the information transmission;

Investments in this field are absolutely necessary.

- the sportive manager has an autoritary attitude which may create a stressing environment for the trainers and other departments. As a result they hesitate in transmitting some information which in time will lose their valability and relevance.

A change in the club's leadership is vital.

Most of the subjects (86%) consider that most of the existing deficiencies are determined by some external factors which cannot be influenced or controlled.

This situation is reflected by:

- Juridical terms: laws, governmental decisions, orders of the ministry and other local public administrative departments;
- Stipulations made by the sportive federations regarding the transfer policy of thesportsmen and trainers;

- Stipulations made by the sportive federations or international forum regarding the internal or international competition activity;
- Some aspects imposed by the Professional Leagues regarding the television rights;
- The willingness of sponsorship and donations of some firms;
- Political factors;
- Subjective interpretation regarding some sportsmen's evolution;
- Mass-media, radios, fans;
- Television rights of transmitting different matches and advertising contracts;

Suggestions for improvement:

- federation should inform efficiently a club if the right of organizing a competition was cancelled;

- club's site and the maintaining the individual or team's performances at a high level; the result will be the obtaining of many contracts of sponsorship and advertising;

- the creation of an environment not affected by local, regional or national politics;

- in the situation in which a match was postponed or delayed from different reasons, this should be announced in proper time in order to facilitate the data and information transmission;

- a higher number of referees at the official matches in order to avoid any mistake or incorrectness.

Regarding the elements which may have an influence upon the shortcuts from the informational system:

- 71% from the subjects consider that the heavy procedures are responsible;
- 64% from the subjects consider that the communication deficiencies are responsible;
- 36% from the subjects consider that disfunctionalities are caused by the huge quantity of informations;
- 36% from the subjects consider that the organizational structure is responsible;
- 21% from the subjects consider that the data and information's quality is responsible;
- 14% from the subjects consider that the length of the informational flow is responsible;

- 7% from the subjects consider that the way in which the information are gathered, processed and transmitted is responsible.

Suggestions:

- to shorten the length of information flow, to allow a quick and easy access to information and a more transparent management;
- a better communication between the club's departments, a good sportsman-trainer relationship, a quick and efficient feedback;
- to collect, select and transmit data and information of high quality;
- to give up at the old methods of information and data stocking;
- to centralize all the data and information on the computer.

71% from the subjects consider that the changes of the informational system may influence the individual goals;

21% from the subjects consider that the changes of the informational system will always influence the individual goals;

7% from the subjects consider that the changes of the informational system cannot influence the individual goals.

Regarding the *necessary major changes in the informational system* the following answers were given:

64% from the subjects consider that a major necessary change in the informational system refers to the organizational communication;

57% from the subjects consider that a major necessary change in the informational system refers to the rationalization of the informational flow and circuits;

42% from the subjects consider that a major necessary change in the informational system refers to the quality of data and information;

29% from the subjects consider that a major necessary change in the informational system refers to the reconsideration of the organizational relations;

14% from the subjects consider that a major necessary change in the informational system refers to a reconsideration of the ways in which data and information are considered.

In conclusion I consider that in this work I have shown all the data and information with which a sportive club operates, the existing deficiencies in their circulation, the causes of these deficiencies and I have also given a lot of suggestions.

### Annex

Questionnaire regarding the identification of the requirements for a better informational system in a sportive club. Please put an “x” in the spaces:

1. Present your field and domain of activity and your main activities:  
 Domain.....  
 Activity.....
2. What kind of documents do you use for each activity?  
 .....  
 .....
3. What kind of data and information do you use?  
 .....  
 .....
4. What deficiencies have you noticed regarding the data and information content and circulation?  
 .....  
 .....
5. Some of the deficiencies regarding the poorer flow of information is because of:  
☐ Your boss    ☐ colleagues    ☐ external factors    ☐ others
6. Mark those elements you consider relevant for a poor informational system:  
☐ The information and data quality  
☐ The ways in which the data and information are collected, processed and transmitted  
☐ The large quantity of information used  
☐ The difficult administrative procedure  
☐ The length of the informational flow and circuits  
☐ The organizational structure  
☐ Communication  
☐ Others; mention which .....
7. Do you consider that the changes in the informational system might influence the accomplishment of your individual goals?  
☐ Always    ☐ Sometimes    ☐ Never
8. Mark the major necessary changes in the informational system:  
☐ The informational flows and circuits  
☐ The ways used for data and information processing  
☐ Organizational relations

- ☐ The quality of information
- ☐ The informational procedures
- ☐ Others, say which ones .....

.....

The name of the sportive club .....

.....

Department.....

Position.....☐ of leading.....☐ of execution

Age.....

Years worked in the organization.....

.....

Sex.....

.....

Studies: ☐ university    ☐ high-school    ☐ general

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## DEVELOPING MEANS OF MOBILITY USING BASIC GYMNASTICS AND AEROBICS

NUȚ RAMONA ANCUȚA<sup>1</sup>

**ABSTRACT.** The driving quality evolves inversely with age, leading to gradual loss of mobility limitation of range of motion. That is why it is so necessary that the driving quality, mobility, yet to be developed in very young children are more flexible and more attracted to certain exercises and driving games (sports). Practicing any sport industry requires good mobility of the athlete. There can be a good gymnast, athlete, basketball, handball, football, swimming, etc. without a good mobility, well developed. Applying a series of exercises, from those presented in the paper, the physical education classes was seen as the students executed a lesson to other exercises easier, better, more expressive what led me to believe that their mobility has improved its developed. Therefore periods presented in the paper are very important in developing mobility, driving quality that is present in any act motive.

**Keywords:** joint mobility, muscle elasticity, driving quality.

**REZUMAT. Dezvoltarea mobilității utilizând mijloace din gimnastica de bază și aerobică.** Această calitate motrică evoluează invers proporțional cu vârsta, pierderea treptată a mobilității duce la limitarea amplitudinii mișcărilor. Iată de ce este atât de necesar ca această calitate motrică, mobilitatea, să fie dezvoltată încă de la vârste foarte mici când copiii sunt mai flexibili și mai atrași de anumite exerciții și jocuri motrice (sportive). Practicarea oricărei ramuri de sport necesită o bună mobilitate din partea sportivului. Nu poți fi un bun gimnast, atlet, baschetbalist, handbalist, fotbalist, înotător etc. fără o mobilitate bună, bine dezvoltată. Aplicând o serie de exerciții, din cele prezentate în lucrare, la orele de educație fizică s-a observat cum elevii executau de la o lecție la alta exercițiile mai ușor, mai corect, mai expresiv ceea ce m-a condus la ideea că mobilitatea lor s-a îmbunătățit, s-a dezvoltat. De aceea exercițiile prezentate în lucrare sunt foarte importante în dezvoltarea mobilității, calitate motrică care este prezentă în orice act motric.

**Cuvinte cheie:** mobilitate articulară, elasticitate musculară, calitate motrică.

In contemporary methodological concerns of gymnastics, joint mobility is seen as a matter of great importance to obtain valuable results. In this regard, coach emeritus Kuznetsov stated: "flexibility is a concept almost

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synonymous with the sport and absolutely synonymous with the gymnast." (D Octavian) Exercise, discipline and basic means of physical education is currently the most important support in modern human life, from the earliest age to old age in various fields, to maintain health, to acquire the elements performance in gymnastics and physical support necessary to ensure practice different sports. Gymnastics contemporary aims mainly to improve the training and physical development and harmonious multilateral body.

Among the most important tasks of gymnastics occupies an important place to ensure proper development of body growth by developing basic motor skills such as: strength, muscle elasticity and mobility of major joints through specific means available to form the individual's capacity and to relax various muscle groups or the entire body, much needed relaxation after work which is subject to contemporary man, maintain and improve health by optimizing the body functions, thereby contributing to the development & work capacity, physical capacity is maintained up to age forward, acquiring specific driving luggage gymnastics branches, forming a physical medium allowing the acquisition of basic technology and other sports, proper training attire and sense of aesthetic development, the expressiveness of movement. Driving qualities grow throughout life by a certain age, but they can accelerate the learning process.

In addition to the basic driving skills as speed, skill, strength and force some experts adds: mobility, flexibility, elasticity and flexibility.

Mobility refers to joint property and designates it to move. Moving bone segments in the chain engaging mechanism and mandatory participation joint motor. Joints are not simply passive role in the execution of movements, their form and degrees of freedom of movement they provide, are important factors which divide the movement direction and purpose, and that limits their amplitude.

After teachers Mitra and Alexander George Mogos, mobility and flexibility refers to a joint, while flexibility means a degree of mobility in all joints of the body.

Mobility (flexibility) makes in many samples and sports, the most effective driving their actions. Elements: bridge, rope, sweeps, twists, some jumps in gymnastics, skiing, specific processes of modern gymnastics, etc. are designed, usually against a high elasticity and muscle and joint mobility in other cases, such as: jump height, running the hurdles, throws, gymnastics and modern sports, etc. Movements characteristic of these disciplines is done with speed, ease, expressiveness and efficiency necessary because suppleness.

Mobility (flexibility) reach maximum values around the age of 15-16 years and the movements of joints and even later. After this age, especially when no practice, flexibility diminishes. Claim that the children there are

flexibility - greater joint mobility is not entirely justified. The fact is that childhood is the most effective for the quality.

Like any discipline, gymnastics has its own theory and methodology of its teaching, its means and forms of organization, from other disciplines and has several features designed for specific purposes and tasks

The specific means available, gymnastics ensure proper development of body growth by developing basic motor qualities and joint mobility.

Joint mobility has been studied by specialists of different branches of sports, particularly for researchers specializing in gymnastics: Novikov, Semenov-Smolevski (Russia), Richard Schmith (USA), P. Dungaciu R. Podlaha, Dragomir Z., D. Ungureanu Elena Lovage, Atanas Ionescu-Albu, G. Mitra, Al. Mogos (Romania), etc..

Joint mobility has an important place in contemporary training of gymnasts.

Joint mobility is a native quality or strength which allows movement of large amplitude body segments (opening - maintenance - Closing) executed within the anatomical extent of freedom of movement and technical conditions required for a particular movement or a particular branch of sport. Mobility is the ability of the human body using anatomical broad potential mobility (joints) and flexibility (muscle). It is a basic requirement for achieving high performances in gymnastics is on the same level of force, especially in women's gymnastics. Most years in gymnastics cannot be made correctly, comprehensive and aesthetic without proper joint mobility.

Often we hear that they say about an individual that has an underdeveloped as compared to driving demands of certain activities. That capacity must be developed and refined, that integrate smoothly into gear the whole body in that activity and to easily support a role which has a role that not only can meet other quality driven development fund which is filled permanently.

We know that this quality motor - mobility - evolves inversely with age. During its evolution, the joint undergoes a series of changes in the degree of mobility. Thus there is a biological process of gradual loss of motor skills that lead to limitation of movement amplitude in the making.

Over time, experiences made have shown that loss of these qualities may be delayed "by the systematic practice of specific physical exercises that maintain, develop joint mobility and muscle elasticity naturally high degree of movement. Exercise in the joints operate and maintain a degree of mobility and delays, possibly, aging, premature ossification, so the decrease in their functions.

In recent years, one of the researchers' findings was the need to remove the character of "stiffness", the force of gymnastics and sports need boosting its amplitude, the disengagement. Years ago it started from the idea that the decisive role in making the correct technique of gymnastics movements (especially sports gymnastics) power plays. The proportion of movements, positions and combinations based solely on force was much larger than the other movements calling for amplitude. The technical and aesthetic movements that had no gift to persuade gymnastics is a sport that ensure harmonious development.

Rapid progress in the world can say that in appropriating the proper technique and movements are elastic muscle joint mobility, driving qualities that give gymnastics a new feature dedicated, using the Athlete fails to exceed the upper limit of the sports event, approaching art.

Qualities of complexity required in gymnastics, is a detached share increased joint mobility and muscle elasticity, which at the current level of development of gymnastics generates two effects: assimilation proper technique and movements aimed at visual effects and expressive driving motor aesthetic side of gymnastics

The role of mobility and elasticity in acquiring the correct motion technique with a high degree of difficulty was demonstrated through the world's great gymnasts, who through personal examples are convinced that without a proper perspective of mobility they offer gymnastics in the future may become a close reality.

A low degree of mobility and elasticity difficult and extends learning leads to additional movements to compensate for these performance qualities (knees bent, arms, closure or insufficient opening angles), and thus reduce the general appearance of movement. All this causes stagnation of development gymnast, and even lead to abandonment of this activity. Close to the strength, speed of execution and skill, the better joint mobility execute technical elements maximum amplitude, held expressive, creating a feeling of ease and virtuosity, will soon learn the elements of great difficulty and can reveal elements and original binding.

## **BASIC USE EXERCISES IN GYMNASTICS**

By practicing basic gymnastics skills in children is formed to execute movements with different segments, the directions precise amplitude, with some speed and degree of muscle tension, with a proper dress. Means basic gymnastics can be systematized into three basic groups: the front and band exercises, drills and exercises applied by physical development.

Group exercises will present physical development are some exercises that help develop joint mobility]

### **Free ground exercises**

*Exercise 1:* P.I. - Stand with arms above:

- T1 - arms by rocking forward, backward, down;
- T2 - balancing up arms through before;
- T3 - lifting the left foot forward, hands under foot range;
- T4 - Return to starting position

*Exercise 2:*

P.I. Sitting:

- T1 - T2 - bent legs in squat with arch support;
- T3 - the extent of leg and torso bent forward;
- T4 - side step to the left by bending the trunk forward, arms above.

*Exercise 3:* P.I. - Sitting

- T1 - bending their knees and twisting the twisting torso left to right;
- T2 - return to its original position;
- T3 - side step to the left and torso bending forward with arms wider;
- T4 - recover

*Exercise 4:* P.I. - Stand with arms above:

- T1 - Side step with left leg and torso bending to 45 degrees;
- T2 - trunk bending to 90 degrees;
- T3 - bending the trunk forward and reach the ground with their hands;
- T4 - Return to starting position.

*Exercise 5:* P.I. - Place hands back on the ground supported:

- T1 - lying back support lifting the basin;
- T2 - raising his left leg bent at the knee;
- T3 - 90 degrees back in bed back support;
- T4 - Return to starting position.

*Exercise 6:* IP - Lying back with your knees slightly bent and arms obliquely above:

- T1 - T2 - lifting the pelvis and right foot on the ground;
- T3 - the arch of his right leg to the chest;
- T4 - recovery.

### **Fixed-scale exercises**

*Exercise 7:* IP - Stand on one leg, the other stretched out before resting on a strip above the hips, arms sideways.

- T1-T2 - trunk bending forward on foot supported by carrying arms back up by forward bias;

- T3 - trunk extension with head left back;

- T4 - recovery.

*Exercise 8:* IP - Sitting hands with feet supported by a fixed scale:

- T1 - knees bent under a hanging strip peaks;

- T2 - T3 - knee scope and pushing apart basin, running a marked extension, head up, a position that can run arch repeated knee bending and scope;

- T4 - recovery.

*Exercise 9:* PI - Standing rib left foot resting on the hip scale height, arms up:

- T1 - bending the trunk to leg twisted up;

- T2 - return to its original position;

- T3 - bending forward;

- T4 - Return to starting position;

- T5 - T8 - ditto to the opposite side.

### **Gymnastic Exercises in goat ling**

*Exercise 10:* IP - Lying back, shoulder blades off the surface of the support arms up with palms resting on the ground

- T1 - lifting the chest basin, with the passage of body weight on the arms;

- T2 - return.

*Exercise 11:* PI - Lying face on the chest, upper arms:

- T1 - T3 - rocking back and forth right foot so that the balance before descending below it;

- T4 – recovery

### **Exercise rings**

*Exercise 12:* PI - hung standing, arms folded:

- T1 - the extent of allowing arms and head in extension with tails attached ground, looking upwards;

- T2 - T4 - elk basin and execution of rotation describing circles around point of support - foot peaks. Rotation in both runs directions. This exercise works on the spine and shoulders.

*Exercise 13:* PI - hung standing, grabbed the rope above the ring:

- T1 - knees bent and feet by placing rings;

- T2 - and turning away and moving rings out in the "nest" with head left back.

### **Exercises with partner**

*Exercise 14:* IP - Sitting near the back face, the hands started:

- T1 - partner of runs to lunge forward on one leg and his other arms raised above;
- T2 - return.

*Exercise 15:* IP - Staying away, back to back, legs slightly bent will partner with fixed seating basin as executor, grasping her under the armpits, made off with arms up standing:

- T1 - raising performer on the ground floor extension to extension partner behind;
- T2 - T3 - a vigorous stretching legs, executing feet away and running string overthrow anterior posterior back by sitting on their hands;

*Exercise 16:* IP - Stand on left leg, right side to partner leg large, it takes the ankle sustained, side arms, back straight, eyes ahead:

- T1 - T4 - bending and stretching of leg basic alternatives, while raising the leg supported by partner.

*Exercise 17:* IP - executed, sitting away with knees bent, feet resting on the ground, arms up, grabbed hands with a partner who is behind them:

- T1 - T2 - lifting the knees and pressing the extent of standing by the pool before top, trunk and head in extension;
- T3 - T4 - back in the same way.

### **Gymnastic Exercises stick**

*Exercise 18:* IP - Standing shoulder width grabbed the stick:

- T1 - before lifting arms;
- T2 - lowering arms;
- T3 - lifting the edges with raising arms above the prior;
- T4 - lowering arm) or in initial position.

*Exercise 19:* IP - Sitting with your body started to stick behind shoulder width:

- T1 - trunk bending forward with arms lifted back;
- T2 - trunk bent forward;
- T3 - return to standing with torso bent;
- T4 - Return to starting position.

*Exercise 20:* IP - slightly bent sitting with your knees, arms up, grabbed the baton to shoulder width:

- T1 - Side step left, bending the trunk forward;
- T2 - trunk bending forward, arms up;
- T3 - torso bent forward near the feet;
- T4 - Return to starting position.

## EXERCISES FROM AEROBICS

Aerobics is a sport distinct directed internationally IAF (International Aerobic Federation), recognized by the International Olympic Committee. The components are chosen from gymnastics, acrobatics and dance, and presented on a background of modern music, entertaining. Movement and music merge into one.

Limits (boundaries) passive mobility can be achieved by active mobility able to provide triplets: raising (opening) - maintenance (fix) - closing segment in the desired position. This objective can be achieved by: Balance and bowing - running in different planes with arms, feet and torso watching bad gradual increase range of motion. Represents the active movements performed by force antagonists, making inertia

a) Arch and maintenance (ballistic AND HOLD) - are repetitions 3-4 or a movement to stop the segment in the extreme position for six seconds.

b) Passive stretching and maintenance (LIABILITIES AND HOLD LIFT) - up bad segment with partners to maintain its extreme position and six seconds using isometric contraction passive stretches followed by fixation were active during one minute and repeat every six seconds.

c) Prolonged Stretching (VROLONGED STRETCH) - muscle stretching side with their partner to the extreme position, is maintained for one minute without pain threshold is reached.

The word "Stretching" stands for "Stretch" which in English means Stretch.

Stretching method can be defined as a system of exercises that involve maintaining a certain position of a segment for a short period to the extent of muscle and gradually prepare him for a specific effort that will be submitted.

Stretching should be done slowly and without strain - of course after warming the muscles is best - to stretch the muscles as much as possible to maximize their flexibility.

This method of stretching muscles and joints mobile forces, slowly stretch the body parts synchronized breathing calm. Properly executed, the scope is very efficient and not unnecessarily loaded muscles.

Stretching can be executed at lower ages and to adults. He is one method that dramatically limits the stretching of muscles and joints, muscles and develops strength and endurance to maintain elasticity.

Stretching exercises ownership is made easy. Some are run with a partner, and others using balls, cases of exercise, fixed scale, goat. Many exercises can be done freely, without auxiliary devices. During execution of exercises, breathing is driven - voluntarily - to remain slow, deep and continuous in all three phases of movements specific to this method: static contraction, total relaxation and muscle tension.

e) Active proprioceptive neuromuscular training - Zuar motion is carried active for 6 seconds, followed by a maximum Isometric contraction against the resistance of antagonist muscles. Movements are repeated every 6 seconds.

f) Passive proprioceptive neuromuscular training - to be driven joint is in extreme position taken by partner within six seconds. Isometric contraction of antagonist muscles below the resistance against the partner. Passive stretches and contractions are repeated every six seconds for a minute.

g) Relaxation method (RELAXION method) - with partner runs a passive stretching to the extreme position that is maintained for one minute, while relaxing by the executor of self.

## CONCLUSIONS

The driving quality evolves inversely with age, leading to gradual loss of mobility limitation of range of motion. That is why it is so necessary that the driving quality, mobility, yet to be developed in very young children are more flexible and more attracted to certain exercises and driving games (sports).

Applying a series of exercises, from those presented in the paper, the physical education classes was seen as the students executed a lesson to other exercises easier, better, more expressive what led me to believe that their mobility has improved its developed. Even during the hours of Romanian language, mathematics, drawing, practical skills, etc. before moving on to write or to use certain materials so I resorted to conducting exercises to promote mobility in the joints of the hand and fingers to get best results

Practicing any sport industry requires good mobility of the athlete. There can be a good gymnast, athlete, basketball, handball, football, swimming, etc. without a good mobility, well developed

Here's what the exercises presented in the paper are very important in developing mobility, driving quality that is present in any act motive.

Driving quality improvement and will be one of the main objectives of the process of school physical education. Today, they require an outstanding need and are one of the main purposes and process of physical education. Developing motor qualities and therefore should be mobility heart specialist teachers need to consider practical value as applied to them and need to harmonize the objectives and outcomes in physical education lessons with the requirements of social activity.

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## **DEVELOPMENT OF PSYCHOMOTOR APTITUDE–THE COORDINATION-BY EXERCISES SPECIALLY CREATED WITHIN THE FRAMEWORK OF THE BASKETBALL DISCIPLINE IN THE 5<sup>th</sup> AND 6<sup>th</sup> FORM PUPILS**

**PAȘCAN ADRIAN, PAȘCAN IOAN<sup>1</sup>**

**SUMMARY.** This paper presents a pragmatic strategy with the view of optimizing the means of coordination development within the framework of the physical education class having as a theme the basketball. It was preponderantly pursued the selection, creation and implementation of some creative exercises elaborated by the teacher together with the pupils, with the view of developing the psychomotor aptitude - the coordination. To check this hypothesis it was organized an experimental study performed on a group of subjects (N = 106 pupils) in the 5<sup>th</sup> and 6<sup>th</sup> forms in a Cluj-Napoca school. The subjects participated in two trials for establishing the coordination level; after this stage, the creative exercises were applied to the experimental group, only. At the end of the experimental study we used the same data collecting means in both groups registering the achieved progress.

**Key words:** psycho-motor aptitude, coordination, creativity, creative exercises

**REZUMAT. Dezvoltarea aptitudinii psihomotrice - coordonarea - prin exerciții special create, în cadrul disciplinei baschet, clasele V-VI.**

Lucrarea de față evidențiază o strategie pragmatică în vederea optimizării mijloacelor pentru dezvoltarea coordonării în cadrul lecției de educație fizică cu tematică din jocul de baschet. S-a urmărit cu precădere selectarea, crearea și aplicarea unor exerciții creative, elaborate de către cadrul didactic împreună cu elevii, în vederea dezvoltării aptitudinii psihomotrice - coordonarea. Pentru verificarea ipotezei s-a organizat un experiment de constatare cu un eșantion de subiecți (N = 106 elevi) din ciclul gimnazial la o unitate școlară din Cluj-Napoca. Subiecții cercetării au fost supuși la două teste în vederea stabilirii nivelului coordonării, urmând apoi aplicarea exercițiilor creative doar lotului experimental. La final, aceleași baterii de teste au fost aplicate ambelor loturi, urmărindu-se progresul realizat.

**Cuvinte cheie:** aptitudine psiho-motrică, coordonare, creativitate, exerciții creative.

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## Introduction

The motor coordination is considered to be an improvable psychomotor aptitude especially during the childhood, when the neuro-physiological activity can be enhanced with the view of mitigating the individual-environment relationship.

*„This is based on a cooperation of the central nervous system with the locomotor system with aimed at developing the mentioned relationships” (8, 1999, p.92).*

It is well-known that the basketball by its complexity requires from its performers a high level of coordination, both segmentary and general.

Previously to the creation and implementation of coordinating exercises the pupils in the experimental groups were shown the procedures and strategic activities to be acquired or strengthened during the school year, as well as the significance of general and segmentary coordination necessary to succeeding in these activities.

We took the following steps in coordinating exercises creation and implementation:

- warm-up exercises performed individually or frontally (using the basketball);
- basketball exercises performed individually (standing or moving), with a ball, then with two balls, with or without dribbling;
- pair or in group exercises (with one, two or several balls);
- relay race and applied route;

In order to comply with the principle of accessibility we applied the following methodical procedures:

- exercises performed on the same level- standing and moving;
- exercises performed on different levels and directions.

After presentation and demonstration of several exercises (created by us) pupils were divided into various working groups (line, rows, pairs) and stimulated to create similar exercises starting from the initial position previously shown, or from other positions. Within the first two or three weeks, during each class pupils in the experimental groups had about six minutes to create exercises; subsequently, each group or pair have shown one or two exercise variants, the most significant being performed frontally, on groups, or even individually, depending on exercise complexity.

### Work hypothesis

We take into consideration the fact that by applying a suitable strategy within the framework of basketball discipline, the 5<sup>th</sup> and 6<sup>th</sup> form pupils can create exercises specific to improving the psychomotor aptitude- the coordination.

### Research goal

Creating an optimum and efficient number of specific exercises, especially creative ones, needed to the psychomotor aptitude development.

### Subjects

The subjects selected for this experimental study were the 5<sup>th</sup> and 6<sup>th</sup> form pupils from “ Nicolae Titulescu” School in Cluj- Napoca.

The participating group consisted of 106 pupils- 52 girls and 54 boys- equally distributed in experimental and control groups. (Table 1)

**Table 1**

Form	Boys		Girls		Total
	Experimental group	Control group	Experimental group	Control group	
Vth	14	14	14	14	56
VIth	13	13	12	12	50
Total	27	27	26	26	106

The experimental groups consisted of pupils in the 5<sup>th</sup> A and 6<sup>th</sup> B forms, and the control groups of pupils in the 5<sup>th</sup> B and 6<sup>th</sup> A forms.

The pupils' age range- between 11 and 12 years old- is specific to the two forms.

### Material and methods

In our research study we applied control tests accessible to the teachers in the realm, with no need for equipment or special conditions.

The control tests were as follows:

#### *1. Passes in numerical order*

On the wall is drawn a rectangle at 1 m height above the floor, which is divided into 9 squares of 33/33 cm; the squares are given a number (1 to 8), the middle square remaining void. The performer stands near a 2.5 m distance

line from the wall, which cannot be overpassed. By passing the ball, with the two hands on their chest, they had to get each square in numerical order. If one of the competitors fails he will resume the execution in terms of a timing registration until he catches the ball rebounded from the last square. The obtained score is expressed in seconds.

## *2. „Hexagon” coordinating & dynamic balance test*

This test is taken from trials performed in tennis players in USA. It affords to assess agility, force, dynamism and rapidity.

It is drawn a hexagon with a side of 50 cm (angles of 120°). The performer stands in the middle of hexagon and at the command „start” he executes a jump outside the hexagon coming back into the center. The jumps are continued over the next sides of hexagon (rotation to the right, or to the left) until three complete rotations are performed. It is measured the time necessary to the jumps. For any touch of the drawn lines is applied a penalty of 0.5 seconds.

## **Research development**

The experimental study was carried out under natural conditions within the framework of physical education classes with basketball thematic, abiding by the school year structure (on semesters), according to the proposed work hypothesis.

The experimental study was done within February- April period in the 2009 – 2010 school year. It must be emphasized that we did not interfere with the calendar plans content and objectives elaborated by the teaching staff of the forms under study.

In experimental forms we focussed on the 2<sup>nd</sup> and 3<sup>rd</sup> links with specific exercises, insisting on the warm-up direction, on solving themes and operational objectives established for the respective class. With this view, 5-6 minutes were devoted to each class. In the fundamental part of the class (the 5<sup>th</sup> and 6<sup>th</sup> link), we dealt with both exercises creation and implementation for coordination optimization, about 7-8 minutes, and with the learning of some new technique and strategic elements, or with the strengthening of those already known ( 8 - 9 minutes).

On the other hand, in control forms no special attention was given to specific exercises creation and implementation, neither during the organism's effort training and selective influence of the locomotion system (the 2<sup>nd</sup> and 3<sup>rd</sup> links), nor in the fundamental part of the class. In this control groups we

approached directly the learning of the technical and strategic procedures, in conformity with the curriculum established for each form level.

During the research development we focussed on subjects' actives, with special emphasis placed on the creation of some suitable exercises and on finding their applicability.

By practicing the above methodology in the experimental groups we focussed on the research goal achievement, and on ascertainment of the presented hypothesis. We approached these groups with the view of creating an optimum and efficient outcome of specific exercises, mainly of the creative ones, which are necessary to the psycho- motor aptitudes. We think these aptitudes do facilitate the technical procedures learning, as well as their possibility of application on various multiple situation.

Below are presented the exercises created and implemented by experimental forms.

1. Standing, the ball in front of the body: Rising laterally the left leg and the hands upside forwards - 4 X

2. Standing, the ball in front of the body: Bringing the ball upside forward, simultaneously with alternative de balance movements of the left leg, then of the right one - 4 X

3. Standing, the ball in front of the body: Stationary jumps, with synchronized movements of hands and legs - 6 X

4. Standing, the ball in front of the body: Stationary leaping step, alternatively, starting with the left leg, with ball swinging through upside forward - 8 X

5. Standing, the ball in front of the body:

T1 – lateral step with the left leg, ball rising forward;

T2 – nearness of the right leg to the left one, ball uprising;

T3 – lateral step with the right leg, forward descent of the hands; 4x

T4 – nearness of the left leg to the right one, and return

6. Standing, the ball in front of the body:

T1 – spread jump, hands uprising forward;

T2 – standing jump with upside rising of hands; 4x

T3 – spread jump, descent forward of hands;

T4 – standing jump, hands descent.

7. Standing, the ball between the ankles:

T1 – light jump vertically with the right hand forward, and laterally of the left one;

T2 – vertical jump and return to the initial position (I.P);

T3 – vertical jump with the left hand forward and the right one laterally;

T4 - vertical jump and return to I.P. 4x

8. Standing, the ball between the ankles:

T1 – light jump forwards with the hands forwards;

T2 – light jump backwards with the lateral spread of the hands; 6x

T3 – light jump forwards with the nearness of the hands forwards;

T4 – return to I. P.

9. Standing, the ball between the ankles:

T1 – light jump laterally leftwards, with the hands laterally;

T2 – light jump laterally rightwards, with the hands rising upside; 4x

T3 – light jump laterally rightwards, with the forward descent of the hands;

T4 – lateral leftwards jump and return to I.P.

10. Standing, the ball on the chest:

T1 – ball throwing upside – the left hand forward and the right one laterally;

T2 – catching the ball and return to I.P.

T3 – ball throwing vertically –the left hand laterally and the right one forwards

T4 – catching the ball and return to I.P. 6x

11. Standing, the ball in front of the body:

T1 – ball rotation around the hip – lateral step with the right leg;

T2 – ball rotation around the hip and return to I.P.; 4x

T3 – ball rotation around the hip, lateral step with the left leg;

T4 – return to I.P.

12. Standing: Ball rotation by pole' avoidance, the free hand will be directed forwards, laterally upside. – 2x

13. Standing: Ball rotation with one hand, the other hand directed laterally, on the signal- ball rotation with the other hand, moving with the back forwards, the free hand directed laterally -2x

14. Standing: Standing dribbling with one hand, with the other one it is drawn on the ground with chalk a figurine, a ball, etc.

↳ Variants: The initial position may differ: standing, sitting, laying down, on knees. 3min.

15. Spread standing:

T1 – hitting the basketball on the ground – palm-to-palm hit forwards – ball catching;

T2 – hitting the basketball on the ground – hands rising laterally with clapping – ball catching;

T3 -hitting the basketball on the ground – back clapping – ball catching;

T4 - hitting the basketball on the ground – two -time clapping forwards –ball catching. 4x

16. Standing, the ball in front of the body:

A large square is drawn on the wall, which is divided into 9 tiny squares, numbered, and passes in numerical order are executed.

↳ Variants: - wall passes only with even or uneven numbers;  
- wall passes from various positions; 3x  
- wall passes in growing order.

17. Standing: Dribbling with passes over and under the obstacles

19. Spread standing, the ball in front of the body: Ball passing from the frontside beneath the legs, 180°jump – ball catching (after the jump the landing may be performed on both legs, or on a single leg). 6x

20. Standing, with two balls in the palm: Dribbling with two balls, at one time no more dribbling with the left hand; with the right hand, hitting the ball on the ground, avoids the non- dribbling ball (if possible, the continuation of the exercise avoiding the non-dribbling ball to stop on the ground) - 2 min

21. Standing, with two balls in the palms: Simultaneous dribbling with two balls; rapid dribbling with the right hand, and a slow one with the left hand (then, interchange). -2min

22. Standing, knees slightly bent, the ball in front of the body: It is drawn a square on the wall, which is divided into four squares numbered 1 to 4. The pupil will pass on the wall, and then will execute a slight move to the ball; the landing depends on the hit number. For instance: if the figure 1 is hit he will land on the two legs, if the figure 2 will be hit he will land with

the right leg slightly oriented forwards; at figure 3 the left leg will be forward, and at figure 4 the landing will be on one leg.

↳ Variant: pupils are distributed on pairs. He who has the ball hits the wall, and the other one (standing behind him) will speak out a figure; the landing will depend on it.

23. Standing on pairs, face- to -face, at a 2.5 m distance: Passes are executed according to a theme: if the pass is sent directly to the chest, the receiver is obliged to move his right leg laterally in the moment of the ball catching; if the ball hits the ground the left leg is moved laterally - 3min

24. Standing on pairs, face- to -face, at a 2.5 m distance: Passes are executed according to a theme – the pass is preceded by a rapid rotation of the ball around the hip towards the rightside or the leftside, depending on the partner's passing technique (with the flour, or direct pass). - 3min

25. Standing on pairs face-to-face, one under the basket and the other one at a 3 m distance from the basket: The pupil under the basket throws the ball to his partner and speaks out a number. At figure „1” he who receives the ball will throw it to the hooped net preceded by the ball catching with a stop on one timing, and at figure „2” he will throw preceded by a two time stop. - 4min

26. Standing, the ball in front of the body: High-speed dribbling towards landmark. If the teacher will not whistle the pupil with the ball will avoid the landmark and will go to finalize the exercise by throwing the ball into the hopped net. If the pupil hears the teacher's whistle he will make a changing of direction with dribbling in front of the landmark and will keep going with the dribbling towards the basket with finalization. – 4x

27. Spread standing, on pairs, back-to-back: Speedy ball handing between the legs, over the head, laterally rightwards or leftwards, with the obligation of the ball receiver to send it back by a procedure different from that of getting it. - 2 min

28. Standing back-to-back, one of them has the ball, who at their turn have in front of them at a 2.5 m distance one sender: The player in the middle, who has the ball gives it to the other one by a twisting procedure – turns back, receives the ball from the outside partner and returns it. The middle player, who has received the ball by handing will pass with those in front of him (i.e. passes to each other with two balls). The passing techniques will be previously established, both between the middle players, and between them and the outsiders. -3 min

29. Standing, the ball in front of the body: Relay race with the ball transportation in one hand, the other hand oriented towards various positions.

↳ Variants: - with dribbling, the non-dribbling hand oriented towards various positions

- with two balls: one hand is dribbling, the other one keeps the ball laterally;  
- one- ball dribbling, other ball leading with the leg, etc.

## Results & discussion

### The “Pass Test”

In boy's groups the arithmetic mean reveals significant progress from the T1 (initial test) to T2 (final test) in the whole subjects of the experimental group. This progress is also obvious in the control group, mainly in the 6<sup>th</sup> form pupils.

The coefficient of variation presents at T1 a reduced homogeneity in the whole experimental group; however, at the final test the results registered in all forms show an increase of mean homogeneity.

In girls the progress registered at the arithmetic means are neatly superior in the experimental groups, and the coefficient of variation is around the mean values both in T1 and in T2 tests.

**Table 2.**

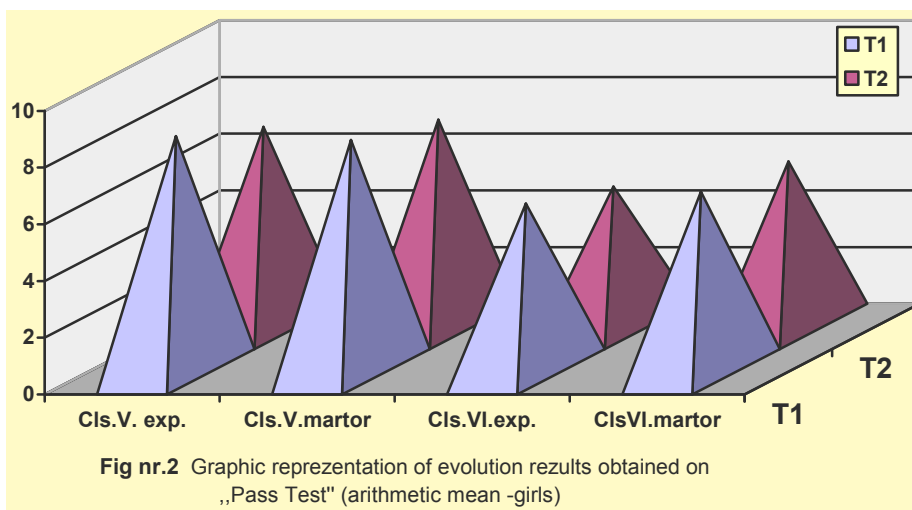
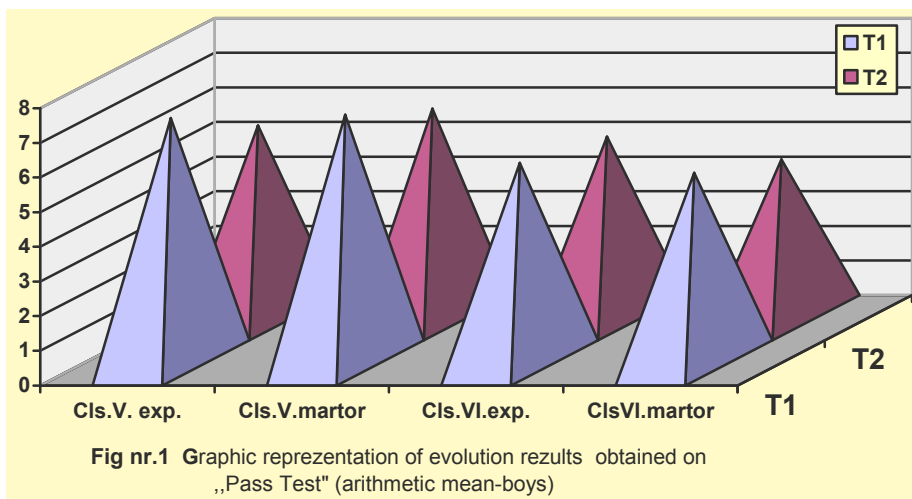
**Statistical indicators regarding the "PASS TEST" (boys)**

Class	Experimental group						Control group					
	X		A.S.		C.V.		MEDIA		A.S.		C.V.	
	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
V	7,064	5,55	1,6778	0,8732	23,76	15,73	7,171	6,035	1,7363	0,9669	24,21	16,03
VI	5,771	5,228	1,3084	1,1159	22,66	19,83	5,485	4,578	1,262	0,74	23,02	16,19

**Table 3.**

**Statistical indicators regarding the "PASS TEST" (girls)**

Class	Experimental group						Control group					
	Media		A.S.		C.V.		MEDIA		A.S.		C.V.	
	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
V	8,314	7,042	1,5592	0,7078	18,75	10,05	8,178	7,3	1,2387	0,7091	15,16	9,71
VI	5,935	4,928	0,752	0,713	12,68	14,49	6,35	5,821	0,968	0,655	15,24	11,25



### The „Hexagon” test

The arithmetic mean (boys) registered progress in all forms from T1 to T2, showing greater values in experimental forms (Table 4).

The coefficient of variation presents a great homogeneity in all experimental forms.

In girls the trend of the arithmetic mean is similar being neatly superior to the experimental class, and similarly, the coefficient of variation has increased values in all forms.

**Table 4.**

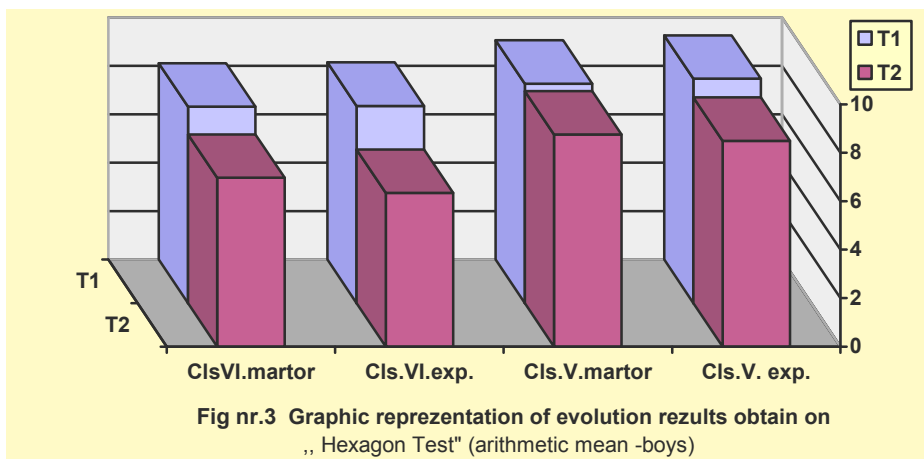
**Statistical indicators regarding the "HEXAGON TEST" (boys)**

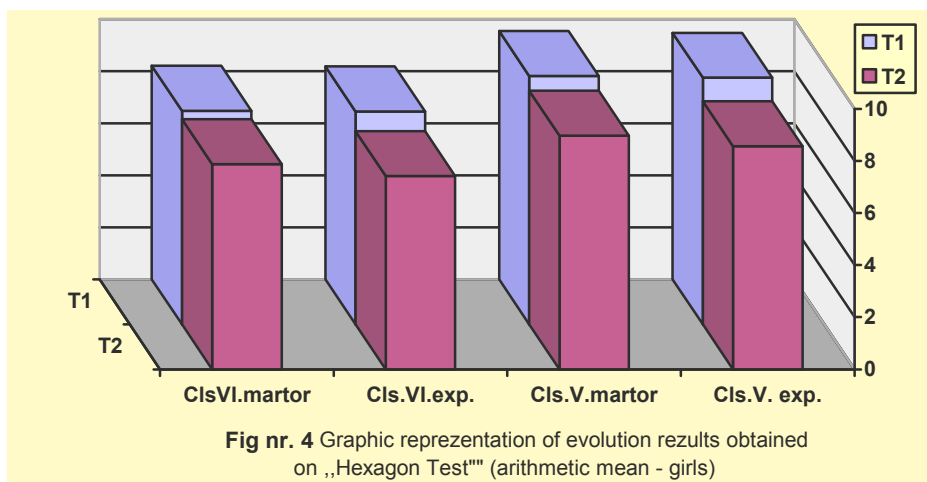
Clasa	Experimental group						Control group					
	X		A.S.		C.V.		MEDIA		A.S.		C.V.	
	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
V	9,257	8,492	0,8501	0,4061	9,19	4,78	9,057	8,75	0,7659	0,5666	8,46	6,47
VI	8,142	6,342	0,554	0,469	6,8	6,38	8,107	6,964	0,4788	0,5513	5,91	7,92

**Table 5.**

**Statistical indicators regarding the "HEXAGON TEST" (girls)**

Clasa	Experimental group						Control group					
	Media		A.S.		C.V.		MEDIA		A.S.		C.V.	
	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
V	9,471	8,564	0,7805	0,4385	8,23	5,12	9,535	8,971	0,7084	0,6529	7,43	7,27
VI	8,178	7,421	0,476	0,684	5,82	9,21	8,2	7,878	0,508	0,507	6,19	6,44





## Conclusion

1. On the basis of the obtained data we can ascertain that the exercises created and implemented in the experimental forms are effective, contributing to the coordination improvement.

2. The statistical analysis of data registered at the final tests revealed that the values obtained in the experimental groups are higher as compared to the control groups.

3. The non-significant values found in one test in some forms are due on one hand to a poorer level at the initial test in the experimental group, versus the control group, and on the other hand to the school middle-age specific particularities, as well as to the insufficient time devoted to the basketball discipline within the annual thematic plan.

4. The development of psycho-motor aptitudes contributes to the acceleration of technical elements learning specific to the basketball, which are included in school curriculum and also contributes to the development of the capacity of creating original, complex techniques.

5 The results of this pedagogic experiment demonstrated that the exercises used to the coordination development are efficient; accordingly, we recommend its implementation in the basketball discipline methodology pointing out the necessity of adapting and perhaps completing this experiment in accordance with pupils' age, the existing material base, and the instruction level.

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## THE DEVELOPMENT OF SPORT AS LEISURE. AN INTERDISCIPLINARY APPROACH

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**ABSTRACT.** Sport as leisure can be developed by switching from one individual and unorganized form by a super-organized, to accommodate the needs of mankind in generally. As a cultural being, the man is passing over time through the transformation from a biological product to one socio-cultural product. As meaning, the man can discover the cultural symbolic value of his body, a civilized beings by seeking of the beauty of body. Functions of sport as leisure are perhaps ephemeral, but as far as providing economic and technical activity, a social and aesthetic, the sport as leisure has to be regarded as a necessary utility. From the history of sports we can infer from the ancient spirit the eternal and creative spirit. Any sports in the free-time is involving many social interactions. Authority of the own bodies in the public space will be a rematch of the nineteenth and twentieth centuries. Sport is now a matter of elite.

**Keywords:** leisure, sport history, history of mentalities

**REZUMAT.** Sportul ca loisir poate fi dezvoltat prin trecerea de la o formă individuală și neorganizată către una super-organizată, care să țină seama de nevoile omenirii în general. Ca ființă culturală, omul parcurge de-a lungul timpului transformarea de la produs biologic la unul socio-cultural. Ca semnificație, omul poate descoperi în domeniul culturii valoarea simbolică a corpului său, a unei ființe civilizate prin căutarea frumuseții trupului. Funcțiile sportului ca loisir sunt, poate, efemere, dar în măsura în care asigură și o activitate tehnico-economică, una socială și estetică, sportul ca loisir trebuie privit drept o utilitate necesară. Din istoricul sportului putem deduce spiritul antic și etern, creator, augur de frumusețe. Orice sport în timpul liber implică o relație socială. Autoritatea propriului trup în spațiul public va fi o revanșă a secolelor XIX și XX. Sportul devine acum o chestiune de elită.

**Cuvinte cheie:** timp liber, istoria sportului, istoria mentalității.

Sport is a race specific activity, the competition with a dominant educational and recreational, commercial orientation and therefore must pass the professional background, as leisure and sport returns to core values:

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health, education, recreation. The idea of sports and leisure should be seen as an elite group as proposed by Pierre de Coubertin in 1900 into the "Sport for All." Sport as leisure is a form of education included in contemporary culture and civilization. If we intend to isolate methodological sport as leisure sport, when it relates to undifferentiated human community of economic, social, physical or age. In the context of leisure sport that everyone should be integrated. The Romanian area in 15 years as a leisure sport has become a necessity.

Perceived as a leisure sport insists on training of the trainers, they were forced to go beyond the types of the economic signals and understand the gradual change of culture. Physical activity in the third millennium has become a business first performance, on the other hand there is a need harmonious development of each person's body. Glorify Olympic spirit good order, social order, balance, glory. Present civilization whose leisure motto "Citius, Altius, Fortius" (faster, higher, stronger) the idea for self. Sport as leisure confirms the classical definition, anthropology of culture or civilization, which includes knowledge, belief, art, law, morals, customs and other capabilities and habits acquired by man as member of society. Sport, leisure perceived, suggests a French term understanding of physical activity as recreation, leisure. Physical activity in the third millennium has become an active part performance, and secondly there is a need harmonious development of the body. If we look at man as a cultural product, (*homo ludens*), not just a result of development thinking (*Homo sapiens*), and action to build objects (*Homo Faber*), we see that the idea of game play (*lus, ludi*) is a gateway to the civilized world.<sup>3</sup>

It was the idea that sport as leisure is a social activity, requires a material space, requires a sense of collective skill, provide recreational enjoyment. Sport as a leisure over the initiation rites of religious movements and creates an imaginary value that makes *homo sapiens* into *homo ludens*. Sporting values are part of nature, not beyond. The term "leisure" comes from the Latin "*licere*" and means "what is permitted". It represents a time that someone can use outside normal occupations. The term "leisure" in English has become an integration program in interdisciplinary human. The Romanian word comes from French "of leisure" which means "freedom", a time without restrictions, the allowed time. Sport as leisure is more than ever, a distinct intensity threshold and selective interference with lots signals propaganda, health.

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<sup>3</sup>Joan Huizinga, *Homo ludens*, Ed. Humanitas, București, 2007, p 35-37

Since ancient times there were attempts to define leisure. Thus Arsitotel Greek philosopher in "Politika" said that "we have work to leisure". The Greek society was a matter of recreation and entertainment activities that gave rise to the French called "leisure" in English "leisure." Rest time varies depending on the person and "three eight" (8 hours work, 8 hours of sleep, work professionally untenable 8:00) undergoes changes according to person. The practice of free time were defined only later as opposed to current practices and daily life required. The research, considered by some historians and non-priority too unusual but important changes decoded mental, cultural, social, religious spent historically, are those relating to the use time for entertainment, game, holiday and rest.

In the modern times, man is no longer considered any toy that the ancient gods or God's sublime creation in the Middle Ages, but was declared the species evolved. In the Middle Ages were adjusted terms, without being strict demarcation, game diversity is related to age and social diversity. State and medieval church assimilated game losing time, futility, evil and destructive passions. Biologists and psychologists concerned instinctual looking game, by analogy with some species of primates. Analysts sent the game to trigger, and philosophy often seen in the game and amusement specific form of expression "metaphysical animal", that man.<sup>4</sup>

At home, leisure comes from the Latin term "licere" designating, using the time outside of work itself. In late Middle Ages the term evokes the idea of availability and loss of time and have to associate the term Renaissance idea of life without constraints. Therefore, to treat leisure in the Middle Ages may seem a controversial topic. Only in the XVI century, will describe moments of freedom that is available outside regular employment. The industrial revolution required a different meaning leisure, that the whole work disconnected from social and professional obligations. Time horizons have become increasingly blurred, evoking personal appearance, eloberator, deznteresat, hedonistic, but also deployment, acquisition of new knowledge. Studying leisure has stuck mostly to concerns sociologists, who neglected depths of time in which rooted practices were perpetuated in the know. The social manners have highlighted specific (by age and social landing) of fun, play, festivism. But only in the twentieth century we can speak of creating a genuine civilization means of leisure. A history of leisure involves establishing links with historical forms of domination, the real and symbolic. We can say

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<sup>4</sup> Luc Ferry, Marcel Gauchet, *Le religieux apres la religion*, Ed. Grasset Fasquelle, 2004, p 11-12.

that time plays a strategic vision of the world and society, giving a specific historical era, a culture. Great historic eras were characterized by the specific ratio of the time and labor, and the differences in attitude were translated into lifestyles. Leisure meant that, opportunities and material resources, you could release labor to conduct political business. Paradoxically, leisure was called in Greek *scholē*. Unlike the sloth, which means the absence of an occupation, may mean your leisure in contemporary society, abundance of activities including exciting activities or burdensome. Transposed to the modern mentality during traditional free 's Criteria of leisure constringente Organization and efficiency of productive activities. One cause of this mimicry is that leisure has become the industry's some others. However, the new concept of using time frames of enterprises shows that the influence is not one-way: that you win or lose it, to have your time is one of the criteria for success. D. Hamene (DF)

Sport and culture - an essential component of life, movement and derived from it, exercise is really constitute a source of health, their advisory practice is in early childhood to old age. Originally made in the family, parental supervision, then the school level in physical education lessons or extracurricular sports activities, physical training of individuals is closely correlated with the intellectual training effectiveness is subject to hours of intense judicious alternation intellectual with the practical application, as exercise. Sure, it's pretty hard to distinguish the transition from sport as "really violent" in sports as "cultural value". Thus, the sport becomes a "human project done". Athlete strives to grow, to develop as a person, to create a lifestyle. During this process of creation sui generis sport is accessible to mobilize those elements which other events may not share their culture. Sport allows man to discover and develop cultural resorts which lie in itself. Sport is culture - the French philosopher Bernard Jeu support - as far as athlete's performance is created. Historical necessity attaching external constraints sport, athletic act seems to no longer got along well with creation. Sports culture includes a system of principles that help us find ourselves in amazing resources to exploit and so to discover the size of their cash in November. In this way, promote sports culture "forming an optimistic outlook by inspiration self-confidence in their ability to overcome moments of difficulty or performance, driving ability and creative work."

In the nineteenth century the great currents of thought were almost all against playful factor in social life. This century has seen the subtle and contradictory mix between private and public, between village and town. A 120

closer look reveals that subtle and ultimately abandoned playful elements characterizing the previous centuries to invent new ones. Such a phenomenon was compensating playful sport. Psycho-medical research began to justify the particular form of leisure entertainment, associating him a so-called major functions, which is to remove fatigue and free human personality of automatism of everyday thought and action.<sup>5</sup>

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<sup>5</sup> Al. Courbin, L'avenement des loisirs 1850-1914, Champs Flammarion, Paris, 1995, p.51



## STUDY OF THE DEVELOPMENT OF LOWER LIMBS MUSCULAR STRENGTH IN PERFORMANCE BODYBUILDING

POTOP VLADIMIR<sup>1</sup>, TOMA URICHIANU SANDA<sup>1</sup> &  
ULĂREANU MARIUS VIOREL<sup>1</sup>

**ABSTRACT.** The authors of this paper show the efficiency of using the methodic procedure for the development of lower limbs strength musculature by means of the giant sets in the performance bodybuilding. For this purpose, a study of case was conducted in the sports club “Tonik Fitness Club” of Bucharest. As we had not the possibility to select a group for the research, we opted for a case study with one subject only, 34 years old, who has practiced performance bodybuilding for 6 years. The study was carried out along a period of 3 months (March – May 2010), in three stages. During this study was used a program meant to develop the muscular strength of the lower limbs, through the application of the giant series methodic procedure; the verification of the training level in initial and final stages was made by means of control trials and tests. The results of the study highlight the efficiency of using the giant sets procedure during the workouts in order to develop the strength of the lower limbs musculature. As for the anthropometrical indicators measurements performed, one can notice an increase of the somatic indicators correlated with the growth of the muscular strength and body weight. In the final part of the paper we can draw the conclusion that an optimum correlation of the number of reps and the progressive increase of the effort load on each machine emphasizes the dynamics of the lower limbs muscular strength development throughout each series of exercises.

**Key words:** *bodybuilding, development, muscular strength, lower limbs*

**REZUMAT.** Studiu privind dezvoltarea forței musculaturii membrelor inferioare în culturism de performanță. În această lucrare, autorii prezintă eficiența folosirii procedurii metodic pentru dezvoltarea musculaturii membrelor inferioare prin serii gigant în culturismul de performanță. Pentru aceasta, am organizat un studiu de caz în cadrul clubului sportiv “Tonik Fitness Club” din București. Ne având posibilitatea selecționării unui grup de cercetare, am ales un studiu de caz cu un sigur subiect, în vârstă de 34 ani, care practică culturismul de performanță de 6 ani. Studiul s-a desfășurat pe o perioadă de 3 luni (martie – mai 2010), în trei etape. În cadrul studiului am folosit un program pentru dezvoltarea forței musculaturii membrelor inferioare, aplicând procedeu metodice prin serii gigant, iar pentru verificarea nivelului pregătirii în etapele inițială și finală am folosit probe și teste de control. Rezultatele studiului evidențiază eficiența folosirii procedurii prin serii gigant în cadrul antrenamentelor pentru dezvoltarea forței musculaturii membrelor inferioare. Privind măsurătoarea indicilor antropometrici testați,

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se constată o creștere a indicatorilor somatici, corelată cu creșterea forței musculare și a greutății corporale. În finalul lucrării putem concluziona că asigurarea unei corelări optime între numărul de repetări și îngreuierea progresivă a efortului la fiecare aparat evidențiază dinamica dezvoltării forței musculaturii membrelor inferioare în cadrul fiecărei serii de exerciții.

**Cuvinte cheie:** *culturism, dezvoltare, forța musculară, membre inferioare.*

## **Introduction**

The bodybuilding is the sports activity in which the athletes aim at developing a proportioned body and a musculature as massive and symmetrical as possible, but in the same type they try to reduce as much as possible the fat layer under the skin (Hîtru D., 2002).

Very important in a bodybuilder's training is also the nutrition that is required to serve a double purpose: to provide what is needed for increasing the muscle mass, but also for reducing the layer of fat (Voicu A.V., 1995).

**The purpose of the study** is to highlight the process of application of the methodical procedure „giant sets” meant to develop the lower limbs muscular strength.

**Study hypothesis.** We believe that an optimal correlation between the number of reps and the progressive increase of the effort on each machine will show the dynamics of the lower limbs muscles strength development within each training set.

In order to highlight the contents of the physical training intended for the development of the lower limbs musculature strength in bodybuilding, we have conducted a study of case within the Sports Club “Tonik Fitness Club” of Bucharest. As we had not the possibility to select a research group, we chose a case study with only one subject, 34 years old, who has been practicing the performance bodybuilding for six years.

## **Duration and stages of the study**

The study was conducted over a period of 3 months (March – May 2010), divided into three stages:

1. Initial stage (1-5.03.2010) - initial checking of the control trials and tests.
2. Fundamental stage (6.03.-15.05.2010) - application of the training program.
3. Final stage (16-21.05.2010) - final checking of the control trials and tests.

## Methods of research

- *Bibliographic study* - theoretical documentation of the paper;
- *Method of observation* – observation of the proper evolution along the workouts;
- *Experiment method* – method in which were confirmed or invalidated the study hypotheses.
- *Statistical-mathematical method* – it was used to calculate the main statistical indicators;
- *Plotting method* – it contributed to a more efficient interpretation of the study results.

## Control tests and trials applied:

1. Anthropometrical measurements: Height (cm); Weight (kg); Waist (cm): breathing in and breathing out; Perimeter of thighs (cm): right and left; Perimeter of shanks (cm): right and left.

2. Control trials for muscular strength:

- Squats at fixed bar, assessed by 8 reps, with a maximum weight used;
- Bar bell squats, assessed by 8 reps, with a maximum weight used;
- Pushing at 45° inclined bench press, assessed by 8 reps, with a maximum weight used;

## Contents of the training program

**Table 1.**

**Weekly training program. Period: 01.03.2009-21.05.2010**

Week No.	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1-12	U-t + abd + cardio 10 min	S-T+ abd.+ cardio 10 min.	Pause	Ti-abd.	P-B + abd. + cardio 10 min	Pause	Pause

LEGEND: S- back; t- trapezium; P- chest; U-shoulders; Ti-lower limbs; B-biceps; T-triceps.

## LOWER LIMBS – GIANT SETS:

The “Giant Sets” represent the methodical training procedure involving two or more different exercises performed without pause between them, for the same muscles group (Oprea, D., 2009).

The methodical procedure applied in the study by means of the “giant sets” has been formed of three exercises for thighs muscles development using: the Roman chair, the cable horizontal bench press and the 45° inclined bench press. THIGHS: Roman chair + Horizontal bench press + 45° inclined bench press

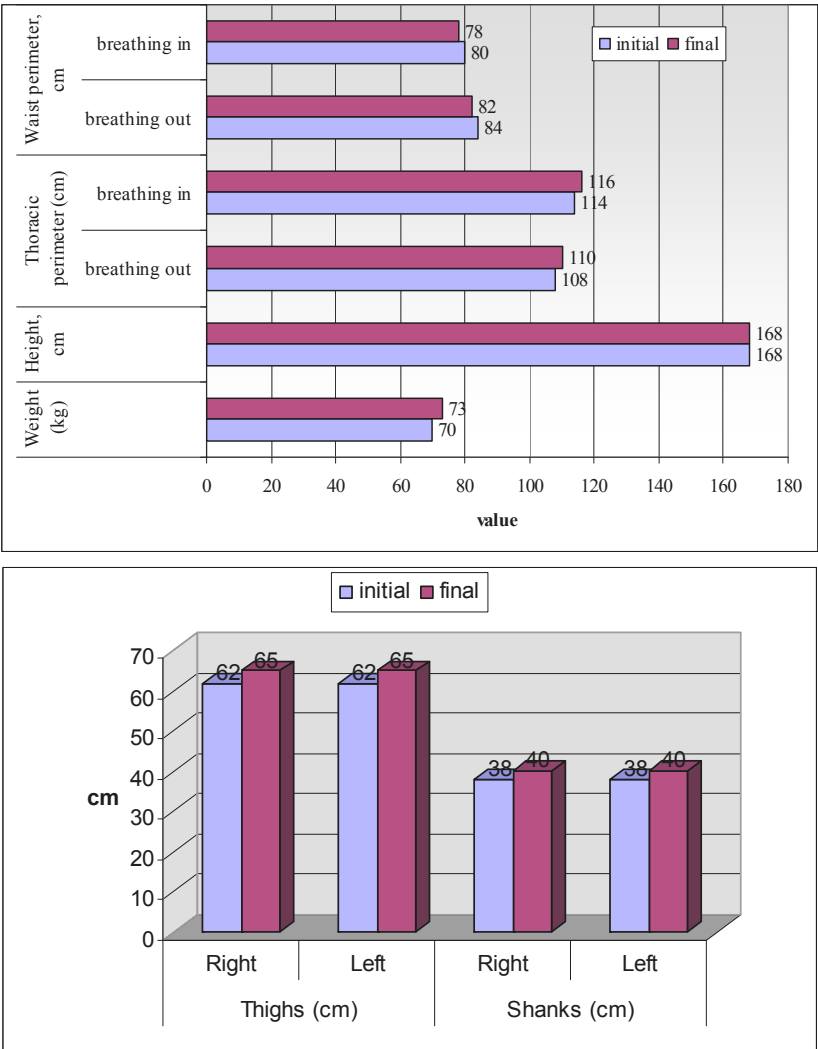


**Figure 1.** Exercises for thighs musculature development through „Giant” sets

1. Warm-up: 20x40kg + 20x40kg + 20x50kg:
  - Set I: 10x96kg + 25x56kg+20x100kg
  - Set II: 10x120kg + 25x64kg + 40x150kg
  - Set III: 10x160kg + 25x80kg + 60x200kg
  - Set IV: 6x190kg + 25x40kg + 80x250kg
2. Lunges with dumbbells:
  - Set I: 15m 25kg
  - Set II: 30m 20kg
  - Set III: 45m 15kg
  - Set IV: 60m 10kg
3. Shanks - inclined bench press: foot flexions –stretches at the 45° inclined bench press edge:
  - 4 series: 20x250kg

Results of the study

In graphs no.1 and 2 are displayed the results of the anthropometrical measures evaluated at the beginning and the end of the study, highlighting the influence of the exercises for the development of the lower limbs strength by means of “Giant” sets.



Graphs 1 and 2. Results of anthropometrical measures

**Table 2.**

**Control trials applied**

Tests	Semi-squats Fixed bar	Semi-squats Barbell	Pushing at 45° inclined bench press
	8 reps	8 reps	8 reps
Initial	160	150	380
Final	210	180	420
Statistical Indicators			
Mean	<b>185</b>	<b>165</b>	<b>400</b>
S.E.M.	25	15	20
S.D.	35.3	21.2	28.2
Variance	1250	450	800
Coef. Var.	0.19	0.12	0.07

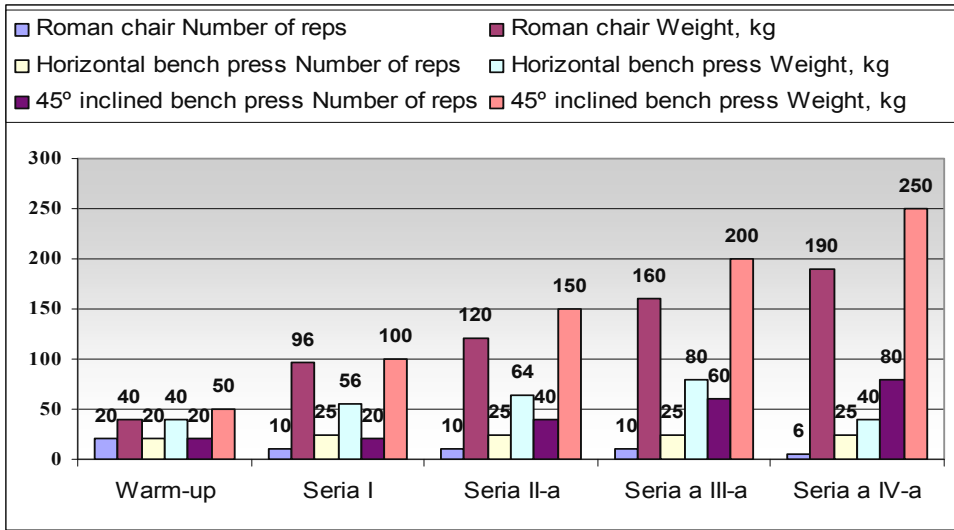
In table no.2 are listed the results regarding the lower limbs strength assessed by the execution of 8 reps at each trial: *fixed bar semi-squats, barbell semi-squats and 45° inclined bench press pushing*.

**Table 3.**

**Results of the muscular strength development through giant sets**

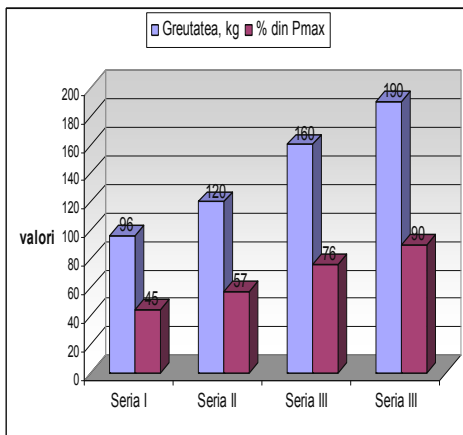
	Roman chair		Horizontal bench press		45° inclined bench press	
	Number of reps	Weight, kg	Number of reps	Weight, kg	Number of reps	Weight, kg
Warm-up	20	40	20	40	20	50
Set I	10	96	25	56	20	100
Set II	10	120	25	64	40	150
Set III	10	160	25	80	60	200
Set IV	6	190	25	40	80	250
Statistical Indicators						
Mean	11.2	121.2	24	56	44	150
S.E.M.	2.33	25.9	1	7.58	11.6	36.4
S.D.	5.21	58.1	2.236	16.9	26.07	79.1
Variance	27.2	3367.2	5	288	680	6250
Coef. Var.	0.46	0.47	0.09	0.3	0.59	0.527
Non-parametric test multiple comparisons	X1	X2	X3	X4	X5	X6
X1		-2.643 NS (P>0,05)	-2.629 NS (P>0,05)	-2.651 NS (P>0,05)	-2.462 NS (P>0,05)	-2.643 NS (P>0,05)
X2	0.087		3.694 NS (P>0,05)	1.795 NS (P>0,05)	2.102 NS (P>0,05)	-0,731 NS (P>0,05)
X3	0.09	0.076		-2.703 NS (P>0,05)	-0.764 NS (P>0,05)	-2.694 NS (P>0,05)
X4	0.085	0.467	0.074		0.851 NS (P>0,05)	-1.991 NS (P>0,05)
X5	0.135	0.282	0.973	0.957		-2.2 NS (P>0,05)
X6	0.087	0.978	0.076	0.347	0.237	

Table no.3 and graph no.3 show clearly the dynamics of the lower limbs musculature strength regarding the reps number consistent with the progressive increase of the effort load from one set to another within the giant sets procedure.

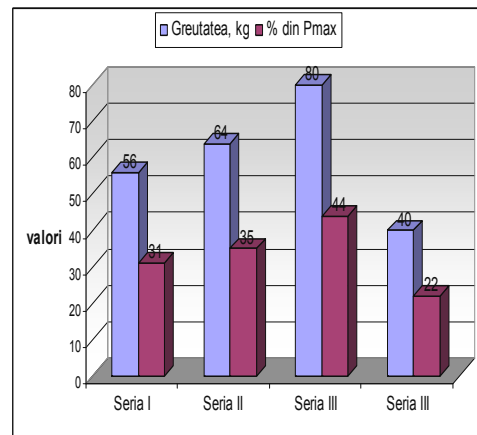


**Graph 3.** Results of muscular strength development by giant sets

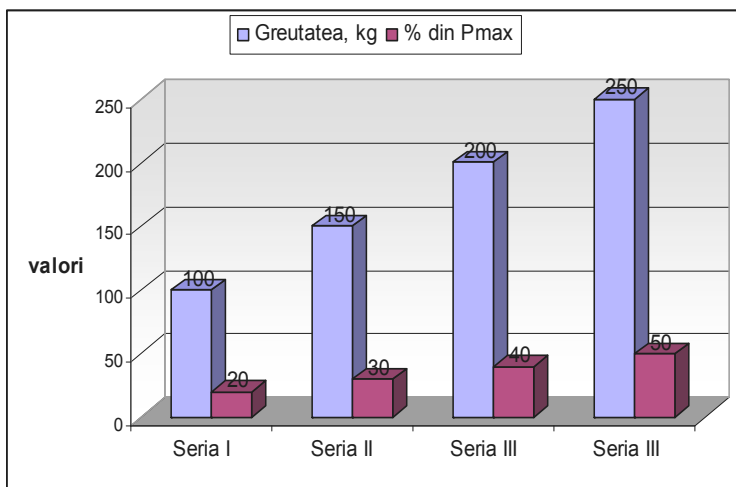
In order to highlight the practical applicability of the methodical procedure for developing the lower limbs muscles by giant sets, we turned the survey results into percentages, related to the maximum power of the effort load (Graph no.4, 5 and 6).



**Graph 4.** Roman chair



**Graph 5.** Horizontal bench press



**Graph 6.** *45° inclined bench press*

- **Roman chair:** the maximum power (MP) is 210 kg; 10 reps per set were performed by increasing the effort load by a rate of progress with a range of 12-19%.

- **Horizontal bench press:** calculation and representation in percentages of the effort load on each machine: the maximum power (MP) at the horizontal bench press would be **180kg**, the machine having 120kg as maximum load; 25 reps were performed per each set, rate of progress 4-9% and 22% return.

- **45° inclined bench press:** the maximum power (MP) is 500kg; 20-40 – 60 - 80 reps per set were performed by increasing the effort load with a rate of progress of 10%.

## Conclusions

One of the main factors influencing the growth of the performance capacity in bodybuilding refers to the workouts. This is because every bodybuilder should use an individualized methodology during his workouts, taking into account the training level, the period and also the methodical procedure used.

The results of the study emphasize the efficiency of the giant sets procedure utilization during the workouts meant to develop the lower limbs musculature strength.

As for the anthropometrical measurements tested, it was found out an increase of the somatic indicators correlated with the muscular strength and the body weight growth.

In the end we can conclude that an optimum correlation of the number of reps and the progressive increase of the effort load on each machine emphasizes the dynamics of the lower limbs muscular strength development throughout each series of exercises.

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## STUDY ABOUT THE RELATIONSHIP BETWEEN PHYSICAL ACTIVITY AND QUALITY OF LIFE IN DIFFERENT ROMANIAN

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**ABSTRACT.** Investigations relating to public participation in physical activities in line with the quality of life in different geographical environments are important in several aspects. Depending on geographical area, the report rural - urban, it establishes a series of features that define both the terms bio-psycho-motor development and the socio-cultural and economic components of the Romanian populations.

Upon entry into the European Union, the socio-economic lifestyle of young people has suffered and will suffer many changes which will have repercussions on their health and quality of life. Participation of population in a systematic, single or not, physical activity reflects the standard of living particularly in each country. The more a country is able to engage, successfully and in a perfect symbiosis with physical activity, various fields, the scientific, the statistical data concerning population health gains greater significance.

Poor material bases, lack of modern sports facilities, healthy mentality of the population, the living standards, under EU countries, are a serious handicap in the way of Romania's citizen's participation in sports activities.

In Romania, due to various forms of relief, we find different living environments, according to some specific landforms. Therefore, as an adaptation response, people have shaped the living arrangements. In this way each geographical area has outlined a typical life, particularly causing a certain behavior of its inhabitants, which is mirrored and the side that takes into account physical activity.

In our study we will try to show how much physical activities are mainly influenced by the quality of life in different living environments.

**Keywords:** Quality of life, physical activity, living environment, geographical areas, athletic performance.

Romania is a country with two different constitutive elements: urban and rural areas. The lifestyle in those two geographical areas is much more significant.

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As a way of live, the Romanian rural is different from the urban (Paști, V., Miroiu, M., Codiță, C., -1997). In Romania, due to various forms of relief, we find different living environments, in some specific landforms. Therefore, as an adaptation response, people have shaped the living arrangements. In this way each geographical area has outlined a typical life, particularly causing a certain behavior of its inhabitants, which also refer to the side that takes into account physical activity. Poor material bases, lack of modern sports facilities, were a serious handicap in the way of youth participation in an organized manner at physical activity. Leisure activities related to students in rural areas, one based on subsistence economy, are specific with congruent environment economic, social and geographical areas where they live. In rural areas in Romania, we find a certain type of physical activity that characterizes the lives of the people of our villages.

Almost 90% of Romania's territory is administratively controlled by rural settlements. Over 53% of Romanian villages are smaller, with a population under 500 inhabitants.

Regarding the rural youth's opportunities to participate in physical activity, we have observed three distinct aspects:

- The general level of economic development of the country, which highlights the degree of mechanization of labor from rural areas;
- Specific economic activities in the countryside;
- The physical settlements hearth.

Romania has a low level of economic development, which means that the potential of mechanization of agricultural work it is negative. After December 1989, Romania returned to private ownership of land, consisting of average holdings of 2.2 hectares divided into 10 to 15 parceling units.

Most agricultural works, particularly those related to maintenance of harvested crops, and the household, mainly involving the use of physical capacity of population. For comparison, in the Austrian mountain farming, the physical effort of the population for agricultural labor has only a share of 5% of the total effort by one person.

The specifics of activities in relation to major relief units it is different. Thus, in mountain areas, rural economy, oriented towards the dominant animal husbandry, requires great physical effort for mowing, harvesting and transporting the grass. This work is done only with human and animal power.

Due to the abandonment of mechanical labors, much of the lands are derelict. Abandonment of arable land (a large portion of the surface) betrays a return to subsistence agriculture, characteristic of the ancient period.

Rural-urban population exodus from the communist period had the extra motivation to exercise dominant agricultural production process. Maintaining the largest crop requires physical effort.

The rural settlements physical hearths have an important role in the development of physical activity. Each category of population has a particular temporal-spatial dynamics through access to vital facilities (shop, school, church, medical, etc.).

The predilection of the boys practicing football is undeniable. Passion for football-practiced outdoor, when the weaver conditions permitted, by male population - is associated with skiing, during the winter season.

Energy landscape in the hearth of villages can sometimes reach 400-500 meters, which requires an access to facilities for approximately one hour (walking). Scattered hearth villages require an access to facilities for more than an hour. There are villages in mountainous areas where children spend more than 2-3 hours going to school. In this way, the children developed, only by walking, a great natural fortification.

Each of the major cities of Romania has the spatial correlation in mountain areas for winter sports.

The characteristics of the geographical environment can lead to leisure, specifically in rural areas as an expression of economic, social and cultural of the population from this area. Climatic factors in Romania are optimal for carrying out various activities, through their action on the body provides a better adaptation to any environmental conditions and a specific body hardening.

Economic conditions of rural areas particularly have a characteristic fingerprint on the phenomenon of leisure in different ways, from one area to another. Given that the Romanian students have the fewest own mechanized transport (bicycle, moped, scooter or car) to go to school is made, in most cases, by walk on long distances. This is beneficial to health in that it avoids diseases arising from inactivity. The incidence of students to participate actively in sports is much higher in rural like in urban areas. Students in Romania are active in terms of movement in general. Unfortunately, they are deficient in terms of a practice organized sports.

Children, young people, accustomed to hard work, and work rudimentary agriculture, have an adequate body composition effort required by different types of sports. Their body is robust constitution, due to their capacity and ability to withstand long-term work in heavy climatic conditions. The youth from rural areas of Romania may successfully meet the requirements of professional sports.

## Conclusions

In Romania, a deep rural area is typical. Specific way of life leaves its mark on the physical and mental development of young people. Young people are forced to help family to work every day. The work it is specific for autarkic households. Most operations are done with rudimentary instruments. From early childhood, the people work very much. This involves natural, faster development of a harmonious body, with higher somatic parameters, capable of sustained effort and long term. Daily chores carried out the body hardening, strengthens them, making them more resistant to pain. The level of economic development is an equally important factor; the standard of living, low, is a crucial motivator in making young people to choose heavy sports like canoeing, kayaking, athletics, agreed that young people are less developed weaker physically, but living in more economically developed areas and have a better family situation.

Lifestyles of the population are specific to a society that cannot upgrade. To have a better sportive selection and much more people being involved in sportive performance must change the living mentalities by the way of the practice of physical activities with direct reference to sports. If the mentality would change, one of the immediate results would be that we have a healthier population and sporting performance would be much better than ever.

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## THEORETICAL CONCEPTS TO SENSORY INTEGRATION

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**ABSTRACT.** In this article we have presented an overview of the history of the sensory integration theory. Sensory integration is the process of organizing sensory information in the brain to make an adaptive response. An adaptive response occurs when a person successfully meets an environmental challenge. Sensory integration is a theory of brain-behavior relationships.

**Keywords:** sensory integration, theory, theoretical base

**REZUMAT.** În acest articol prezentăm istoria teoriei integrării senzoriale. Integrarea senzorială este procesul de organizare a informațiilor senzoriale în creier, pentru a declanșa un răspuns adaptativ. Un răspuns adaptativ apare atunci când o persoană îndeplinește cu succes o provocare de mediu. Integrarea senzorială este o teorie a relației dintre creier-comportament.

**Cuvinte cheie:** integrare senzorială, teorie, baza teoretică

### Introduction

Jean Ayres (1920 - 1988), Ph.D., OTR, FAOTA, the originator of the theory of sensory integration, began actual work on the theory in the late 1950s. Dr. Ayers was an occupational therapist with a doctorate in educational psychology who did a postdoctoral fellowship at the Brain Research Institute of the University of California at Los Angeles. Her research is most commonly identified with learning disabled children; however, it has been extended to include many other forms of neurobehavioral development, including mental retardation, autism, sensory defensiveness, numerous behavioral disorders, and other neurosensory based problems.

Dr. Ayres made major contribution to the field of occupational therapy with the publication of the Southern California Sensory Integration

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Tests (SCSIT) in 1972. The SCSIT was based on factor analytic studies that focused on the components of sensory integration, as well as other tests commonly used at the time with learning disabled children (Kramer, P., Hinojosa, J., 1993).

### **Definition**

Sensory integration refers to both a neurological process and a theory of the relationship between the neurological process and behavior. Ayres (1972) originally defined the sensory integration process as “the ability to organize sensory information for use” (Ayres, A.J., 1972). More recently, Ayres elaborated further, stating that: “sensory integration is the neurological process that organizes sensation from one's own body and from the environment and makes it possible the use the body effectively within the environment. The spatial and temporal aspects of inputs from different sensory modalities are interpreted, associated, and unified. Sensory integration is information processing. The brain must select, enhance, inhibit, compare, and associate the sensory information in a flexible, constantly changing pattern; in other words, the brain must integrate it” (Ayres, A.J. 1989).

### **Theory**

Sensory integration theory has three components. The first component pertains to development and describes normal sensory integrative functioning; the second defines sensory integrative dysfunction; and third guides intervention programs that use sensory integration techniques. Each component, in turn, has a major, overarching postulate. The first major postulate of sensory integration theory is that learning is dependent on the ability of normal individuals to take in sensory information derived from the environment and from movement of their bodies, to process and integrate these sensory inputs within the central nervous system (CNS), and to use this sensory information to plan and organize behavior. The second postulate follows from the first. When individuals have deficits in processing and integrating sensory inputs, deficits in planning and producing behavior occur that interfere with conceptual and motor learning. Finally, the postulate that guides intervention hypothesizes that the provision of opportunities for enhanced sensory intake, provided within the context of a meaningful activity and the planning and organizing of on adaptive behavior, will improve the ability of the CNS to process and integrate sensory inputs, and, through this process, to enhance conceptual and motor learning. Consistent with a theory that has

components pertaining to dysfunction and intervention, sensory integration theory has associated with in an evaluation and intervention technology. Thus, when we speak of sensory integration we refer to three interrelated elements of practice: (a) the theory itself, (b) evaluations methods (Sensory Integration and Praxis Tests: SIPT and related clinical assessments of neuromotor behavior) and (c) specific sensory integration treatment techniques. (Fisher, Murray, Chapter 1: Introduction to Sensory Integration Theory 3-26).

### **Theoretical Base**

A knowledge of human development provides a starting point for understanding sensory integration. The sensory integrative frame of reference focuses on the integration of sensory systems that underlie the development of function and skills—that is, those sensory systems that organize the nervous system for actual acquisition of function. This classic chart devised by Ayres is the starting point the understanding that function and skill are based on sensory system integration. The sensory systems are important in the theoretical base of the sensory integrative frame of reference are the auditory, visual, vestibular, proprioceptive, and tactile systems. The vestibular, proprioceptive, and tactile systems are highlighted as the precursors to the development of the auditory and visual systems. In fact, they are thought to be the precursors to the development of most end-product abilities. This perspective is different from the theoretical bases of other frames of reference, particularly those involved with cognitive development, which focus on the auditory and visual system. The therapist is primarily concerned, however, with the integrity and integration of underlying sensory systems and the functional support capabilities that contribute to these end products. The occupational therapist directs the intervention at the sensory system and functional support capability levels, in combination with facilitating an adaptive response, all of which result in the development of end-product abilities. The theoretical base of the sensory integrative frame of reference is unique in that it deals specifically with the contributions of the subcortical areas of the brain to human behavior. Dr. Ayres specifically stated that the brainstem was the primary area of integration and therefore played the greatest role in sensory integration. Dr. Ayres also postulated that the cerebellum plays a major role in sensory integration because of its processing of input related to gravity and movement. As this theoretical base evolved, the importance of other

structures of the CNS (central nervous system) were recognized. The limbic system has been identified because of its association with sympathetic arousal, which results in the survival response often seen in people who exhibit sensory defensiveness. The cerebral cortex also is important to the theoretical base, of sensory integration because of its contribution to praxis, particularly in the areas of ideation or a person's understanding of the need for movement. The entire CNS and the interplay or integration of all its systems are considered in sensory integration. There are six basic assumptions that underlie CNS organization in sensory integration:

1. The central nervous system is hierarchically organized. Cortical processing relies on and depends on adequate organization of inputs supplied by the lower brain centers.
2. Meaningful registration, of stimuli must occur before the CNS can make a response to it and, therefore, allow for higher functioning to occur.
3. The brain is innately organized to program a person to seek out stimulation that is organizing or beneficial in itself.
4. Input from one sensory system can facilitate or inhibit the state of the entire organism. Input from each system influences every other system influences every other system, as well the whole organism.
5. There plasticity within the CNS.
6. Normal human development occurs sequentially.

Particularly important to the theoretical base of sensory integration is an understanding of the auditory, visual, vestibular, proprioceptive and tactile systems.

*Tactile system* has several different functions. Of particular interest is the ongoing interaction between the two major divisions of the body's tactile systems: the dorsal column medial lemniscal and the anterolateral systems.

The dorsal column medial lemniscal system (DCML) carries discriminative touch (specifically two-point discrimination), conscious proprioception, touch pressure and vibration for the body. Of the two tactile system, it is the newer phylogenetically. It plays a major role in the development of praxis.

The anterolateral system – composed of spinothalamic, spinoreticular, and spinotectal pathways – is a nonspecific, protective system that can produce sympathetic arousal. It also is a diffuse system that directs input into the

reticular formation. It is responsible for the body sensation of pain, temperature and crude touch and plays a major role in tactile defensive responses.

*Proprioception* is the understanding of where joints and muscles are in space. Proprioceptors include the muscle spindles, the Golgi tendon organs, and mechanoreceptors of the skin. Proprioceptors work in a conjunction with the vestibular system to give a sense of balance and position in space. All the muscles and joints are involved in this process; however, the neck joints and proximal limb joints, such as shoulder and hips, are of primary importance and give the most feedback to the CNS.

*Vestibular system:* The vestibular receptors, located in the inner ear, are composed of three semicircular canals at right angles to each other and the utricle and saccule. The semicircular canals are responsible for detection of angular, fast, short bursts of motion, and results in phasic limb movements and momentary head righting. The utricle and saccule, which contain the otoliths as well as endolymph and hair cells, are responsible for the detection of gravity and linear acceleration. The vestibular system makes connections through the vestibular nuclei in the brainstem and then sends information to higher levels in the brain.

The sensory system do not function independently. Arousal in several systems can combine, therefore, to increase arousal, and inhibition in several systems can combine to decrease to modulation. The 12 systems responses that are considered to be contributors to modulation of arousal are listed under Sensory System Modulation, this include: tactile, auditory, relationship to gravity, movement level, oral arousal, olfactory arousal, visual arousal, attention level, postrotary nystagmus, sensitivity to movement, proprioceptive sensitivity and emotional level.

Functional support capabilities help integrate and modulate the input from arousal/ reactivity components of the sensory systems. The function support capabilities include: suck-swallow-breathe, tactile discrimination, other discriminative abilities, cocontraction, muscle tone, proprioception, balance and equilibrium, developmental reflexes, lateralization and bilateral integration.

Sensory system modulation is influenced by the child's "sensory diet". Sensory diet is defined by Wilbarger " related to the essential but changing need of all humans to have an optimum amount of organizing and integrating sensation being registered by one's CNS at all times". (Sensory Integrative Frame of Reference, Chapter 6 Kimball, JG in Kramer, 87-167).

## Research

When Ayres first presented the theory of sensory integration, she grounded it in the neuroscience literature. Neuroplasticity was then, and is today, considered to be at the heart of this theory. Research in sensory integration has progressed to the stage where a synthesis is possible, and several reviews and critiques have been published. For example, Ottenbacher (1982) conducted a meta-analysis of the research literature examining the effectiveness of sensory integration procedures. The meta-analysis technique provides each study with a standardized measure of outcome effectiveness. Each of these measures are then used as data for the meta-analysis. When several data-based studies addressing the same general hypothesis are available, meta-analysis is an excellent methodology for establishing empirical consensus. The quantitative synthesis by Ottenbacher (1982) focused on data-based studies that each met following criteria: (a) investigated the effects of sensory integration as the independent (treatment) variable; (b) employed at least one operationally defined outcome measure related to one or more of the following areas: academic achievement, motor skill or reflex integration, and language function; (c) reported a comparison between at least two groups or conditions; and (d) included sufficient information to generate an effect size measure and other statistics used in meta-analysis (see Glass et al., 1981; Fisher, A.G., Murray, E.A., Bundy, A.C. (1991)).

Other reviews of sensory integration research have focused on theoretical and methodological issues as well as treatment effectiveness. These reviews have provided conflicting evidence regarding empirical consensus.

Other evidence-based review (Lane, S. J., Schaaf, R.C., 2010) sought to critically examine the basic science literature to specifically identify evidence for the assumptions and tenets of Ayres' theory of sensory integration. We reviewed literature between 1964 and 2005, within psychological, physiological, and biomedical areas, addressing neuroplasticity. The review focused on sensorimotor-based neuroplasticity; explored the data that addressed the links among sensory input, brain function, and behavior; and evaluated its relevance in terms of supporting or refuting the theoretical premise of occupational therapy using an sensory integration framework (occupational therapy/sensory integration, OT/SI) to treatment. Although direct application from basic science to OT/SI is not feasible, we concluded that there was a basis for the assumptions of Ayres' sensory integration theory.

Twenty-seven studies were systematically reviewed to identify, evaluate, and synthesize the research literature on the effectiveness of sensory

integration intervention on the ability of children with difficulty processing and integrating sensory information to engage in desired occupations and to apply these findings to occupational therapy practice. Results suggest the sensory integration approach may result in positive outcomes in sensorimotor skills and motor planning; socialization, attention, and behavioral regulation; reading-related skills; participation in active play; and achievement of individualized goals. Gross motor skills, self-esteem, and reading gains may be sustained from 3 months to 2 years. Findings may be limited by Type II error because of small sample sizes, variable intervention dosage, lack of fidelity to intervention, and selection of outcomes that may not be meaningful to clients and families or may not change with amount of treatment provided. Replication of findings with methodologically and theoretically sound studies is needed to support current findings (May-Benson, T.A., Koomar, J.A., 2010).

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## **THE CIVIL LIABILITY OF THE TEACHERS AND TRAINERS FOR THE ACTS OF THE UNDER-AGE SPORTSMEN<sup>1</sup>, FROM THE PERSPECTIVE OF THE NEW CIVIL CODE OF ROMANIA**

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**ABSTRACT.** In this article, the authors wish to prezent the novelties brought about by the New Civil Code of Romania, regarding the civil liability of the teachers and trainers for the acts of the under-age sportsmen. The authors will point out the specificities of this institution by comparing it with the solutions practiced by foreign legislations in the same domain, on the one hand, and with the civil liability for a third person's acts, on the other. For a better understanding, the precognition of the history of liability of the teachers and trainers from the Aquilia law till the New Civil Code of Romania, is indispensable.

**Keywords:** teacher, trainer, liability for a third person's act, under-aged person

**REZUMAT.** Problematika răspunderii civile delictuale cu privire la răspunderea cadrului didactic și antrenorului pentru faptele sportivilor minori, din perspectiva aplicabilității prevederilor Noului Cod Civil Român (Legea nr. 287/2009). În acest articol, autorii prezintă noutățile aduse de Noul Cod Civil Român cu privire la răspunderea civilă delictuală a cadrului didactic și a antrenorului, prin arătarea elementelor de specificitate ale acestei instituții. Comparația, prin care aceste elemente vor fi relevate, este multilaterală, întrucât individualizarea se face, pe de o parte, față de soluțiile cuprinse în reglementările juridice străine din acest domeniu, pe de altă parte, față de răspunderea civilă delictuală pentru fapta altei persoane, din dreptul comun. Pentru a realiza această analiză, autorul parcurge istoria instituției răspunderii cadrului didactic și antrenor, pornind de la prima lege din acest domeniu - respectiv legea Aquila -, ajungând la prevederile Noului Cod Civil Român.

**Cuvinte cheie.** cadru didactic, antrenor, răspundere civilă pentru fapta altuia, minor

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<sup>1</sup> By sportsmen we understand sportswomen as well, but in order to simplify the language, we might sometimes mention only the prior one.

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## Defining the Concept of the Civil Liability of the Teachers and Trainers for the Acts of the Under-age Sportsmen

The liability of the teachers and trainers is a form of the civil liability for the acts of other persons. This latter one is regulated by the section 1000 of the Romanian Civil Code and by the article 1372 of the New Civil Code.

Thus, the liability of the teachers and trainers is a civil liability<sup>4</sup>. Two inherent principles particularize civil liability, namely the rule of *restitutio in integrum*<sup>5</sup> and the rule of *restitutio in natura*<sup>6</sup>. Civil liability has two main forms, respectively tort liability and contractual liability<sup>7</sup>.

*Tort liability* - looked upon as the common form of the civil liability – can be defined as one's legal obligation stemming from either a civil wrong, other than contractual ones, or injury for which a court remedy is justified.<sup>8</sup>

The *contractual liability* – thus, the special form of civil liability – is the duty of the debtor of an obligation assumed under a contract or agreement to repair the damage caused by his failure in performing in accordance with the contract; either by delaying the execution of his obligations, or by executing them only partially or not executing them at all<sup>9</sup>. The contractual liability intervenes only between the parties of a contract, as a result of breaching a precise and a priorly determined obligation. Therefore, whenever the conditions of the contractual liability fail to fulfill, one should examine whether the damage doesn't meet the conditions of the tort liability, which is to be applied in that case<sup>10</sup>.

Though tort liability and criminal liability are similar in some regards and are often linked together, they are not to be confounded. The essential differences between the two emerge from their different purpose and different field of interest: while the purpose of the tort liability is repairing damages caused by unlawful, extra-contractual acts, the purpose of criminal liability is punishing the criminals, seen as persons having extremely

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<sup>4</sup> The civil law is formed of the ensemble of judicial norms, which stipulate the general rules of the birth, modification, and end of private judicial relations and the content of these. (Ionel Reghini, Șerban Diaonescu: Introducere în dreptul civil. Vol. 1, Ed. Sfera juridică, Cluj-Napoca, 2004, p. 15)

<sup>5</sup> restoration to original condition

<sup>6</sup> As apposed to money damages,

<sup>7</sup> Alexandru.V. Voicu.: *Răspunderea civilă delictuală cu privire specială la activitatea sportivă*, Ed. Lumina Lex, Cluj-Napoca, 1999, p. 41

<sup>8</sup> Liviu Pop: *Drept civil român. Teoria generală a obligațiilor*, Ed. Lumina Lex, 2000, București, p. 177

<sup>9</sup> *ibidem*

<sup>10</sup> Voicu, *op. cit.*, p. 41, Beside this essential difference, there can be found others, such as the ones regarding the proof of negligence, the extent of the damages, the divisibility of the liability of co-debtors, the legal competency, the extensive prescription, the lawfulness of the exclusion clauses

serious, unlawful behavior and to defend the society from the acts committed by them<sup>11</sup>. Thanks to the repairing purpose of the tort liability, the main field of action of it is the *patrimony* of the debtor, while in case of criminal liability - due to its educating and protecting role<sup>12</sup> - the punishment of the author is pursued and therefore, the sanction has a more *personal nature*<sup>13</sup>.

The *tort liability of the teachers and trainers* ought not to be confused with the *professional liability* either, since the latter one is not considered a judicial liability<sup>14</sup>.

The tort liability can be classified as follows: the liability for one's personal acts, which is stipulated in sections 998-999 of the present Civil Code<sup>15</sup>; the liability for other persons' acts, of whom conditions are stipulated in section 1000<sup>16</sup> and finally the liability for the objects in one's custody, the rules of which are established by sections 1001-1002<sup>17</sup>. The fundamental difference between the liability for one's personal acts and the one based on section 1000 is the existence of negligence, as a condition of the liability: negligence is an indispensable condition for incurring the liability for personal acts, but the liability for other persons' acts can occur even without the negligent behavior of the one held responsible for paying the damages.

The section 1000 par. 4 from the Civil code stipulates the liability of *teachers* and *artisans*. Regarding the first category, in the field of sport, the subjects are the teachers and trainers, regardless their position and didactic rank, in primar education, as well as from club and associations with non-work purpose. The artisans in the field of sport can be defined as the teachers of physical education and the trainers who have the legal obligation to teach their apprentices a profession, or in this case, the profession of sportsman. Due to Law no. 69/2000 and its subsequent modifications, only the persons owning the proper certificates and diplomas, obtained in accordance with the legal stipulations, can teach physical education and sport or can train sportsmen<sup>18</sup>. When practicing their profession, both the teachers and trainers give instructions, educate and supervise their pupils.

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<sup>11</sup> Liviu Pop, op. cit, p. 172

<sup>12</sup> Florin Streteanu: *Tratat de drept penal. Partea generală. Volumul I*, Ed. C.H. Beck, București 2008, p. 3-9

<sup>13</sup> As a consequence there are other major differences, such as regarding the application of the principle of legality, the equality of the parties, guilt or negligiance, sanctions, the legal capacity, etc.

<sup>14</sup> For more details about the professional liability in the field of sport, see A. Voicu: op. cit, p. 69-74

<sup>15</sup> Sections 1357 and 1379 in the New Civil Code

<sup>16</sup> Section. 1372 in the New Civil Code

<sup>17</sup> Section 1376 in the New Civil Code

<sup>18</sup> Section 58 of Law 69/2000

### **The conditions and results of the liability**

The activation of the liability of the teachers and trainers is preconditioned by categories of elements. Firstly, there are some general conditions that are inherent to all forms of tort liability and there are those special conditions that characterize only this type of liability.

The unanimously accepted general conditions are the unrepaired damage – that might be the consequence of breaching one's right or one's legal interest -, the illicit act, and the existence of a causality report between the illegal act and damage. The followers of the traditional theories of civil liability add the culpability of the doer, too to the general conditions<sup>19</sup>.

The special conditions are the follow ones:

a) *the sportsman or sportswoman is under-age*. Though some authors consider that the liability of the teachers or trainers occurs regardless the pupil's age, because the legal stipulations don't mention this condition<sup>20</sup>, we adhere to the opposite theory. Otherwise, the liability of the teachers and trainers would be broader than the liability of the parents<sup>21</sup>.

b) *the pupil commits the unlawful act while being or should have been under the supervision of the teacher or artisan*, thus, at the school or club or association, or other organized activity, even outside the sport unit, as long as they are or should have been supervised by the teacher or trainer.

c) *the pupil causes the injury to a third person* and not to the teacher or trainer. In this latter case, the teacher could be held responsible only based on sections 998-999 of the civil code<sup>22</sup>.

If all the conditions are fulfilled, the teacher or trainer is liable for the acts committed by his or her pupil. If it can be proven that the sportsman or sportswoman had discernment when he/she committed the act, the victim can sue directly the sportsman/sportswoman, due to section 998-999. Moreover, the victim has the possibility to sue both the pupil and the

<sup>19</sup> The fault can be defined as the psychological attitude of the author of the illegal and injurious act toward the act and toward the consequences of it. (Liviu Pop, *op. cit.* p. 225) The fault has two components: *the intellectual component* – standing for one's ability to understand the social significance of his deeds – and *the volitional component*. The intellectual component is an indispensable part of the discernment, without which the latter one can't exist. Without the discernment, the civil liability for personal acts is unimaginable.

<sup>20</sup> Ion M. Anghel, Francisc Deak si Marin F. Popa : “*Răspunderea civilă*”, Ed. Științifică, Bucuresti, 1970, p. 161

<sup>21</sup> For further details, see: A. Voicu, *op. cit.* p. 312-313, În același sens Constantin Stătescu , Corneliu Bîrsan: *Drept civil. Teoria generală a obligațiilor*, Ed. Hamangiu, București, 2008, p. 241, Constantin Stătescu: *Răspunderea civilă delictuală pentru fapta altei persoane*, Ed. Hamangiu, București, 2009, p. 117, L. Pop, *op. cit.* p. 258, Lăcrămioara Boilă: *Răspunderea civilă delictuală subiectivă*, Ed. C.H. Beck, București, 2009, p. 305

<sup>22</sup> For further details, see A. Voicu, *op. cit.*, p. 313-314

teacher/trainer. Every time the pupil had discernment when committing the act and the existence of his/her fault can be proven, the teacher's or trainer's liability will be *in solidum*<sup>23</sup>.

### **The basis of the liability**

This section is probably the most important one of all, because the conditions of the liability, the extent, and the effects of it, even the persons held responsible depend on this.

The birth of the civil liability, as we know it, is linked to the law of Aquilia. The Law of Aquilia puts the basis of the obligation of a person to repair any damage caused by him or her intentionally or out of negligence to another person. It also stipulates the offence of *damnum iniuria datum* (damage unlawfully inflicted). The Law excludes the nonrational human beings from liability, such as children or mad people, establishing therefore the concept of subjective liability, for the first time<sup>24</sup>. Despite all these, Ulpian, in the Supplements of the stipulations of this Law, in Digests 9, 2, 7, 4, points out some exclusion clauses regarding the primar, tort liability in sport activities. He argues that the Law won't apply to sport injuries, because these weren't caused with the intention of harming, but in order to attain glory and victory<sup>25</sup>.

In the present, section 1000 par. 4 stipulates the liability of teachers and artisans. According to the traditional theory of civil liability, both the liability of the parents for the acts of their children and the liability of teachers and artisans for the acts of their pupils and apprentices is a subjective liability, based on the legal assumption that the prior ones have disregarded their educating and disciplining obligations, while the latter haven't complied with their supervising obligations<sup>26</sup>. The shortcomings of this theory are the ones, as they follow: the difficulty or even impossibility of proving the culpability of parents, the liability of the minor as a precondition of liability of parents' and teachers<sup>27</sup> and the disadvantaged situation of the victim in case the assumption of culpability of the parents or teachers is confuted<sup>28</sup>.

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<sup>23</sup> Idem, p. 314

<sup>24</sup> Idem, p. 10

<sup>25</sup> Idem, p. 12

<sup>26</sup> For more details, see: Stătescu-Bârsan, op. cit, p 216-220, 242

<sup>27</sup> If there can't be proven that the child had the discernment of his deeds, he or she cannot be held liable and consequently – according to the subjective theory – neither can the parent or teacher. Thus, the victim is put in a disadvantaged situation.

<sup>28</sup> For more details, see: Boilă Lăcrămioara: Fundamentul răspunderii civile pentru prejudiciile cauzate de către minori sau de către persoanele puse sub interdicție în Dreptul no. 3/2010, p. 112-114

According to another theory, the parents' liability is a strict liability, the parents being responsible regardless their culpability. The plaintiff need only prove that the tort occurred and that the defendant was responsible. The basis of the liability is the *idea of warrant*, incurred by *family solidarity*. Only circumstances outside the parents' control, such as the act of God, the act of the victim or the act of a third person, could exclude their liability. In accordance with this theory, the teachers' liability remains a subjective one, based on the idea of their culpability as a consequence of their failure of supervising their pupils. Their liability will be removed if they prove that they have complied with their supervising and educating obligations and they could have done nothing in order to stop the students' deeds<sup>29</sup>. In this latter case, the parents will be held legally responsible for their children's acts, due to their strict liability.

Even though the above mentioned theory seems interesting and fairly advantageous, we consider that the theory conforming to the idea that both the parents' and the teachers' liability is a strict one, seems more suitable<sup>30</sup> in the domain of sport activities. We chose to support this idea because of the special role of the trainer in the sportsmen's and sportswomen's education : unlike the teachers and artisans, who don't have the obligation of educating, but only of teaching or instructing, trainers – due to the specificities of the sport activities and their special assignment – also have the duty of participating in the *sport education* of the trainees, considered an objective of sport activities, focused on at casual trainings, competitions, sport performances and training camps<sup>31</sup>. Thus, because of the the scpeciality of the trainers' liability, „parents can not be held responsible for their children's harmful acts, committed during their sport activities according to their age, because sport activities exclude the parents' possibility of supervision.”<sup>32</sup> Therefore, the reasonable and just solution seems to be the strict liability of the trainers, they –and not the parents – having a warranty obligation for the acts of their pupils. In this case, both the trainers'

<sup>29</sup> For further details, see Boilă Lăcrămioara, Răspunderea civilă delictuală subiectivă..., p. 303 - 305

<sup>30</sup> Liviu Pop: *Reglementarea răspunderii delictuale pentru fapta altuia în textele Noului Cod civil* in Dreptul nr. 5/2010, p. 14 In a prior article, the author proposes the idea of admitting the existence of a general principal of the strict liability for someone else's acts, as stipulated in the section 1000 par. 1, I. thesis Civil code. In his view – and in ours, too – it would be unjustifiable to have a lighter responsibility, depending of culpability, for parents and teachers, while having a strict liability for all the other people, usually less familiar to the child. (Liviu Pop: *Discuții de lege lata cu privire la recunoașterea existenței unui principiu de răspundere civilă delictuală pentru fapta altuia consacrat în Codul Civil român în Dreptul nr. 8/2004*, p. 72 )

<sup>31</sup> A. V. Voicu, *op. cit.*, p. 308

<sup>32</sup> Supr. Court, Criminal Section., dec. Nr. 183/1976,in RRD nr. 9/1977, p. 56

and parents' responsibility can be excluded for the same reasons, namely circumstances outside their control.

*For the future*, the New Civil code stipulates the persons "who, due to their legal, judicial or contractual obligations, have to supervise an under-age person"<sup>33</sup> are generally liable for the damage caused by the person in their custody to others. The next paragraph stipulates that the liability subsists even if the one under supervision is exempted from liability because of his age or mental state. The Code also says that the one obliged to supervise can only be excluded if he/she proves that he/she couldn't have prevented the action of the minor. Thus, the New Civil Code includes the liability of teachers and artisans into this general category, without mentioning it separately.

Regarding the ground of the liability, some authors hold that the teachers' and artisans' liability (and thus, the trainers', too – s.n.) is and should always be subjective, based on culpability, while the parents liability is a strict one, regardless of their fault<sup>34</sup>.

According to another opinion, which we agree with, both the teachers' and the parents' liability is a strict one. The arguments in favor of this point of view are the wording of the legal text, on the one hand, and the fairness of the solution, because of the special role of the trainer in the pupil's sport life, on the other. The benefit of this interpretation is a direct liability of the teachers, without being preconditioned by the pupil's culpability.

In the *German law* both the parents' and teachers' liability is based on the relatively assumed culpability of the person in charge with the supervision of the minor; the assumption can be confuted by proving that the responsible person has accomplished his/her supervising duty.<sup>35</sup>

Some other law systems, such as the *Belgian, Italian, Spanish, Lebanese, of Quebec, Mexican, Senegalese and Algerian*, adopted the traditional French view, in accordance with which in order for a person to be held responsible for the acts of the minor in his/her custody, it has to be proven that he/her has missed to accomplish his/her supervising obligations.

In the present, *in France*, the liability of the teachers is bound to the proof of their culpability regarding their way of fulfilling their supervising obligations. It is a direct liability for their personal acts, which is in causality relations with the damage inflicted by the minor.<sup>36</sup>

<sup>33</sup> Section. 1372 par. 1 din Noul Cod civil

<sup>34</sup> For further details, see L. Boilă, Răspunderea civilă delictuală subiectivă, p. 306

<sup>35</sup> L. Pop: Reglementarea răspunderii delictuale, p. 18

<sup>36</sup> L. Boilă, Răspunderea civilă delictuală subiectivă, p 308

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In this article we tried to gather the main legislative and doctrinal – past, present and future; domestic and foreign - solutions of regulating and interpreting the tort liability of teachers and trainers in sport activities, hoping to pick out the best one. In order to do this, first we defined the largest category of judicial liability and then tried to reveal the *differentia specifica* of the above mentioned tort liability. We hope that the present study will be a useful starting point for those who would like to go thoroughly into this topic.

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