



STUDIA UNIVERSITATIS  
BABEŞ-BOLYAI



# EDUCATIO ARTIS GYMNASTICAE

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3/2017

**STUDIA**  
**UNIVERSITATIS BABEŞ-BOLYAI**  
**EDUCATIO ARTIS GYMNASTICAE**

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# **S T U D I A**

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### **EDUCATIO ARTIS GYMNASTICAE**

#### **3**

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#### **CONTENT - SOMMAIRE - INHALT - CUPRINS**

REMUS-CRISTIAN VĂIDĂHĂZAN, IACOB HANȚIU, GABRIELA POP, Repetition Speed Influence on Maximum Heart Rate in Weight Training * <i>Influența vitezei de execuție a repetărilor asupra frecvenței cardiace maxime în antrenamentul cu greutate</i> .....	5
PÉTER-ZSOLT SZABÓ, EMILIA FLORINA GROSU, IOAN NELU POP, ÁLMOS ANDRÁS, DAN MONEA, GHEORGHE MONEA, ÁGNES SIMON-UGRON, Study on Athletes who Underwent an Athletic Training Program at Altitude in Order to Increase their Pulmonary Capacity, to Identify Psychological Changes Regarding Attention and Concentration, the Persistence of Motivation and the Correlations Between the Two * <i>Studiu asupra sportivilor care urmează un program de pregătire athletică la altitudine pentru creșterea capacității pulmonare pentru a identifica modificări psihologice în ceea ce privește atenția și puterea de concentrare, persistența motivației și corelația dintre cele două</i> .....	13

RADU ADRIAN ROZSNYAI, DAN MONEA, PAUL OVIDIU RADU, A Study Concerning the Development of Speed through the use of Dynamic Games in Football, Juniors of 14 to 15 Years Old * <i>Studiu privind dezvoltarea vitezei prin utilizarea jocurilor dinamice în fotbal la juniori cu vârsta cuprinsă între 14-15 ani</i> .....	27
DAN MONEA, Specific Methods used in Evaluation of Football Game Skills for the 10-12 Year Group * <i>Metode specifice utilizate la evaluarea îndemânării în jocul de fotbal la grupa de vârstă 10-12 ani</i> .....	37
COSMIN PRODEA, RAUL NEMEȘ, CLAUDIU BOANCĂ, Comparative Study on Sedentarism at Fifth Grade Children in Rural and Urban Environment, <i>Studiu comparativ între mediul rural și mediul urban privind sedentarismul la copiii de clasa a V-A</i> .....	49
GABRIELA MARIA POP, HOREA POP, Frequency of Practicing Physical and Sports Activities and the Self-Esteem at the Students * <i>Frecvența practicării activităților fizice și sportive și stima de sine la studenți</i> .....	61
GABRIELA MARIA POP, HOREA POP, REMUS-CRISTIAN VĂIDĂHĂZAN, The Declared Goals of Practicing Physical and Sports Activities by the Students of Babeș-Bolyai University from Cluj-Napoca According to Gender and Faculty Profile * <i>Scopurile declarate ale practicării activităților fizice și sportive de către studenții Universității Babeș-Bolyai din Cluj-Napoca în funcție de gen și profilul facultății la care studiază</i> .....	73
ALINA RUSU, Integration Into Social Group as Dimension of Socialization * <i>Integrarea în grupul social ca dimensiune a socializării</i> .....	83
CRISTIAN SANTA, ONELA SANTA, PAUL SZABO-ALEXI, DAN MONEA, Sports – Children’s Active Way of Socializing * <i>Sportul – un mod de socializare al copiilor</i> .....	87

## REPETITION SPEED INFLUENCE ON MAXIMUM HEART RATE IN WEIGHT TRAINING

REMUS-CRISTIAN VĂIDĂHĂZAN<sup>1\*</sup>, IACOB HANȚIU<sup>2</sup>, GABRIELA POP<sup>3</sup>

**ABSTRACT.** Changing speed of execution for repetitions is appreciated differently by weight training's practitioners (Diniz, Martins-Costa, Machado, Lima, & Chagas, 2014), aspect discussed by us with many practitioners encountered during our researches in fitness gyms. As a result of the observations made in fitness gyms, we came to conclusion that modification of execution speed determines changes of other factors involved in training programs. Our research took place between February 9 and April 19, 2015, in the gym of Faculty of Physical Education and Sports of the Babeș-Bolyai University of Cluj-Napoca. Our research objectives aimed to determine the maximum heart rate (HR max.) recorded at different speeds of execution and we were interested about the pattern described by these values on 3 different values for speed of execution. We concluded that HR max. doesn't have the same distribution pattern for all subjects included in our study.

**Key words:** *weight training, heart rate, speed of execution, maximum heart rate, pattern.*

**REZUMAT.** *Influența vitezei de execuție a repetărilor asupra frecvenței cardiace maxime în antrenamentul cu greutate.* Modificarea vitezei de execuție a repetărilor este apreciată diferit de practicanții antrenamentului cu greutate (Diniz, Martins-Costa, Machado, Lima, & Chagas, 2014), aspect discutat și de noi cu mulți practicanți cu care ne-am întâlnit în sălile de fitness. Ca urmare a observațiilor întreprinse am ajuns la concluzia că modificarea vitezei de execuție a repetărilor determină modificări ale altor factori implicați în programele de antrenament. Cercetarea s-a desfășurat în perioada 9 februarie - 19 aprilie 2015, în sala de fitness a Facultății de Educație Fizică și Sport din cadrul Universității Babeș-Bolyai Cluj-Napoca. Obiectivul cercetării a constat în înregistrarea valorilor maxime ale FC la diferite viteze de execuție a repetărilor și analiza modelului de distribuție a acestora pe 3 tempouri diferite de execuție.

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Rezultatele obținute sugerează că vârfurile înregistrate pentru FC nu se înscriu 100% într-un anumit model de distribuție.

**Cuvinte cheie:** *antrenament cu greutate, frecvență cardiacă, viteză de execuție, frecvență cardiacă maximă, model.*

## Objectives

Our research objectives aimed to determine the maximum heart rate (HR max.) recorded at different speeds of execution and we were interested about the pattern described by these values on 3 different values for speed of execution.

## Material and methods

The research took place between February 9 and April 19, 2015, in the gym of Faculty of Physical Education and Sports of the Babeș-Bolyai University of Cluj-Napoca.

The research was applied to 11 subjects, students of Physical Education and Sports Faculty of the Babeș-Bolyai University. All subjects enrolled in the study were male, with a minimum of 6 months experience in weight training. Age of participants was between 19 and 25 years (for details see Table 1).

**Table 1.** Details of the subjects included in research

No	Age (years)	Bodyweight (kg)	Height (m)	Body mass index BMI
1	22	78	1.80	24.07
2	21	80	1.85	23.37
3	21	74	1.75	24.16
4	22	80	1.76	25.83
5	21	67	1.77	21.39
6	22	69	1.72	23.46
7	20	82.6	1.75	26.97
8	19	83.5	1.79	26.06
9	21	67.8	1.72	22.92
10	25	83.2	1.80	25.68
11	19	64.9	1.69	22.72

Muscle groups included in our research were:

- Latissimus Dorsi with the exercise "Back Lat Pull-Downs";
- Pectoralis Major with the exercise "Horizontal Bench Press".

Tempo of execution used in the research was:

- 1010 (1 second for eccentric, 0 seconds for isometric after eccentric, 1 second for concentric, 0 seconds for isometric after concentric);
- 3030 (3 seconds for eccentric, 0 seconds for isometric after eccentric, 3 seconds for concentric, 0 seconds for isometric after concentric);
- 6060 (6 seconds for eccentric, 0 seconds for isometric after eccentric, 6 seconds for concentric, 0 seconds for isometric after concentric).

The workload used in our experiment was 60% of one repetition maximum (1RM). Heart rate (HR) was recorded using our own protocol (Văidăhăzan, Hanțiu, Pop, & Pătrașcu, 2015). Heart rate values were analyzed and extracted from each record with SportTracks 3 (Zone Five Software LLC, 2013).

Each subject participated at 6 sessions interspersed with days of rest. Sessions included in the research were:

- Session 1, 1RM test for Latissimus Dorsi (LD);
- Session 2, 1RM test for Pectoralis Major (PM);
- Session 3, training session with 3 particular tempo (60% of 1RM);
- Session 4, research session with tempo 1010 (60% of 1RM);
- Session 5, research session with tempo 3030 (60% of 1RM);
- Session 6, research session with tempo 6060 (60% of 1RM).

The sequence of research sessions was conducted according to the following design:

- 1RM testing session for Latissimus Dorsi;
- 1RM testing session for Pectoralis Major;
- Rest day;
- One session with execution of 3 tempo;
- Rest day;
- Research session for 1010 tempo;
- Rest day;
- Research session for 3030 tempo;
- Rest day;
- Research session for 6060 tempo.



1RM testing protocol is different between researchers. There are many proposed programs that comply with some main rules regarding the length of the pause between test sets but there is no standardized model. Thus, our protocol was built based on several papers (Kraemer, Fleck, & Deschenes, 2012; Ratamess, 2012; Schwellnus, 2008).

The 1RM session, used by us, was as follows:

- Warm-up;
- Rest for 1 minute;
- Set No. 1 with 50% of predicted 1RM (10 repetitions);
- Rest for 3 minutes;
- Set No. 2 with 70% of predicted 1RM (5 repetitions);
- Rest for 5 minutes;
- Set No. 3 with 100% of predicted 1RM (1 repetition);
- Rest for 5 minutes;
- Set No. 4 with 100% of predicted 1RM (1 repetition);
- Rest for 5 minutes;
- Set No. 5 (if necessary) with 100% of predicted 1RM (1 repetition);
- Rest for 1 minute;
- Cool-down.

All research sessions were led by a scientist helped by an assistant. The exercises included in our research were recorded on camera to analyse the form of repetitions. In order to achieve the desired tempo we used an audio system connected to a digital metronome (Paul Girsas, n.d.). Centralization of data was performed with Microsoft Excel.

Sessions were coded as follows:

- The research session in tempo 1010, codes LD\_T1 (for Latissimus Dorsi) and PM\_T1 (for Pectoralis Major);
- The research session in tempo 3030, LD\_T2 (for Latissimus Dorsi) and PM\_T2 (for Pectoralis Major);
- The research session in tempo 6060, LD\_T3 (for Latissimus Dorsi) and PM\_T3 (for Pectoralis Major).

## Results

The maximum HR was recorded in each session with the required tempo. Values for Latissimus Dorsi are centralized in Table 2 and for the Pectoralis Major are centralized in Table 3.

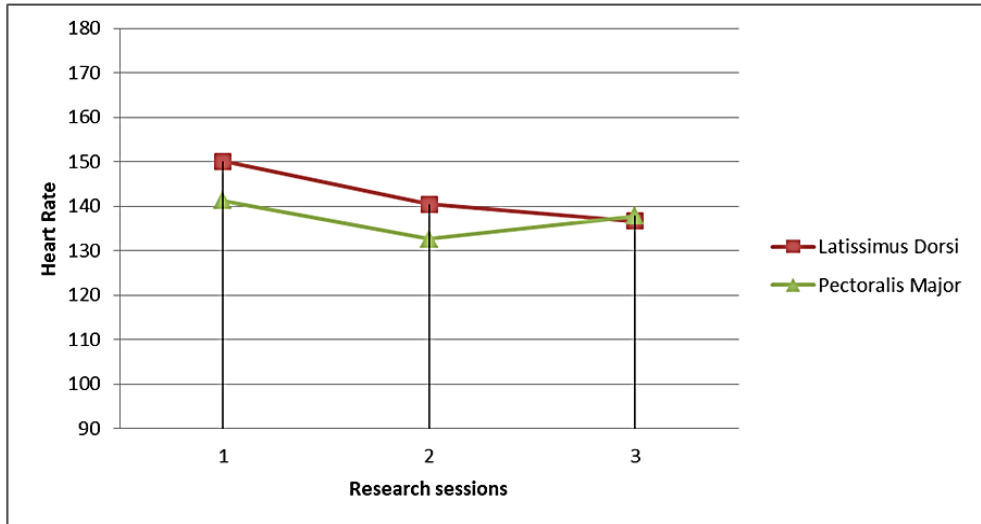
**Table 2.** Maximum HR for Latissimus Dorsi

Nº	HR max (beats/min.) LD_T1	HR max (beats/min.) LD_T2	HR max (beats/min.) LD_T3	Graphic representation of the distribution pattern
1	170	168	170	
2	142	135	138	
3	169	142	166	
4	133	133	108	
5	164	156	153	
6	144	142	127	
7	162	154	150	
8	145	141	130	
9	109	98	113	
10	161	148	128	
11	152	128	120	
Mean of HR max.	150,09	140,45	136,64	

**Table 3.** Maximum HR for Pectoralis Major

Nº	HR max (beats/min.) PM_T1	HR max (beats/min.) PM_T1	HR max (beats/min.) PM_T1	Graphic representation of the distribution pattern
1	162	167	179	
2	141	137	155	
3	173	143	149	
4	120	100	115	
5	140	146	152	
6	125	120	105	
7	146	148	137	
8	150	136	168	
9	100	98	111	
10	158	139	128	
11	138	125	117	
Mean of HR max.	141,18	132,64	137,82	

**Chart 1** shows the comparison of the HR max. between the two muscle included in the research.



**Chart 1.** Maximum Heart Rate Model, comparison between Latissimus Dorsi and Pectoralis Major

## Discussions

HR max. doesn't have the same distribution pattern for all subjects included in our study. Buitrago and his collaborators (Buitrago, Wirtz, Yue, Kleinoder, & Mester, 2011) showed a pattern of decreasing distribution as a result of the study in which they recorded HR' peaks on 4 execution tempo. Their model has been built based on HR means. Unfortunately, the study doesn't show the records for each subject. However, for the HR means, researchers have noted that the highest peak was recorded when the weight was shifted at maximum speed. The HR peaks showed a declining pattern while the execution speed was lower (see Table 4, built after the results reported by Buitrago, Wirtz, Yue, Kleinoder, & Mester, 2011, p. 2743).

**Table 4.** Maximum HR reported by Buitrago et al.

	Execution Tempo			
	Maximum speed	1111	2121	4141
Maximum HR (beats/min.)	128,3	128,1	126,2	122,2

In our case, when we analysed the mean for both muscles, we observed for Latissimus Dorsi a decreasing pattern, and for Pectoralis Major a "V" model (descending and then ascending).

## Conclusions

The HR' peaks recorded on the three execution tempo do not show the same dynamic pattern for all subjects. Therefore, we can't assert that the maximum HR during weight exercises is influenced by the specific of the execution tempo. Analysis of the distribution pattern of means indicates a difference between the two muscles included in our research.

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## STUDY ON ATHLETES WHO UNDERWENT AN ATHLETIC TRAINING PROGRAM AT ALTITUDE IN ORDER TO INCREASE THEIR PULMONARY CAPACITY, TO IDENTIFY PSYCHOLOGICAL CHANGES REGARDING ATTENTION AND CONCENTRATION, THE PERSISTANCE OF MOTIVATION AND THE CORELATIONS BETWEEN THE TWO

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**ABSTRACT. Introduction.** Improving the sports performance of an athlete it depends on his or hers internal factors and the external factors. An environmental change or a new challenge may have effects on the psyche of the athlete and can lead to changes in motivation and concentration. **Objectives.** The aim of this study is to analyze the effects on the psyche following a specific program of preparation, which involves major changes in the athlete's routine. In this study we analyze athletes who follow a program of athletic training at altitude to increase lung capacity, and will test whether psychological experience changes in terms of attention and concentration, persistent motivation, and the correlation between the two. **Material and methods.** In this observational study took part two groups of athletes, 44 female judokas. Control group 1 with 22 athletes, and group 2 with 22 athletes who have undergone a specific training at altitude (1020 m, 677 mmHg) for three months in order to increase lung capacity. For collecting statistics on psyche regarding motivational persistence and concentration of attention, SPM questionnaire and ACC test were used. **Results.** Analysis of the results of the study showed only one significant difference between the two groups. Group II showed an acceptable and similar correlation between long term pursuing purposes (LTPP) and recurrence of unattained purposes (RUP), which was not found in group I. All other indicators showed no difference between the two groups of athletes. **Conclusion.** In terms of motivation, attention span and the correlation between the two, no mental changes were found in athletes who have undergone specific training at altitude for three months.

**Key words:** *altitude training, physical preparation, judo, concentration.*

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**REZUMAT.** *Studiu asupra sportivilor care urmează un program de pregătire athletică la altitudine pentru creșterea capacității pulmonare pentru a identifica modificări psihologice în ceea ce privește atenția și puterea de concentrare, persistența motivației și corelația dintre cele două.* **Introducere.** Îmbunătățirea performanței în sport al unui sportiv depinde de factorii lui interni la fel și de factorii externi. O schimbare de mediu sau o nouă provocare ar putea avea efecte asupra psihicului sportivului și poate duce la schimbări în motivație și concentrare. **Obiective.** Scopul acestui studiu este de a analiza efectele asupra psihicului ca urmare a unui program specific de pregătire, care implică schimbări majore în rutina sportivului. În acest studiu analizăm sportivii care urmează un program de formare sportivă la altitudine pentru a crește capacitatea pulmonară, și se va testa dacă experiența psihologică se modifică în ceea ce privește atenția și concentrarea, persistența motivației, și corelația dintre cele două. **Materiale și metode.** În acest studiu observațional au participat două grupe de sportive, 44 judoka de sex feminin. Lotul I, grupa de control cu 22 de sportivi, iar lotul II, cu 22 de sportivi, care au fost supuse unui antrenament specific la altitudine (1020 m, 677 mm Hg) timp de trei luni, cu scopul de a crește capacitatea pulmonară. Pentru colectarea de date statistice privind psihicul în ceea ce privește persistența motivațională și concentrarea atenției, s-au folosit chestionarul SPM și testul ACC. **Rezultate.** Analiza rezultatelor studiului a arătat doar o diferență semnificativă între cele două grupe. Grupa a II-a arătat o corelație acceptabilă și similară între urmărirea scopurilor pe termen lung (LTPP), și recurența scopurilor nerealizate (RUP), care nu au fost găsite la grupa I. Ceilalți indicatori nu au arătat nici o diferență între cele două grupe de sportivi. **Concluzii.** În ceea ce privește motivația, durata atenției și corelația dintre cele două, nu s-au găsit modificări mentale la sportivii care au urmat o formare specifică la altitudine, timp de trei luni.

**Cuvinte cheie:** *antrenament la altitudine, preparare fizică, judo, concentrare.*

## Introduction

To be successful in international competitions, judo athletes must achieve an excellent level of physical fitness and physical condition during training (Franchini, 2011). The development of emotional excitability in athletes with different level of sensory-movement reaction occurs for elite athletes via different strategies perception and information processing (Korobeynicov et al., 2017).

Modern sporting activity is characterised by higher psycho-emotional and physical tension which influence the accuracy of motor skill leading to a deficit of time reaction. Progress in sporting activity is accompanied by a broad introduction to sports psychology, and practically to modern technologies. The

basics of this approach is understood by the particular personality peculiarities of athletes, including the individual-typological characteristics of higher nervous activity (Korobeynikov et al., 2017).

Improving the sports performance of an athlete it depends on his or hers internal factors and the external factors. An environmental change or a new challenge may have effects on the psyche of the athlete and can lead to changes in motivation and concentration. The external factors may influence internal factors. Methods to improve performance are diverse and most of the time are controlled and measured, but uncontrollable changes also can occur. Methods for improving performance can have unanticipated side effects on the psyche, and on the power of self-motivation. Motivation stimulates the activity, it triggers it, supports it and direct it. It is a source of energy in the effort to achieve the goal. Achievement motivation has a broad research history that provides us with psychological interpretations applicable to sports activity. Competition is the most common situation of achievement in sport.

The functional states of psychophysiological functions in higher qualification athletes characterize the functional system responsible for the results of sport. The optimization of the perception and information processing using the short-term memory reflects the psychophysiological compensatory mechanisms of a decline of visual perception and information processing capability in athletes (Korobeynikov et al., 2006).

Altitude plays an important role in cardiovascular performance and training for athletes. Whether it is mountaineers, skiers, or sea-level athletes trying to gain an edge by training or living at increased altitude, there are many potential benefits and harms of such endeavors. Echocardiographic studies done on athletes at increased altitude have shown evidence for right ventricular dysfunction and pulmonary hypertension, but no change in left ventricular ejection fraction. In addition, 10% of athletes are susceptible to pulmonary hypertension and high-altitude pulmonary edema (Shah & Coplan, 2016). The aerobic fitness of elite judokas may be improved by adding aerobic routines to the normal training enhancing the recovery capacity (Bonato et al., 2015).

Training at moderate altitude for 14 days induces an increase in aerobic exercise capacity in athletes specialized in anaerobic exercise. Biochemical changes occur rapidly, after exposure to environmental prooxidant factors (Ugron, 2012; Ugron & Tache, 2012).

The hypoxia-induced hyperventilation at altitude paradoxically reduces arterial  $\text{CO}_2$  ( $\text{PaCO}_2$ ). A reduction in  $\text{PaCO}_2$  results in vasoconstriction of the blood vessels of the brain and thus in local hypoxia. The local hypoxia likely affects cognitive function, which may result in reduced performance and altitude accidents. Quackenbush et al. (2016) publications have demonstrated that



voluntary isocapnic hyperventilatory training of the respiratory muscles (VIHT) can markedly enhance exercise endurance as it is associated with reduced ventilation and its energy cost. VIHT may be useful in blunting the altitude-induced hyperventilation leading to higher  $P_{aCO_2}$  and improved cognitive function. VIHT improved processing speed and working memory during exercise at altitude (Quackenbush et al., 2016).

Long-term living at high altitudes causes significant impairment of psychological and cognitive function. Cerebral hypoxic extent, sleep quality and biochemical dysfunction are major influencing factors (Gao et al., 2015).

Malle C. et al. (2013) in their study suggest: the working memory is impaired by acute hypobaric hypoxia (Malle et al., 2013).

The results of the Garbouj et al study (2016) showed that the Special Judo Fitness Test (SJFT) produced high levels of blood lactate, which were not correlated with SJFT performance (Garbouj et al., 2016).

## **Objectives**

The aim of this study is to analyze the effects on the psyche following a specific program of preparation, which involves major changes in the athlete's routine. In this study we analyze athletes who follow a program of athletic training at altitude to increase lung capacity, and will test whether psychological experience changes in terms of attention and concentration, persistent motivation, and the correlation between the two.

## **Materials and methods**

In this observational study took part two groups of athletes, 44 female judokas. They were informed about the risks of the study before giving their written consent, and all procedures were approved by the Local University Research Ethics Committee according to the Declaration of Helsinki 1975. Control group 1 (lot I) with 22 athletes, and group 2 (lot II) with 22 athletes who have undergone a specific training at altitude (1020 m, 677 mmHg) for three months in order to increase lung capacity.

The results of group no. 2 (lot II) athletes who underwent the athletic training at altitude program were compared with the statistical results of the control group.

Statistical processing was performed with software v.2.7.2 StatsDirect with OpenEpi v.3.03 application and Excel (Microsoft Office 2010). The graphical representation of the results was done with Excel (Microsoft Office 2010).

Elements of descriptive statistics were calculated, data is presented using indicators of centralization, location and distribution.

Shapiro-Wilk test was used to test the normal distribution, and the variance was tested with test F.

Nonparametric Mann-Whitney test (U) and  $\chi^2$  (Chi2) were used for statistical processing of data. The significance threshold for the tests used was  $\alpha = 0.05$  (5%),  $\alpha = 0.01$  (1%) or  $\alpha = 0.001$ . For collecting statistics on psyche regarding motivational persistence and concentration of attention, SPM questionnaire, and ACC test were used.

SPP results of group 1 were analyzed compared with group 2, also the ACC results, and correlation between PMS and ACC results. To detect the correlation between two quantitative variables continue (items SPM, ACC). Pearson correlation coefficients (r) and Spearman ( $\rho$ ) were used. Analysis of correlation coefficients was carried out using Colton's empirical rules. Polynomial regression method was used to derive the mathematical equation of dependence on a continuous variable to another variable.

A measure of the relationship between an event and the presence of a risk factor, where the risk factor supposedly has influence on the event, is the relative risk or Risk ratio (RR). The probability of the event in an individual exposed to the risk factor is represented by those exposed to the risk (RE); the probability of the event in an individual unexposed to the risk factor is the risk of those not exposed (RN). RR is the ratio between RE and RN.

## Results

SPM questionnaire results for the two groups were analyzed and compared in Table I and graphed in Chart 1 and Chart 2.

**Table 1.** Motivational persistence scale at studied groups and the statistical significance

Indicators	Lot	Average	ES	Median	DS	Minimum	Maximum	Statistical significance (p)
PM	I	6,32	0,5238	5,5	2,4570	2	10	0,4827
	II	5,73	0,5892	5,5	2,7634	1	10	

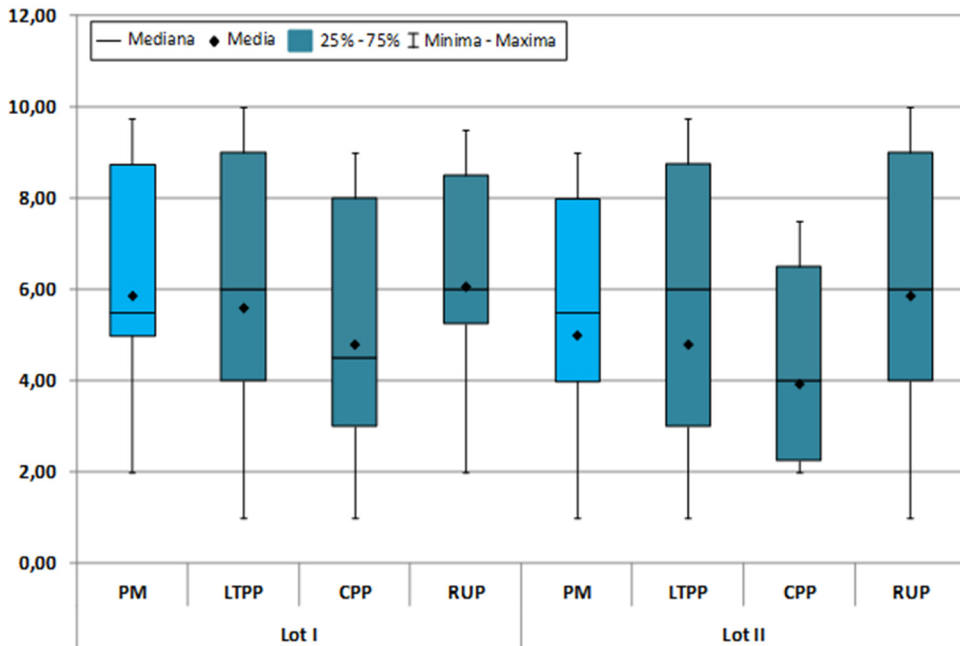
Indicators	Lot	Average	ES	Median	DS	Minimum	Maximum	Statistical significance (p)
<b>LTPP</b>	<b>I</b>	6,14	0,6112	6	2,8668	1	10	0,7968
	<b>II</b>	5,86	0,6389	6	2,9968	1	10	
<b>CPP</b>	<b>I</b>	5,05	0,5324	4,5	2,4972	1	9	0,233
	<b>II</b>	4,27	0,4753	4	2,2293	2	9	
<b>RUP</b>	<b>I</b>	6,23	0,5463	6	2,5622	2	10	0,8522
	<b>II</b>	6,00	0,6774	6	3,1773	1	10	

At the statistical analysis of the values for pursuing long-term goals (LTPP - Long Term Pursuing Purposes) no statistically significant differences were observed between the two groups ( $p > 0.05$ ).

At the statistical analysis of the values for tracking current tasks (CPP - Pursuing Current Purposes) no statistically significant differences were observed between the two groups ( $p > 0.05$ ).

At the statistical analysis of the values for the recurrence of unattained purposes (RUP – recurrence of unattained purposes) no statistically significant differences were observed between the two groups ( $p > 0.05$ ).

As expected, the statistical analysis of the motivational persistence score values (PM) granted under the three previous items, no statistically significant differences were observed between the two groups ( $p > 0.05$ ).



**Chart 1.** SPM items at the studied groups

At the Persistence Motivational scale (SPM) scores are grouped into 5 categories: very low (score 1 and 2), low (score 3 and 4), medium (score 5 to 6), good (score 7 and 8) and very good (score 9 and 10).

In the I group 45,45 % of LTPP subjects had have achieved good and very good scores, 36.36% of CPP subjects and 36.36% of the RUP subjects, such that the motivational persistence score (PM) were good and very good at 36.36% of the subjects.

The situation was almost similar to group II, where good and very good scores were achieved in 45.45% of LTPP subjects, 27.27% of CPP subjects, and 45.45% of RUP subjects, such that the values of the motivational persistence (PM) scores were all good and very good at 36.36% of the subjects.



**Chart 2.** SPM items at the studied groups - percentage values according to the grouping of the scores category

Grouping categories of scores in two large groups (low and very low vs. medium, good or very good) showed no statistically significant association between low and very low scores at the SPM items with any of the groups studied ( $p > 0.05$ ).

**Table 2.** Motivational persistence scale at studied groups and the statistical significance

PM	Gr. I	Gr. II	<i>p</i>	RE (%)	RN (%)	RR
Very low and Low	3	7	0,2818	30,00	55,88	0,5368
Medium, Good and Very good	19	15				
LTPP	Lot I	Lot II	<i>p</i>	RE (%)	RN (%)	RR
Very low and Low	7	10	0,5358	41,18	55,56	0,7412
Medium, Good and Very good	15	12				
CPP	Lot I	Lot II	<i>p</i>	RE (%)	RN (%)	RR
Very low and Low	11	15	0,3576	42,31	61,11	0,6923
Medium, Good and Very good	11	7				
RUP	Lot I	Lot II	<i>p</i>	RE (%)	RN (%)	RR
Very low and Low	5	7	0,735	41,67	53,13	0,7843
Medium, Good and Very good	17	15				

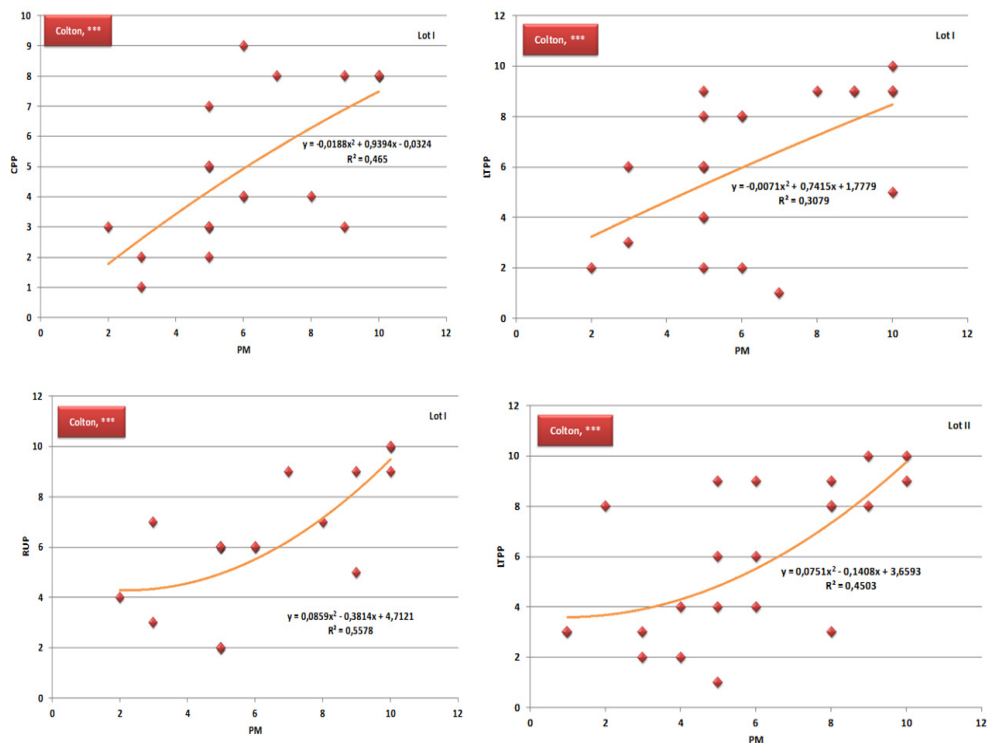
Statistical analysis of the correlation between the values of SPM items showed in group I:

- a good and similar correlation between-PM-LTPP, PM-CPP and PM-RUP;
- an acceptable and similar correlation between CPP-RUP in group II;
- a very good and similar correlation between PM-RUP;
- good and similar correlation between PM-LTPP, PM-CPP;

- an acceptable and similar correlation between LTPP-RUP, RUP CPP.

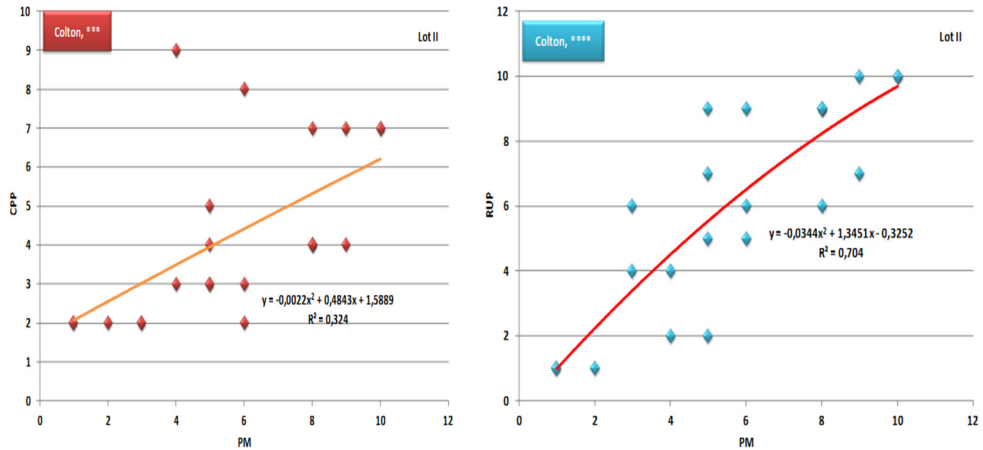
The only significant difference between the two groups is the acceptable and similar correlation between LTPP-RUP in the group II, and a lack of correlation of group I.

**Table 3.** Statistical analysis of the correlation between the values of items and scores of SPM



<b>Group I</b>	<b>PM-LTPP</b>	0,5517	***	<b>Group II</b>	<b>PM-LTPP</b>	0,6729	***
	<b>PM-CPP</b>	0,7025	***		<b>PM-CPP</b>	0,6583	***
	<b>PM-RUP</b>	0,7067	***		<b>PM-RUP</b>	0,8504	****
	<b>LTPP-CPP</b>	0,2152	*		<b>LTPP-CPP</b>	0,1988	*
	<b>LTPP-RUP</b>	0,1478	*		<b>LTPP-RUP</b>	0,3393	**
	<b>CPP-RUP</b>	0,2677	**		<b>CPP-RUP</b>	0,4585	**

# STUDY ON ATHLETES WHO UNDERWENT AN ATHLETIC TRAINING PROGRAM



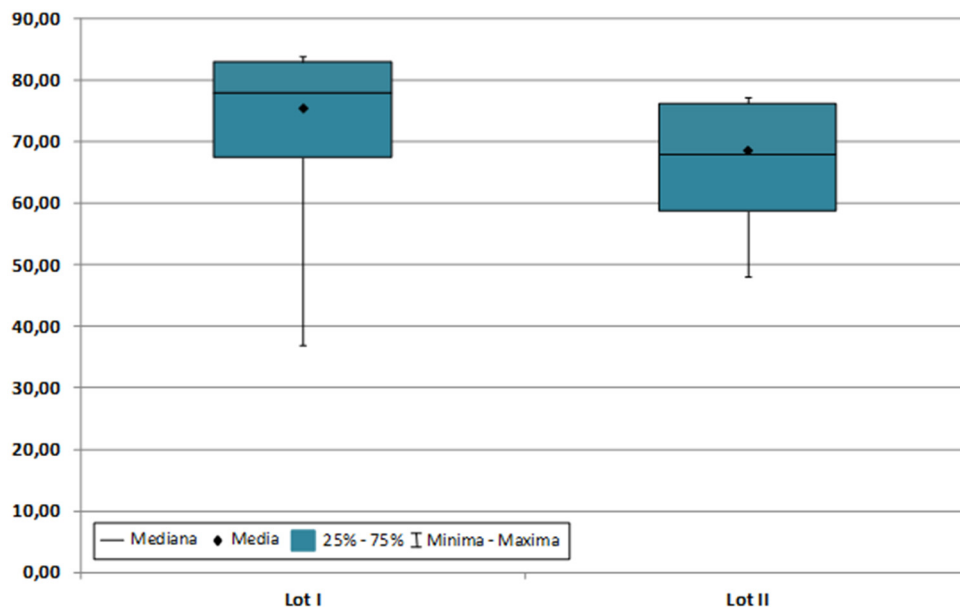
**Chart 3.** Very good and good correlations between SPM items at the studied groups

At the statistical analysis of the values for focused attention (ACC) no statistically significant differences were observed between the two groups ( $p > 0.05$ ).

**Table 4.** Concentration attention at the studied groups and the statistical significance

Indicators	Gr.	Average	ES	Median	DS	Minimum	Maximum	Statistical significance (p)
ACC	I	74,23	3,2613	78	15,296	37	93	0,0854
	II	68,36	2,6860	68	12,598	48	90	





**Chart 4.** Concentration attention at the studied groups

At the statistical analysis of the correlation between the values of SPM and ACC items, no correlation between ACC and SPM could be observed.

**Table 5.** Statistical analysis of the correlation between the values of SPM and ACC items

Group	Group I		Group II	
ACC-PM	-0,0052	*	0,09872	*
ACC-LTPP	0,0984	*	0,1123	*
ACC-CPP	0,0124	*	-0,0806	*
ACC-RUP	-0,0756	*	-0,0237	*

## Conclusion

Analysis of the results of the study showed only one significant difference between the two groups. Group II showed an acceptable and similar correlation between LTPP and RUP, which was not found in group I. All other indicators showed no difference between the two groups of athletes.

In terms of motivation, attention span and the correlation between the two, no mental changes were found in athletes who have undergone specific training at altitude for three months.

Korobeynicov et al. (2011) obtained data show that different combinations of levels of motivation to achieve success and motivation to avoid failure provoke different psychophysiological states. Conducted experiment revealed that combination of high levels of both motivation to achievement of success and motivation to avoid failure provides better psychophysiological state in elite wrestlers compared to other groups with different combinations of motivational variables. Conducted experiment revealed that motivation to avoid failures had been formed as a personality formation, which compensates excessive tension, caused by high level of motivation to achieve and regulate the psychophysiological state. This can be viewed as an effect of training in athletes (Korobeynicov, 2011).

In conclusion, judo training and judo-specific exercise should be manipulated to maximize training response and competitive performance. Understanding the physiological and psychological response to the most common judo training modalities may help to improve the prescription and monitoring of training programs (Franchini, 2014).

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## A STUDY CONCERNING THE DEVELOPMENT OF SPEED THROUGH THE USE OF DYNAMIC GAMES IN FOOTBALL, JUNIORS OF 14 TO 15 YEARS OLD

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**ABSTRACT.** The authors of this paper have attempted to find an optimum ratio between the actual training and game implementation in the process of multilateral development of the football player, emphasizing the development of speed throughout games both specific and nonspecific to football. Due to the fact that the dynamic games create a state of emulation, doubled with a high energy consumption, they also have an educational and multilateral formative influence on children, especially if they are correctly selected and conducted, so as to satisfy the children's variety of interests and development needs. Therefore, it is highly recommended the alternative use of games in sports training (Epuran, 2001). In this study, the authors have intended to show that through certain ways, methodical procedures and adequate systems of action, all applied differently and collectively in the sports training, games help to develop speed in all its forms. **Objectives:** The aims were to prove that games can help the development of speed and a physical progress can be obtained for football players as a result of applying games in sports training. **Materials and methods:** To properly conduct the experiment, the following materials were used: 2 stopwatches, an object used to signal the start (a starter), stakes and a colourful spray to draw lines. **Conclusions and recommendations:** Introducing games in the sports training brings many advantages in training sports people, the results of speed tests being better and as a result of this, the psychological positive effect on the player's mood is highly enhanced; therefore, our future recommendation is that football coaches and others, should use and implement games when training sportspeople.

**Keywords:** *dynamic games, football, speed through.*

**REZUMAT.** *Studiu privind dezvoltarea vitezei prin utilizarea jocurilor dinamice în fotbal la juniori cu vârsta cuprinsă între 14-15 ani.* Autorii acestei lucrări vizează găsirea unui raport optim între antrenamentul propriu-zis și implementarea jocului în procesul de dezvoltare multilaterală a jucătorului de fotbal, punând

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accentul pe dezvoltarea vitezei prin jocuri specifice și nespecifice jocului de fotbal. Datorită faptului că jocurile dinamice creează o stare de emulație, dublată de un consum energetic mare și în același timp au o influență educativă și formativă multilaterală asupra copiilor dacă sunt corect selecționate și dirijate, astfel încât să satisfacă varietatea intereselor și nevoilor de creștere și dezvoltare a acestora, se recomandă folosirea alternativă a jocurilor în antrenamentul sportiv (Epuran, 2001). Prin acest studiu autorii și-au propus să arate că jocul prin anumite modalități, procedee metodice și sisteme de acționare adecvate, aplicate în mod diferențiat și colectiv în antrenament sportiv, ajută la dezvoltarea vitezei sub toate formele ei. **Obiective:** Obiectivele au fost acelea de a demonstra că jocul ajută la dezvoltarea vitezei și se poate obține un progres fizic al jucătorilor de fotbal prin aplicarea acestora în antrenamentul sportiv. **Materiale și metode:** Pentru desfășurarea experimentului s-au folosit următoarele materiale: 2 cronometre, un obiect pentru declanșarea sunetului la start (starter), jaloane și un spray colorat pentru a trasa linii. **Concluzii și recomandări:** Apariția jocurilor în antrenamentul sportiv aduce un plus în pregătirea sportivilor, rezultatele probelor specifice vitezei fiind mai bune, iar prin valența lor, jocurile au și un efect psihic pozitiv asupra stării de spirit al jucătorului; recomandăm ca pe viitor, antrenorii de fotbal, și nu numai, să implementeze jocul în pregătirea sportivilor.

**Cuvinte cheie:** *jocuri dinamice, fotbal, dezvoltarea vitezei*

## Introduction

Together with the development of new sports training techniques, better results come into view. In order to obtain performance, it is very important to start training from an early age. If the athlete starts training from the age of 6 or, then he / she will be easily influenced in his / her training. When 14-15 years old, the athlete needs to be involved also through more and more innovative training means and methods. At the beginning, one may be attracted towards performance as a result of training in an unknown environment. Regardless of age, the training methods must be as modern, as efficient and as attractive as possible, so as to attract the sportsperson's attention in order to obtain and improve performance (Dragnea, 1999).

The dynamic games create an emulation state, doubled with a high energy consumption and, at the same time, they also have an educational and multilateral formative influence on children. If they are correctly selected and conducted, games satisfy the sportspeople's variety of interests and development needs. Therefore, it is highly recommended the alternative use of games in sports training (Epuran, 2001).

## **Aspects concerning dynamic games**

Games are an important means not only for physical education, but also for the athlete's intellectual, moral and aesthetic education. Throughout games, the athlete learns to obey rules, to be tidy and disciplined. When organised in groups, games contribute to development of friendship and cohesion among sportspeople, but also to building team spirit and devotion (Prodea, 2010).

The content of games must conform to the children's anatomical, physiological and psychic particularities. When choosing games, we have also taken into account the children's physical training, and the possibilities of the group we were working with (Prodea, 2010).

Through their content, the dynamic games are extremely varied, due to the specific movements they actually involve, such the ones related to basis-walking, running, jumping, crawling, throwing, etc. The movements are meant to exercise different types of muscles, although some are able to develop other types of motric qualities, such as speed in particular (Chiriță, 1983).

## **Hypothesis**

Approaching dynamic games offers multiple training possibilities, consolidation of basic motricity skills, as well as skills specific to various sports branches, enhancing at the same time the development of motricity skills and the moral-volitional features (Prodea, 2010).

## **Objectives**

A first objective is that of demonstrating throughout an experiment that a physical progress can be obtained with football players by involving dynamic games in the sports training, games specific for speed development.

The second, is that of demonstrating that, through certain methodical ways, procedures and adequate systems of action applied differently and collectively, speed development will be enhanced in all its forms.

## **The subjects of the research**

The subjects of the research are children, football players: 10 players from the football club "Best Junior" from Cluj Napoca and 10 players from „Industria Sârmei Câmpia-Turzii” („I.S.C.T.”) football club from Câmpia-Turzii.

The evaluation trials take place in two stages: initial and final testing. The same subjects are assessed in the final trials, after applying games in their sports training. The trainings of “Best Junior” team took place twice a week every three weeks and the 25 games were repeated twice.

## Materials and methods

The research consists in testing the 20 athletes of 14 -15 years old, divided into two teams of ten in two stages. In the first stage, an initial assessment of the players takes place at the beginning of the competitional year. At the end of the competitional year, a second assessment stage takes place. Throughout the competitional year (between the initial and the final assessment), one of the teams will be involved in dynamic games specific for the development of speed in their weekly training.

The following materials were used in this research:



**Fig. 1.** Stopwatch (bbymotors, 2017)



**Fig. 2.** Starter (prosportequipment, 2017)



**Fig. 3.** Stakes (mold-didactica, 2017)



**Fig. 4.** Spray (seawavesonline, 2017)

- Two stopwatches to measure time for athletes trials;
- A starter (an object used to signal the start) so as to make the start as efficiently and as correctly as possible;
- Stakes to enclosure the working space;
- A coloured spray to define the lines on the ground (the strating and the finishing lines).

Systems of action:

**Table 1.** Systems of action

No of game	Name of the game	Week
	Initial testing	1
1.	"Small bouquets"	2/17
2.	"The coloured corners"	2/17
3.	"The coloured heads"	3/18
4.	"Tic Tac Toe"	3/18
5.	"The baskets' transportation"	4/20
6.	"The horse and the carriage"	4/20
7.	"The woodpecker "	5/20
8.	"Run and touch"	5/21
9.	"Pay attention to the number"	6/21
10.	"The labyrinth"	6/22
11.	"The crabs and the shrimps"	7/22
12.	"Tag"	8/23



No of game	Name of the game	Week
13.	"Relay race with return"	8/23
14.	"The mirror"	9/24
15.	"The ducks and the hunters"	9/24
16.	"Conquering the balls"	10/25
17.	"The coloured stick"	10/25
18.	"Do and undo the circle"	11/26
19.	"The clock"	11/26
20.	"Race by numbers"	12/27
21.	"Watch out for the ball!"	12/27
22.	"The bouncing ball"	15/28
23.	"Keep the ball"	15/28
24.	"Touch and run"	16/29
25.	"The fishing net"	16/29
	Final testing	30

**Weeks: 1; 30 – testings;**

**Weeks: 13; 14; 19 – holiday**

## Results

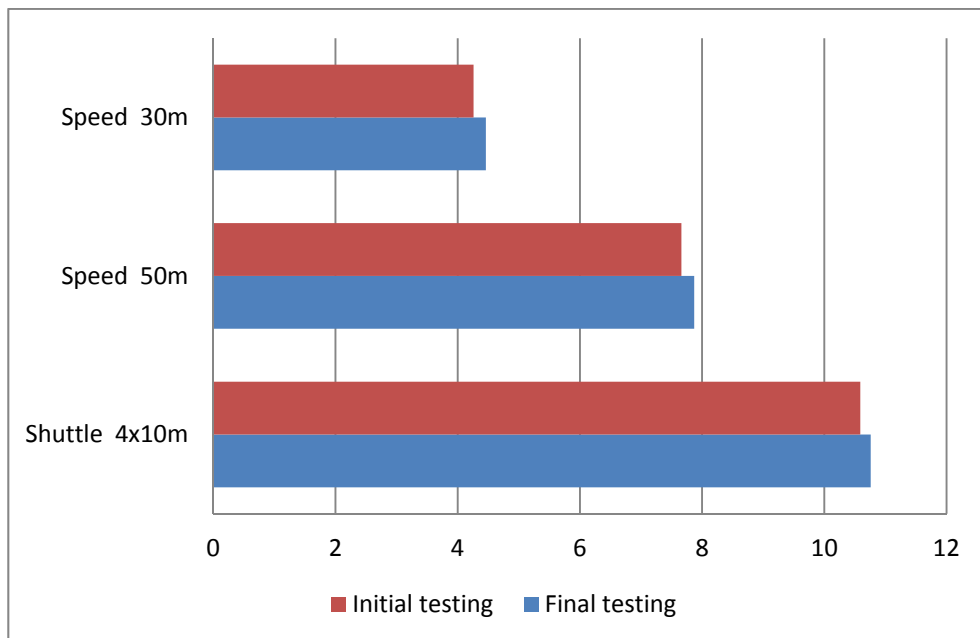
For the control group (the team that trained in the normal way, without games), the following results were registered:

**Table 2.** Results of the initial testing for "I.S.C.T" team

Testing stages	Commute 4x10m	Speed 50m	Speed 30m
Statistical indicators	10,76	7,87	4,46
Arithmetic mean			
The standard deviation	0,54	0,41	0,16
The variability coefficient	0,05	0,05	0,04

**Table 3.** Results of the final testing - "I.S.C.T."

Testing stages	Commute 4x10m	Speed 50m	Speed 30m
Statistical indicators	10,59	7,66	4,26
Arithmetic mean			
The standard deviation	0,46	0,45	0,13
The variability coefficient	0,04	0,06	0,03



**Figure 1.** Comparison between the arithmetic means of the initial and final testing

By comparing the initial and the final testing in the above chart, we can see an improvement for all three trials, of 0,17 seconds for the commute trial; 0,21 seconds for the speed 50 m trial; 0,20 sec for the speed 30 m trial .

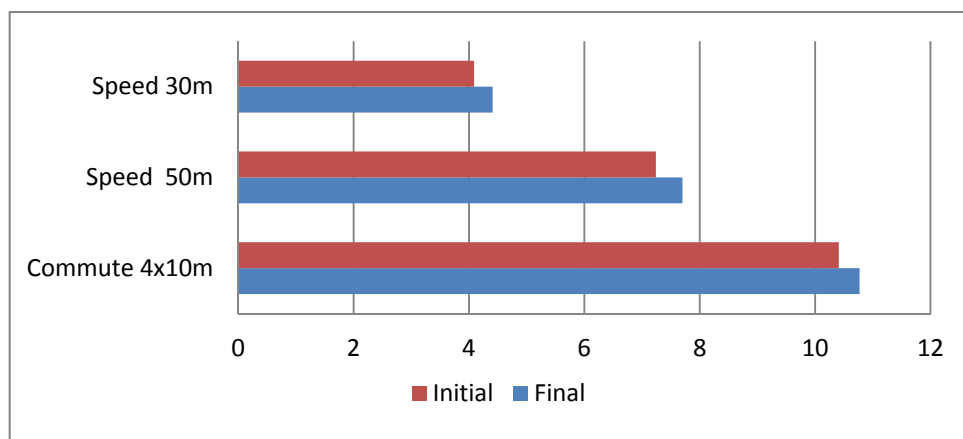
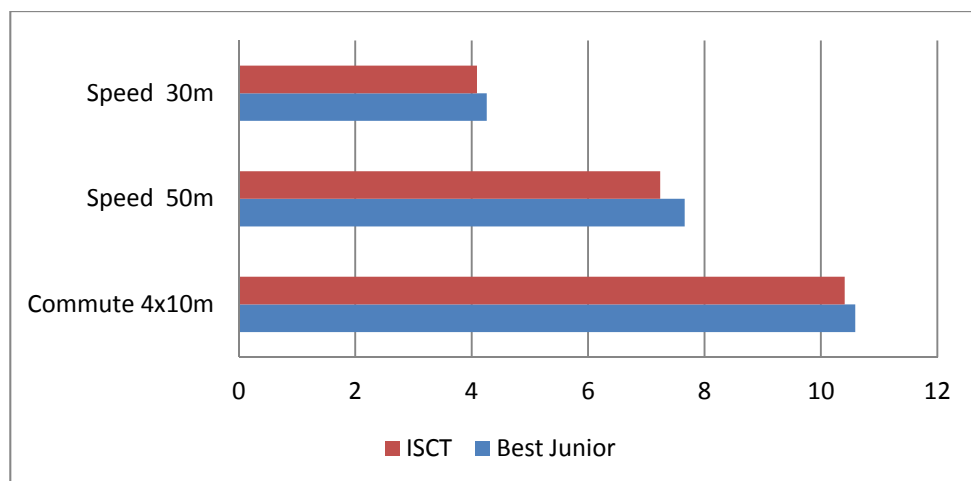
For the experimental group (which used dynamic games when training) the following results were registered:

**Table 4.** Results of the initial testing - “Best Junior” team

Testing stages	Commute 4x10m	Speed 50m	Speed 30m
Statistical indicators	10,77	7,70	4,41
Arithmetic mean			
The standard deviation	0,63	0,38	0,12
The variability coefficient	0,06	0,05	0,03

**Table 5.** Results of the final testing - “Best Junior” team

Testing stages	Commute 4x10m	Speed 50m	Speed 30m
Statistical indicators	10,41	7,24	4,09
Arithmetic mean			
The standard deviation	0,51	0,22	0,07
The variability coefficient	0,05	0,03	0,02

**Figure 2.** Comparison between the arithmetic means of the initial and final testing for “Best Team” juniors**Figure 3.** Comparisons between "I.S.C.T." team and the "Best Junior" team

From the above figure, we can see a better result for speed at the final trials, in comparison with the initial ones. Thus, we have an improvement 0,36 sec for commute, as a result of comparing the arithmetic means of the initial and the final testing. For the other trials, we have had an improvement of 0,46 seconds for speed 50 m and of 0,32 seconds for speed 30 m.

The figure number 3 illustrates a visible higher progress of the “Best Junior” team which has been trained by using dynamic games, in comparison with the ISCT team. The differences were the following: 0,18 sec.; 0,42 sec. and 0,17 sec. for commute 4x10 m, speed 50 m, and speed 30 m.

## Conclusions

As a result of processing and interpreting the results of the experiment, we can draw some conclusions related to the use of the dynamic games in developing speed.

The hypothesis from which we have started has been confirmed and one can notice the positive effects of games in trails specific for speed and also the psychic positive effect on the player’s mood.

We have demonstrated experimentally that by using specific dynamic games for speed enhancement, one can achieve a physical progress determined by the development of this motrical quality as a result of unspecific methods that is throughout games. The values registered by the “Best Junior” team, which has been trained via games, were higher than those registered by the “ISCT” team, for which games haven’t been used.

As a result of this research, we consider that we have successfully deepened the knowledge of the chosen topic and that, the experiment can very well serve as a guide for football coaches in their activity with the players.

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## SPECIFIC METHODS USED IN EVALUATION OF FOOTBALL GAME SKILLS FOR THE 10-12 YEAR GROUP

DAN MONEA<sup>1</sup>

**ABSTRACT.** The paper involves a methodical material with scientific and systematized content that can be the basis of the training process, especially during the precompetitive and competitive period. The proposed exercises are relatively easy to accomplish and do not require extra effort. The requirement to model the development of motor skills in addition to correlation with technical and tactical training. The requirement to model the development of motor skills in addition to the correlation with technical and tactical training can also be achieved with the help of the content, structure and dynamics of the specific effort. Skills are essentially complex physical-technical qualities. We can make a difference between a skilful and a skilled player with superior skills, but their absolute value cannot be determined, by lacking objective means to pinpoint that difference. With the development of general skills, exercises, or other means at our disposal, we do not track the automatism of movements at any price but in a mechanical way we will be able to determine the player to think.

**Key words:** *skills, methods, means, results, evaluation*

**REZUMAT.** *Metode specifice utilizate la evaluarea îndemânării în jocul de fotbal la grupa de vârstă 10-12 ani.* Cerința modelării dezvoltării calităților motrice pe lângă corelarea cu pregătirea tehnică și tactică se realizează și în ceea ce privește conținutul, structura și dinamica efortului specific. Îndemânarea este în esență o calitate fizico-tehnică complexă. Putem face diferență între un jucător îndemânatic și unul înzestrat cu o îndemânare superioară, însă valoarea absolută a lor nu o putem stabili, din lipsa mijloacelor care să aibă un caracter obiectiv, pentru a determina cât mai exact această diferență. Cu ocazia dezvoltării îndemânării generale, prin exerciții de gimnastică, sau alte mijloace la dispoziție, nu urmărim automatizarea mișcărilor cu orice preț și în mod mecanic, ci vom determina jucătorul să și gândească.

**Cuvinte cheie:** *îndemânare, metode, mijloace, rezultate, evaluare*

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## Introduction

Under the conditions of the evolution of the modern football game towards the total commitment, with the use of procedures with great finesse and subtlety, with more and more flexible and adaptable tactics, the early training becomes more and more advanced. That is why both the coaches, the players and all the other players involved in this social phenomenon, which is football, have become more concerned about achieving the final goal: winning each match. This has always been a reason for research, to study the changes in the training process and to reach a superior level to the opponent, especially from a tactical point of view.

In the conditions of the evolution of the modern football game towards the total commitment, with the use of procedures with great finesse and subtlety, with more flexible and adaptable tactics, the early training becomes more and more advanced. That is why both the coaches, the players and all the other players involved in this social phenomenon, which is football, have become more concerned about achieving the final goal: winning each match. This has always been a reason for research, to study the changes in the training process and to reach a superior level to the opponent, especially from a tactical point of view. Skill is the "quality that allows us to coordinate complicated movements and assures the rapid acquisition of skills and their improvement, as well as their use according to requirements and adaptation to various situations" (Hirtz, 2004).

After other authors skill is "the man's ability to perform acts and actions with a superior degree of coordination in terms of efficiency and with minimal energy and nervous consumption" (Dragomir & Scarlat, 2004). The practical value of the paper is that it demonstrates the efficiency of some drives for skill development, and highlights the effectiveness of skill development in the physical education lesson. By the specifics of the used methods / objects, football play contributes to achieving the goals of physical education and sports, but for the harmonious physical development of the students are also necessary means of gymnastics and athletics (Popovici & Monea, 2006). Upper nerve activity improves in the sense that at the end of this period the cortical inhibition capacity develops without balancing excitement (Ifirim, 1986). The accentuated plasticity of the central nervous system (CNS) at this age, which ensures a particular receptivity, will thus be better harnessed. The analysis and synthesis function of the cerebral cortex is intensified on the influence of external excitators and the analyzers receiving them.

## Hypothesis

In the elaboration of the paper we started from the premise that by using rationally and consciously the specific means of football, in the process of initiation in football, there will be significant results regarding the development of the motor skills of the young players, skills that can be learned and educated in time.

## Objectives

We have researched and experienced the way and the extent to which the exercises in the football training contribute to the development of the motor skills of the athletes. Speed training of footballers is essential, representing the very condition of athletes' performance in training and competitions.

## Means and methods

1. Study of bibliography, observation method, experimental study, graphic method.

**Experiment:** The research was conducted within the Sports High School, Cluj-Napoca, during the school year 2016-2017, with a beginner group, aged 10-12, a group of 20 athletes, which I divided into 2 smaller groups of 10 athletes as follows:

- an experimental group - to which we applied a set of football-specific exercises tailored especially to the development of motor skills and speed;
- control group - in which they worked according to the school curriculum, training for general training, without emphasis on a specific motric quality.

### *A. Control tasks for skills testing*

#### **1. Keeping the ball in the air for 60 seconds**

**Marking:** Draw a 10-meter square

**Execution:** The player must keep the ball in the air with any part of the body, less with his hand.

**Rules:** The exercise begins with the ball in the hand



The exercise ends when:

- 60 seconds have expired
- The ball has fallen
- The player comes out of the square with the ball

Before attempting to score, the player is entitled to two attempts outside the square.

**Table 1.** Groups of athletes who participated in the experiment

CONTROL GROUP			EXPERIMENTAL GROUP		
Nr. crt.	Name and surname	Year of birth	Nr. crt.	Name and surname	Year of birth
1.	B.C.	2002	1.	C.E.	2002
2.	C.T.	2002	2.	T.I.	2002
3.	C.R.	2002	3.	I.R.	2002
4.	M.K.	2002	4.	B.A.	2003
5.	N.D.	2002	5.	C.C.	2003
6.	O.S.	2002	6.	G.M.	2003
7.	V.I.	2002	7.	I.A.	2002
8.	M.R.	2002	8.	M.C.	2003
9.	R.M.	2002	9.	P.D.	2003
10.	F.E.	2002	10.	T.E.	2003

## 2. Driving the ball in the 10-meter rounds, back-flowing

The players will lead the ball through 5 pillars, placed at equal distances of 2 meters, between them.

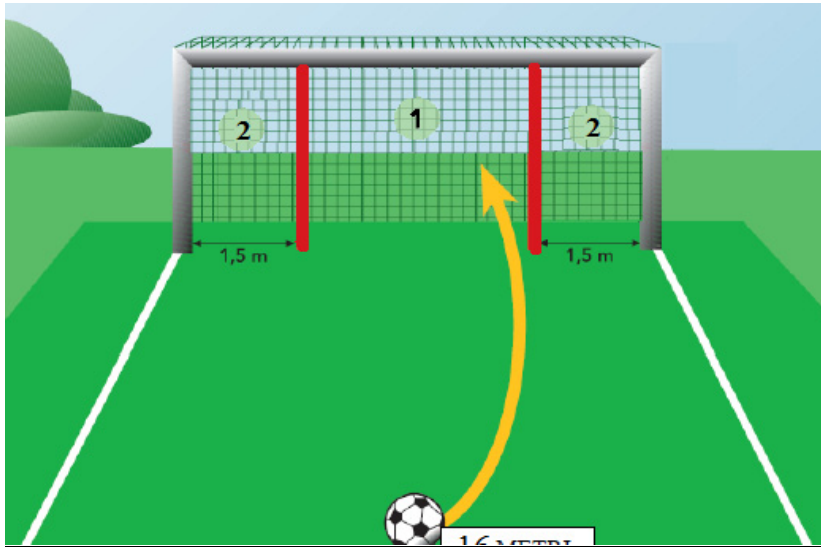
They will bypass the last pillar and will return to the starting line, repeating the route in the same way. They will start from a starting line, at the coach's signal and time will be determined in seconds. Penalties will be applied at touching the pillars and at the drop in total time by one second. Players will have 2 attempts, the best time will be taken into consideration.

## 3. Goal kick at 16 meters, 10 attempts

**Execution:** The player runs 10 strokes.

**Rules:** The ball has to enter in the air in the gate (direct air trajectory)

Result: Amount of points A SUCCESSFUL KICK = 1 point on MIDDLE POINTS = 2 points LATERAL RIGHT, LEFT



**Figure 1.** Evaluating skill through the gate - Goal kick at 16 meters

**Table 2. Results CONTROL GROUP** (Initial testing, final test, difference)

Nr. crt	Name and surname	TASK								
		Driving the ball among the pillars 10 m, round trip			Keeping the ball in the air for 60 seconds - No. of executions			Goal kick 16 meters		
		T.I.	T.F.	DIF.	T.I.	T.F.	DIF.	T.I.	T.F.	DIF.
1.	B.C.	14.3	14.0	0.3	35	40	5	8	9	1
2.	C.T.	15.4	14.8	0.6	29	32	3	7	7	0
3.	C.R.	16.2	15.7	0.5	28	31	3	7	8	1
4.	M.K.	15.3	15.1	0.2	32	36	4	6	7	1
5.	N.D.	14.7	14.5	0.2	34	37	3	5	7	2
6.	O.S.	15.8	15.4	0.4	30	33	3	8	8	0
7.	V.I.	16.2	15.6	0.6	27	31	4	6	7	1
8.	M.R.	15.9	15.4	0.5	31	34	3	7	10	3
9.	R.M.	16.3	15.9	0.4	29	32	3	5	6	1
10.	F.E.	15.4	14.9	0.5	30	34	4	6	8	2
<b>Average</b>		<b>15.55</b>	<b>15.13</b>	<b>0.42</b>	<b>30.5</b>	<b>34</b>	<b>3.5</b>	<b>6.5</b>	<b>7.7</b>	<b>1.2</b>
<b>Standard Deviation</b>		<b>0.67</b>	<b>0.59</b>	<b>0.15</b>	<b>2.55</b>	<b>2.91</b>	<b>0.71</b>	<b>1.08</b>	<b>1.16</b>	<b>0.92</b>
<b>Variance</b>		<b>0.04</b>	<b>0.04</b>	<b>0.35</b>	<b>0.08</b>	<b>0.09</b>	<b>0.20</b>	<b>0.17</b>	<b>0.15</b>	<b>0.77</b>

**Table 3. EXPERIMENTAL GROUP** (Initial testing, final test, difference)

Nr. crt.	Name and surname	TASK								
		Driving the ball among the pillars 10 m, round trip			Navet 5x10 m			Goal kick 16 meters		
		T.I.	T.F.	DIF.	T.I.	T.F.	DIF.	T.I.	T.F.	DIF.
1.	C.E.	15.4	14.8	0.6	25	30	5	5	8	3
2.	T.I.	16.3	15.8	0.5	24	28	4	6	7	1
3.	I.R.	17.3	16.9	0.4	26	32	6	4	6	2
4.	B.A.	16.4	16.0	0.4	23	29	6	7	8	1
5.	C.C.	15.8	15.5	0.3	25	29	4	6	7	1
6	G.M.	16.4	15.9	0.5	27	31	4	5	7	2
7.	I.A.	16.6	16.0	0.6	26	30	4	7	9	2
8.	M.C.	16.2	15.5	0.7	22	27	5	3	6	3
9.	P.D.	16.3	15.9	0.4	24	28	4	5	8	3
10.	T.E.	15.8	15.2	0.6	23	26	3	6	7	1
<b>Average</b>		<b>16.25</b>	<b>15.75</b>	<b>0.5</b>	<b>24.5</b>	<b>29</b>	<b>4.5</b>	<b>5.4</b>	<b>7.3</b>	<b>1.9</b>
<b>Standard Deviation</b>		<b>0.52</b>	<b>0.56</b>	<b>0.12</b>	<b>1.58</b>	<b>1.83</b>	<b>0.97</b>	<b>1.26</b>	<b>0.95</b>	<b>0.88</b>
<b>Variance</b>		<b>0.03</b>	<b>0.04</b>	<b>0.25</b>	<b>0.06</b>	<b>0.06</b>	<b>0.22</b>	<b>0.23</b>	<b>0.13</b>	<b>0.46</b>

**Task no.1 - Driving the ball among the pillars 10 m, round trip****Table 4. Task no.1****CONTROL GROUP**

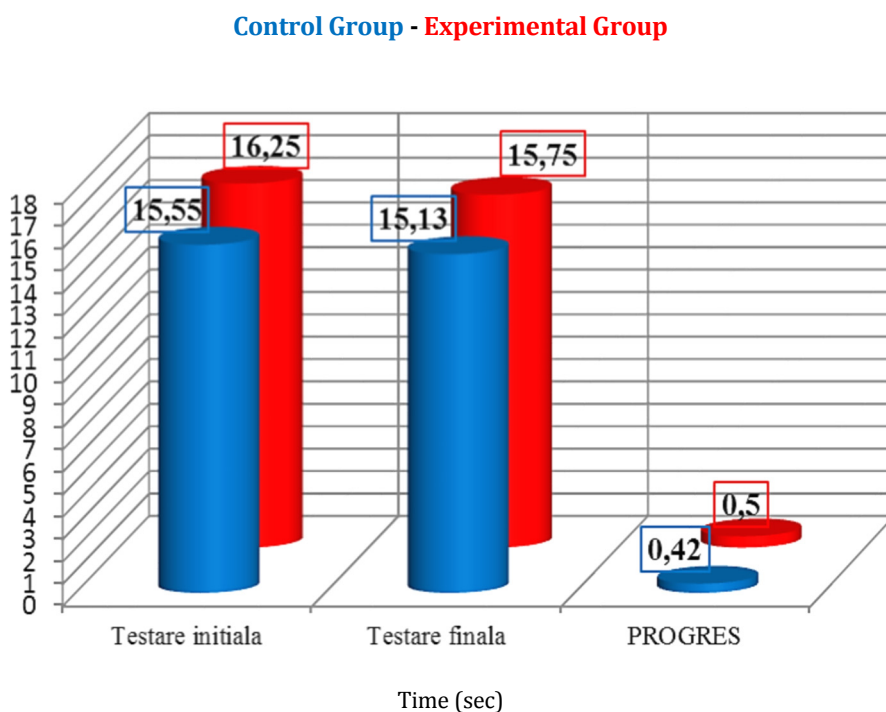
Nr. crt.	Name and surname	Task		
		Driving the ball among the pillars 10 m, round trip		
		T.I.	T.F.	DIF.
1.	B.C.	14.3	14.0	0.3
2.	C.T.	15.4	14.8	0.6
3.	C.R.	16.2	15.7	0.5
4.	M.K.	15.3	15.1	0.2
5.	N.D.	14.7	14.5	0.2
6.	O.S.	15.8	15.4	0.4
7.	V.I.	16.2	15.6	0.6
8.	M.R.	15.9	15.4	0.5
9.	R.M.	16.3	15.9	0.4
10.	F.E.	15.4	14.9	0.5
<b>Average</b>		<b>15.55</b>	<b>15.13</b>	<b>0.42</b>
<b>Standard Deviation</b>		<b>0.67</b>	<b>0.59</b>	<b>0.15</b>
<b>Variance</b>		<b>0.04</b>	<b>0.04</b>	<b>0.35</b>

**Table 5. Task no.1****EXPERIMENTAL GROUP**

Nr. crt.	Name and surname	Task		
		Driving the ball among the pillars 10 m, round trip		
		T.I.	T.F.	DIF.
1.	C.E.	15.4	14.8	0.6
2.	T.I.	16.3	15.8	0.5
3.	I.R.	17.3	16.9	0.4
4.	B.A.	16.4	16.0	0.4
5.	C.C.	15.8	15.5	0.3
6.	G.M.	16.4	15.9	0.5
7.	I.A.	16.6	16.0	0.6
8.	M.C.	16.2	15.5	0.7
9.	P.D.	16.3	15.9	0.4
10.	T.E.	15.8	15.2	0.6
<b>Average</b>		<b>16.25</b>	<b>15.75</b>	<b>0.5</b>
<b>Standard Deviation</b>		<b>0.52</b>	<b>0.56</b>	<b>0.12</b>
<b>Variance</b>		<b>0.03</b>	<b>0.04</b>	<b>0.25</b>

- For driving the ball among the pillars 10 m, round trip the arithmetic mean value suggested that the experimental group has progressed, but without much difference from the control group;

- The coefficient of variation and the standard deviation were close for both groups, suggesting that the two samples of athletes are homogeneous and all players have progressed.



**Figure 2.** Driving the ball among the pillars 10 m, round trip

**Task no. 2 - Keeping the ball in the air for 60 seconds -  
number of executions**

**Table 6.** Task no.2

<b>CONTROL GROUP</b>				
<b>Nr. crt.</b>	<b>Name and surname</b>	<b>Task</b>		
		<b>Keeping the ball in the air for 60 seconds – number of executions</b>		
		<b>T.I.</b>	<b>T.F.</b>	<b>DIF.</b>
<b>1.</b>	B.C.	35	40	5
<b>2.</b>	C.T.	29	32	3
<b>3.</b>	C.R.	28	31	3
<b>4.</b>	M.K.	32	36	4
<b>5.</b>	N.D.	34	37	3
<b>6.</b>	O.S.	30	33	3
<b>7.</b>	V.I.	27	31	4
<b>8.</b>	M.R.	31	34	3
<b>9.</b>	R.M.	29	32	3
<b>10.</b>	F.E.	30	34	4
<b>Average</b>		<b>30.5</b>	<b>34</b>	<b>3.5</b>
<b>Standard Deviation</b>		<b>2.55</b>	<b>2.91</b>	<b>0.71</b>
<b>Variance</b>		<b>0.08</b>	<b>0.09</b>	<b>0.20</b>

**Table 7.** Task no.2

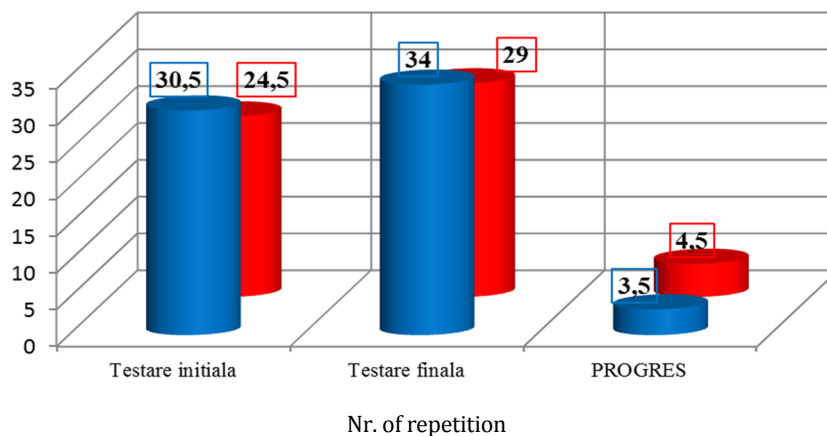
<b>EXPERIMENTAL GROUP</b>				
<b>Nr. crt.</b>	<b>Name and surname</b>	<b>Task</b>		
		<b>Keeping the ball in the air for 60 seconds – number of executions</b>		
		<b>T.I.</b>	<b>T.F.</b>	<b>DIF.</b>
<b>1.</b>	C.E.	25	30	5
<b>2.</b>	T.I.	24	28	4
<b>3.</b>	I.R.	26	32	6
<b>4.</b>	B.A.	23	29	6
<b>5.</b>	C.C.	25	29	4
<b>6.</b>	G.M.	27	31	4
<b>7.</b>	I.A.	26	30	4
<b>8.</b>	M.C.	22	27	5
<b>9.</b>	P.D.	24	28	4
<b>10.</b>	T.E.	23	26	3
<b>Average</b>		<b>24.5</b>	<b>29</b>	<b>4.5</b>
<b>Standard Deviation</b>		<b>1.58</b>	<b>1.83</b>	<b>0.97</b>
<b>Variance</b>		<b>0.06</b>	<b>0.06</b>	<b>0.22</b>

- For keeping the ball in the air for 60 seconds, results show that the experimental group had a better evolution as the control group, all students progressed, the growth values are close;

- The coefficient of variation and standard deviation are higher, this time for the experimental group. This shows that there are differences of progress - 2 athletes have progressed more than others, one less - with a greater deviation from the group average, compared to the control group;

- In the control group, the coefficient of variation is lower, which indicates that the group is homogeneous in value, with a progress of most students close to the average of the group- one subject had better outcomes than most.

**Control Group - Experimental Group**



**Figure 3.** Keeping the ball in the air for 60 seconds –number of executions

**Task no.3 - Goal kick at 16 meters**

**Table 8.** Task no.3

CONTROL GROUP				
Nr. crt.	Name and surname	Task		
		Goal kick at 16 meters		
		T.I.	T.F.	DIF.
1.	B.C.	8	9	1
2.	C.T.	7	7	0
3.	C.R.	7	8	1
4.	M.K.	6	7	1
5.	N.D.	5	7	2
6.	O.S.	8	8	0
7.	V.I.	6	7	1
8.	M.R.	7	10	3
9.	R.M.	5	6	1
10.	F.E.	6	8	2
Average		6.5	7.7	1.2
Standard Deviation		1.08	1.16	0.92
Variance		0.17	0.15	0.77

**Table 9.** Task no.3

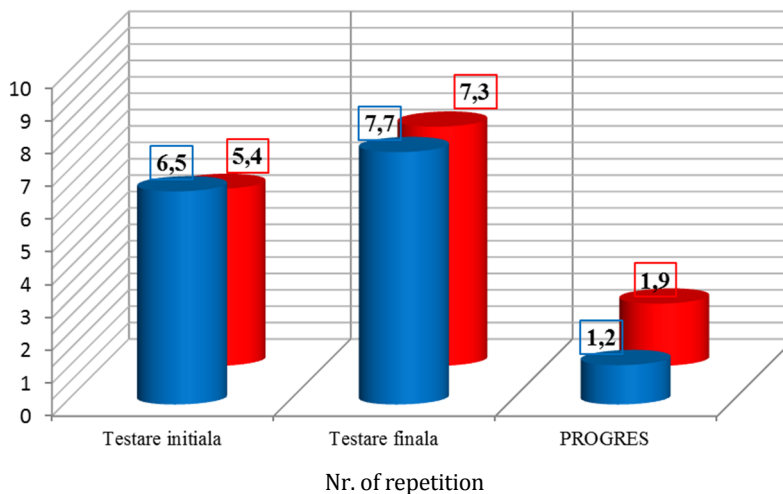
EXPERIMENTAL GROUP				
Nr. crt.	Name and surname	Task		
		T.I.	T.F.	DIF.
1.	C.E.	5	8	3
2.	T.I.	6	7	1
3.	I.R.	4	6	2
4.	B.A.	7	8	1
5.	C.C.	6	7	1
6.	G.M.	5	7	2
7.	I.A.	7	9	2
8.	M.C.	3	6	3
9.	P.D.	5	8	3
10.	T.E.	6	7	1
Average		5.4	7.3	1.9
Standard Deviation		1.26	0.95	0.88
Variance		0.23	0.13	0.46

- In this skills test (Goal kick at 16 meters) both groups have evolved, the growth rates are close;

- In the control group, the coefficient of variation is higher, suggesting that the group is heterogeneous, with progressive differences - two players have not progressed, most have progressed a little, two more, but without great deviations from the group average;

- The experimental group has a lower variation coefficient than the control group. The group is homogeneous in value, most have progressed with values close to the group average, with three athletes having a greater progression than the group average.

#### Control Group - Experimental Group



**Figure 4.** Goal kick at 16 meters

### Conclusion and suggestions

In order to validate in practice the ideas proposed in the hypothesis of the paper and analyzing the obtained results, we find the following aspects:

- From the comparative analysis of the graphs representing the results of the two tests, Initial and final results of the two researched groups, we obtained a greater progress in the experimental group, thus confirming that the specific football methods and means have positive influences on the training process;

- the value of the results increased in most subjects from the control group, and in the experimental group progress was recorded in all subjects
- Overall, in relation to each sample, the extent of the results scatter is lower for the experimental group, which denotes that it is a homogeneous group as a value, while the control group has higher standard deviation values, hence the group is heterogeneous
- The skills of the players have improved considerably, fact proven by the differences between
- initial and final testing
- The development of the motric qualities in the footballers is a prime necessity and a constant and systematic concern over the entire competition year, necessary for the practice and growth of the players
- In the competition period, when the emphasis in preparation is on technical-tactical elements, the realization of the requirement for the development of the motoring qualities is facilitated by the ball, the players are able to accept the extra expenses of energy and effort;
- In the present paper I have sought to develop the idea of training and developing motor skills, in particular skills through specific means of playing football, because work is deficient in this chapter or specific exercises are neglected.
- • The greater progress made by the subjects to which the differentiated, intensified program was applied, highlights the opportunity to use, in training, the methods and means presented in this paper.

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## COMPARATIVE STUDY ON SEDENTARISM AT FIFTH GRADE CHILDREN IN RURAL AND URBAN ENVIRONMENT

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**ABSTRACT. Introduction.** This article highlights the importance of physical education for a healthy lifestyle in the context of modern technology which is continuously developing. It's not necessary to move a lot in order to communicate or play with other persons and all these have a negative impact on daily physical activity of children. The objectives of this study were to underline the negative influence of technology on physical education and to see if there are differences between urban and rural environment concerning the level of physical activity. **Methods.** Ten subjects were selected from urban environment, from Ion Bob School, and ten subjects were selected from rural environment, from Chinteni School. Both groups were formed of five girls and five boys and were monitored seven days a week, 24 hours a day. Data were recorded every morning by the physical education teacher. **Results.** We can see a clear difference in favor of rural environment regarding the physical activity carried out. If in the case of boys the differences are not very big, in the case of girls the differences are important. Moreover, during the weekend the level of physical activity increases in the rural environment, while in the urban environment there are no significant changes. **Conclusion.** New gadget technology breakthroughs have beneficial but overused aspects can have important negative effects on the child in terms of physical activity and health. I can lead to a low energy of the child, sleep disturbances, and even sedentary.

**Key words:** *physical activity, rural environment, urban environment, sedentary, pedometer.*

**REZUMAT. Studiu comparativ între mediul rural și mediul urban privind sedentarismul la copiii de clasa a V-A. Introducere.** Acest articol subliniază importanța activității fizice pentru a avea un stil de viață sănătos pe fondul unei tehnologii moderne în continuă dezvoltare. Nu trebuie să ne deplasăm prea mult pentru a comunica cu o persoană sau pentru a ne juca iar toate acestea au

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un impact negativ asupra activității fizice zilnice a copiilor. Obiectivele acestui studiu au fost de a arăta influența negativă a tehnologiei asupra activității fizice și de a determina dacă există diferențe între mediul urban și cel rural privind nivelul activității fizice. **Metode.** S-a ales un număr de 10 subiecți din mediul urban de la Școala Gimnazială „Ioan Bob” respectiv un număr de 10 subiecți de la Școala Gimnazială Chinteni, din mediul rural. Ambele grupuri au fost formate din cinci fete și cinci băieți și au fost monitorizate șapte zile pe săptămână 24 de ore. Datele s-au înregistrat în fiecare dimineață de către profesorul de educație fizică. **Rezultate.** Se poate vedea o diferență clară în favoarea mediului rural din punct de vedere al rezultatelor înregistrate privind activitatea fizică. Dacă în cazul băieților diferențele nu sunt deosebit de mari, în cazul subiecților de sex feminin aceste diferențe se accentuează. Mai mult de atât în ceea ce privește weekendul nivelul de activitate fizică crește la cei din mediul rural în timp ce la copiii din mediul urban nu se înregistrează diferențe semnificative. **Concluzii.** Noile descoperiri tehnologice în materie de gadget-uri au aspecte benefice dar folosite în exces pot avea efecte negative importante asupra copilului din punct de vedere al activității fizice și al stării de sănătate. Pot conduce la o energie scăzută a copilului, tulburări de somn, și chiar sedentarism.

**Cuvinte cheie:** *activitate fizică, mediul rural, mediul urban, sedentarism, pedometru.*

## Introduction

The recent worrying statistics show a considerable increase in the number of overweight and even obese people in both the adult population and the young and children. Studies have shown two main causes that increase the number of people with weight problems: a diet rich in sugars and body fat, and the other cause is the lack of physical activity.

Physical activity aims at expressing or improving physical and mental condition, developing social relationships, or achieving results in competitions at all levels through an organized or non-organized activity. The principle that governs these activities is based on the accessibility and the acquisition of a healthy way of life which are essential finalities (Lucut, 2000).

The state of health and, implicitly, the quality of life can be significantly improved by practicing physical exercises. Systematic physical activity determines the improvement of the physical condition directed towards health and the awareness of the well-being from a physical, mental, material and term perspective.

According to the national health report of children and young people in Romania issued by the National Institute of Public Health in 2015, 28.4% of urban children have a disharmonic physical development compared to rural areas; only 14.6% have disharmonic physical development (CNA, 2009).

These worrying data made me observe the physical movement volume in both rural and urban areas in children, comparing the recorded data and determining the physical movement difference, if identified, between children in Urban and rural areas.

### **Theoretical data of the experiment**

Cucu (2016) argues that the level of physical activity is of great importance in the control of body weight regardless of age, by increasing the frequency of practicing physical activity, the risk of certain chronically diseases affecting respiratory system, circulatory system, muscular system and bone is low. Also based on previous studies, physical activity has been shown to reduce anxiety and prevent or ameliorate mild and moderate depression.

Also due to these worrying statistics, various campaigns to promote regular physical activity were launched, among which the most widespread is the campaign "For a healthy lifestyle" initiated by the National Audio-visual Council (CAN) and the International Advertising Association (IAA) 2009 which includes 5 messages that are still broadcast on TV:

- A) "For a healthy life, eat fruits and vegetables daily";
- B) "For a healthy life, make exercise for at least 30 minutes each day";
- C) "For a healthy life, consume at least two litres of liquid per day";
- D) "For a healthy life, respect the main meals of the day";
- E) "For your health, avoid excess salt, sugar and fat" (CNA, 2009).

Regular practice of physical exercise has indirect beneficial effects on nutrition, a person's energy needs are directly proportional to physical activity, when the physical activity is more intense, the energy needs grow and nutrition balancing becomes easier.

If we take a close look at the physical effort we will see that physical effort has beneficial effects on muscle tone, sleep quality, and implicitly on mental capabilities, resulting in a good health by endorphin release at the cerebral level.

Regarding the lack of activity of children a main cause would be the "lack" of parents' time to form healthy child habits and to regularly practice various physical activities. For high efficiency, it is recommended that these habits of balanced nutrition and physical activity be implemented at family level starting with parents who could become an example for children and even a motivational factor (Baciu, 2006).

To determine the physical activity level of the subjects surveyed, a pedometer was used to monitor the number of steps, the distance travelled, the calories burned, and the total time the subject was in motion. The pedometer is

a pager-sized electrical device that can be attached to the belt, the straps or even a bag or backpack, provided that when we are in motion and that baggage accompanies us.

For the vast majority of healthy adults, 10,000 daily steps are a pretty good objective, but in children, for a good outcome, they have to accumulate between 12,000 and 16,000 steps a day (Schneider, 2005).

**Table 1.** The evaluation of the activity level

<b>Adults</b> Steps/day	<b>Activity level</b>	<b>Children</b> Steps/day
< 5000	SEDENTARY	< 7000
5000 – 7499	LOW ACTIVITY	7000 – 9499
7500 – 9999	SLOW ACTIVITY	9500 – 11999
10000 – 12500	ACTIV	12000 – 14500
> 12500	HIGH ACTIVITY	> 14500

## The participants

A total of 20 subjects, including 10 female subjects and 10 male subjects, took part in the research. It should be noted that the sample was divided into two groups: Group A from Chinteni Gymnasium School in Chinteni and Group B from the "Ioan Bob" Gymnasium School in Cluj-Napoca. Group A subjects have their domicile in the rural area at a distance of 15 km to 25 km from Cluj-Napoca.

These 100% of the children live at house, come from families with an unstable financial situation, except for only two female subjects. Group B children all live in the urban area and 50% of them live at house and enjoy solid financial stability with access to the latest technology and having the possibility of practicing various classic or new sports.

It should be noted that no subject is practicing a regular sport by joining a club or sports association. This did not leave a special footprint on the subject's BMI. As we can see in the tables below, rural subjects have a smaller waist than those in the urban area averaging 6.1 cm and weighing less 6 kg. Although subjects in the urban area are more physically developed, BMI is higher with only 0.6, which shows a proportional development.

Only one problem with BMI was recorded in each group, a BMI of 29.4 was recorded in group A, indicating increased overweight with high risk of obesity, and in Group B was reported a BMI indicating a slight overweight with Value of 25.6.

**Table 2.** Subjects of Group A from Gymnasium School Chinteni

<b>Nr.</b>	<b>Subject</b>	<b>Sex</b>	<b>Height</b>	<b>Weight</b>	<b>BMI</b>
1	I.T	F	146	34	16
2	I.G	F	157	54	21.9
3	R.P	F	148	50	22.8
4	G.V	F	142	38	18.8
5	D.M	F	155	38	15.8
6	I.C	M	157	56	23.4
7	P.N	M	144	38	18.3
8	D.C	M	151	46	20.2
9	I.R	M	158	49	19.6
10	A.O	M	151	67	29.4
11	Average F		149.6	42.8	19
12	Average M		152.2	51.2	22.1
13	Average A		150.9	47	20.5

**Table 3.** Subjects of Group B from Gymnasium School 'Ioan Bob' Cluj-Napoca

<b>Nr.</b>	<b>Subject</b>	<b>Sex</b>	<b>Height</b>	<b>Weight</b>	<b>BMI</b>
1	N.A	F	150	50	22.2
2	G.T	F	152	48	20.8
3	C.B	F	161	54	20.8
4	I.C	F	156	48	19.7
5	N.A	F	148	44	20.1
6	P.A	M	155	50	20.8
7	P.D	M	158	54	20
8	P.V	M	163	68	25.6
9	C.A	M	159	56	22.2
10	M.P	M	171	58	19.8
11	Average F		153	48.8	20.7
12	Average M		161	57.2	21.6
13	Average A		157	53	21.1

## Period

The research was divided into three stages. The first stage included the presentation of the subjects' equipment, tests on it, the way it works, and the relevance of the data. This stage was 10 days from March 20, 2016 to March 29, 2016. During the first three days of this stage, comparative pedestrian tests were performed in relation to metric measurements. The next two days presented Group A pedometers and tested it for 48 hours on how to record data and how to use it. The sixth day of this stage was devoted to reviewing appliances. The next two days, seven and eight, also benefited the Group B for the presentation and testing of pedometers. The last two days of this stage have been devoted to reviewing its devices, checks and preparations for starting the research itself.

The second stage of the survey included the monitoring of subjects from the Chinteni Gymnasium School. This stage started on 31 March 2016 and lasted until April 7 at 10:00 AM when the latest data of the subjects was recorded.

The third stage of the research was dedicated to the monitoring of subjects from the "Ioan Bob" High School in Cluj-Napoca. This stage began immediately after the end of the second stage of research on April 8, 2016, and ended on April 15, 2016, as well as at 10 am, recording the latest research data.

An important variable in the recorded results was the status of time because of the different monitoring period of the subjects it could have a strong influence, but this did not happen because it was a meteorologically stable period.

**Table 4.** Monitoring weather conditions during the research period

<b>Gymnasium School Chinteni Research Period 31.03.2016 – 7.04.2016</b>			<b>Gymnasium School „Ioan Bob” Cluj-Napoca Research Period 08.04.2016 – 15.04.2016</b>		
	Temperature Max/Min	Precipitations	Precipitations	Temperature Max/Min	
Average	22°/6°	0,75 mm	0,87 mm	19,5/9°	Average
Average Saturday + Sunday	16,5°/2°	2 mm	1 mm	20,5/11°	Average Saturday + Sunday

## Organization of research

Before the actual research began, the pedometers were tested on 100 m in straight line and 100 m in winding line. Thus the distance was previously measured with tape line and this distance was travelled by four different subjects with each pedometer. The weight of the subjects varied between 45kg and 68kg and their height between 150 cm and 175 cm respectively.

Following pedometer testing, I noticed an error of  $\pm 30$  steps / 1000 steps performed on average in both straight line and winding distance. With respect to the distance travelled, an error of  $\pm 1$  m per 100m was recorded, and there were also no differences between straight-line or winding.

The pedometers were used by the subjects on the trouser belt even though they had the option of being worn on the hand or in the backpack; we preferred to use them on the trouser belt for greater accuracy of the data.

The data were recorded every day at 10:00 in the presence of Professor Nemeş Raul at Gymnasium School Chinteni and Professor Boanca Claudiu at the Ioan Bob Gymnasium School in Cluj-Napoca. On Saturdays and Sundays, the results were telephoned by the subjects.

## Results

To determine as accurately as possible the impact of the environment on physical activities, we have chosen to conduct a differentiated gender analysis as well as a general analysis.

The tables below show the average of the results of female subjects in the two groups. We can see an enormous difference in favor of rural people living in an active lifestyle as opposed to urban subjects who, according to figures, have a sedentary lifestyle.

As far as the activity level on weekends (Saturday and Sunday) is higher in the rural area than in the rest of the week, it means that the subjects prefer to spend the spare time actively and dynamically.

For female females in the urban area, free weekend surplus time brought an insignificant improvement in physical activity relative to the rest of the week.



**Table 5.** Average results of female subjects in rural areas

	Day	Steps	Km	Kal	Time
1	Friday	19.579	13.69	1295	2.31
2	Saturday	16.592	10.47	892	2.14
3	Sunday	13.753	8.59	722	2.08
4	Monday	9.192	5.87	518	1.06
5	Tuesday	9.014	6.89	556	1.31
6	Wednesday	12.085	7.75	655	1.57
7	Thursday	10.005	6.34	523	1.37
8	Average of days	12.880	8.51	737	1.5
9	Average of working days	11.972	8.10	709	1.29
10	Average of weekend days	15.172	9.53	807	2.11

**Table 6.** Average results of female subject in urban areas

	Day	Steps	Km	Kal	Time
1	Saturday	7.368	4.41	333	1.16
2	Sunday	3.529	2.16	173	0.25
3	Monday	5.131	3.16	261	0.45
4	Tuesday	6.172	3.77	293	0.56
5	Thursday	4.314	2.66	212	0.3
6	Friday	5.945	3.71	325	0.48
7	Wednesday	5.245	3.36	280	0.44
8	Average of days	5.386	3.31	268	0.47
9	Average of working days	5.361	3.33	274	0.49
10	Average of weekend days	5.448	3.28	253	0.45

For male subjects, research data has changed. The rural subjects had a total average of the results indicating a very high physical activity style, and the results of the urban subjects showed an average of the results indicating a physically active lifestyle.

Weekend days for both groups of subjects showed an increase of the level of physical activity, for rural subjects who had exceptional results. Urban subjects have seen outstanding results indicating a very high physical activity.

**Table 7.** Average of results registered by male subject in rural areas

	<b>Day</b>	<b>Steps</b>	<b>Km</b>	<b>Kal</b>	<b>Time</b>
1	Friday	19.579	13.694	1295	2.31
2	Saturday	20.774	11.54	1053	2.3
3	Sunday	16.647	12.47	1043	2.3
4	Monday	14.465	9.46	603	1.59
5	Tuesday	12.078	8.14	699	1.43
6	Wednesday	15.588	11.36	1063	2.36
7	Thursday	13.14	9.4	922	2.02
8	Days average	16.038	10.86	954	2.12
9	Working days average	14.970	10.48	922	1.54
10	Weekend days average	18.718	12	1048	2.3

**Table 8.** Average results of male subjects from urban areas

	<b>Day</b>	<b>Steps</b>	<b>Km</b>	<b>Kal</b>	<b>Time</b>
1	Saturday	16.843	11.92	1106	2.38
2	Sunday	13.194	9.44	930	2.21
3	Monday	13.161	9.34	930	2.02
4	Tuesday	13.762	9.49	947	2.04
5	Wednesday	12.838	9.21	919	1.59
6	Thursday	14.63	9.35	933	2.04
7	Friday	13.14	9.4	922	2.02
8	Days average	13.938	9.73	955	2.09
9	Working days average	13.506	9.35	930	2.19
10	Weekend days average	15.018	10.68	1018	2.29

From the average of the results of all subjects in each group of subjects, we can say that the results recorded by rural subjects are higher than the results of urban subjects, this imbalance being largely due to female subjects and being accentuated by male subjects.

It can be noticed how this difference is more emphasized in the weekend when rural subjects reach a level of exceptional physical activity while urban subjects manage to reach a result indicating moderate physical activity.

Another interesting aspect is the actual time in which the activity took place. This indicator shows that rural subjects were active for 107 minutes, unlike urban subjects who were only active for 78 minutes.

**Table 9.** Average general outcomes recorded by rural subjects

	<b>Day</b>	<b>Steps</b>	<b>Km</b>	<b>Kal</b>	<b>Time</b>
1	Friday	15.311	10.356	944	2.03
2	Saturday	18.682	11.01	972	2.22
3	Sunday	15.248	10.53	882	2.19
4	Monday	11.828	7.66	560	1.32
5	Tuesday	10.546	7.51	627	1.37
6	Wednesday	13.836	9.55	859	2.2
7	Thursday	12.618	8.28	696	1.57
8	Days average	14.009	9.27	791	1.47
9	Working days average	13.231	8.77	746	1.24
10	Weekend days average	16.965	10.77	927	2.2

**Table 10.** Average of general results by subjects from urban areas

	<b>Day</b>	<b>Steps</b>	<b>Km</b>	<b>Kal</b>	<b>Time</b>
1	Saturday	12.105	8.16	719	1.57
2	Sunday	8.361	5.8	552	1.23
3	Monday	9.146	6.25	595	1.23
4	Tuesday	9.967	6.63	620	1.3
5	Wednesday	8.576	5.93	565	0.45
6	Thursday	10.287	6.53	629	1.26
7	Friday	9.192	6.38	601	1.23
8	Days average	9.622	6.52	611	1.18
9	Working days average	9.433	6.34	602	1.29
10	Working days average	10.223	6.98	635	1.4

## Conclusions

Based on the recorded and presented data, we can state that the rural children's lifestyle is a much more physically active one. This becomes even clearer in the case of female subjects, surprising because girls are not as busily involved as boys in home physical activities.

Consideration should also be given to the material situation of subjects who directly influence their lifestyle through access to technology. The material possibilities of children in the urban area are higher and the technology they have access to is higher, being more attractive than physical activity. Instead, in rural areas, children often take part in everyday household activities and spend most of their leisure time on the village's streets in the company of friends and neighbors.

With regard to weather conditions, these did not have a significant influence on the results of the research.

Lower urban physical activity is not reflected in BMI, but it is reflected in visual disturbances (three subjects in the urban area) and disturbance of attention (a subject in rural areas) that is unidentified in rural areas.

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## FREQUENCY OF PRACTICING PHYSICAL AND SPORTS ACTIVITIES AND THE SELF-ESTEEM AT THE STUDENTS

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**ABSTRACT.** In this paper we are looking at the influence of physical and sports activities on self-esteem among students from Babeş-Bolyai University in Cluj-Napoca. For this purpose, 465 questionnaires were applied to students from 13 faculties. Respondents were aged between 18 and 40, most of them aged 19-21. The statistical data was processed using the statistical analysis program SPSS 20, and for the graphic representations we used the Microsoft EXCELL 2007 version. Students' perception of their own person outlines a rather positive image of how they see themselves and esteem themselves. Analysis of a more frequent or rare participation in physical activity and sport that there is a significant difference between the mean scores of self-esteem measured on the entire sample. By gender, there was a distinction between girls and boys, data suggesting that girls who reported greater self-esteem are more often involved (several times a month or several times a week or daily) in motric activities, and the boys, just only those who practice very often (several times a week or daily) reported a greater self-esteem.

**Keywords:** *self-esteem; physical activity; gender; students; the frequency of physical activity.*

**REZUMAT.** *Frecvența practicării activităților fizice și sportive și stima de sine la studenți.* În lucrarea de față se urmărește influența pe care o are practicarea activităților fizice și sportive asupra stimei de sine în rândurile studenților din Universitatea Babeş-Bolyai din Cluj-Napoca. În acest scop au fost aplicate 465 de chestionare la studenți din 13 facultăți. Respondenții au avut vârsta cuprinsă între 18 și 40 de ani, majoritatea lor având vârsta cuprinsă între 19–21 de ani. Datele statistice au fost prelucrate cu ajutorul programului de analize statistice SPSS 20, iar pentru realizarea reprezentărilor grafice am folosit programul Microsoft EXCELL, versiunea 2007. Percepția studenților despre propria persoană conturează o imagine mai degrabă pozitivă legată de modul în care respondenții se autopercep și se stimează. Analiza influenței unei participări mai frecvente sau mai rare în activitățile fizice și sportive arată că există o diferență semnificativă între

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scorurile medii ale stimei de sine măsurate pe întregul eșantion. În funcție de sex, s-a constatat o diferențiere între fete și băieți, datele sugerând că fetele care au raportat o stimă de sine mai mare se implică mai frecvent (de câteva ori pe lună sau de câteva ori pe săptămână sau zilnic) în activități motrice, iar băieții doar cei care practică foarte frecvent (de câteva ori pe săptămână sau zilnic) au raportat o stimă de sine mult mai mare.

**Cuvinte cheie:** *stima de sine; activități fizice; gen; studenți; frecvența practicării activităților fizice.*

## Introduction

From a psychological point of view, self-concept and self-esteem are essential components of human life. Their influence on man is felt during childhood when it can intervene in the modelling of its development and in the adult period of the individual by affecting its formation. The development of the two concepts begins during childhood and adolescence. As a result, the development of a positive self-esteem concept and a high self-esteem in adolescents is their chance to have a maturity of quality and happy. Self-esteem is the individual's perception of his own value, how much he means to himself or to others, therefore it refers to the extent to which a person values his/her abilities and appreciates himself/herself. A great self-esteem depends on attitudinal factors and, because it addresses emotions and feelings, can fluctuate throughout the life of an individual. This change can be influenced by different events and circumstances that occurred in life. Research over time has revealed a link between high self-esteem and positive outcomes at different stages of life and low self-esteem and negative experiences experienced during it (Brown, Bifulco, Veiel and Andrews, 1990, Apud Omarsson 2013).

In adolescents, self-esteem expresses their opinion about themselves, under the influence of their feelings of success and competence, their abilities, their colleagues, and how much they approach the ideal they have for their own person (Blascovich and Tomaka, 1991; Bowker, 2006, Omarsson, 2013). The practicing of sports activities, in the opinion of many specialists who have been studying over the years, positively influences self-esteem. The results of our study, that highlight a higher self-esteem at students who practice physical or sports activities more frequently, are argued by research by Wagnsson, S., Lindwall, M., Gustafsson, H. (2014) on adolescents, who have emphasized that the perception of sports competence has the role of mediator in the association between sports participation and self-esteem, being evident both in the aspect of physical development and skill as well as in the perspective of self-improvement.

## Hypothesis

1. There is a relationship of association between the frequency of physical and sports activities and self-esteem.
2. There are differences in self-esteem among the genders, depending on the frequency of participation in physical activities.

## Methods and materials

Researching the level of self-esteem at the students was based on a questionnaire through which several objectives were pursued. Some of these goals aimed at the purposes for which students participate in physical activities in their free time depending on the respondents' genre and the faculty they come from.

The Rosenberg Self-Esteem Scale consists of a questionnaire, developed in 1965 by American sociologist Morris Rosenberg (Self-Esteem Scale - RSES), which measures the self-esteem of a person. Its use is recommended by specialists due to ease of administration, scoring and conciseness, providing a simple estimate of positive or negative feelings about oneself (Bagley, Bolitho, Bertrand, 1997). The scale was designed as a Guttman scale model, in which the items were designed to represent a continuum of statements of self-worth that draw from statements that are endorsed even by people with low self-esteem, statements that are only approved by highly self-esteemed people (Schmitt, Allik, 2005). Rosenberg (1965) set a 10-question scale, which had four variants of response starting from a strong-disagreeable agreement as a six-element Guttman. Rosenberg has demonstrated that his scale was a Guttman scale through which he achieved sufficiently high reproducibility and scalability coefficients. Initially, thought like a Guttman scale, the Rosenberg of Self-Esteem scale is currently organized as a Likert scale. The answers to the 10 established questions are distributed on a four-point scale, with variants between strong agreement and strong disagreement. Studies have shown that the scale structure is both one-dimensional and two-dimensional (self-confidence and self-disapproval).

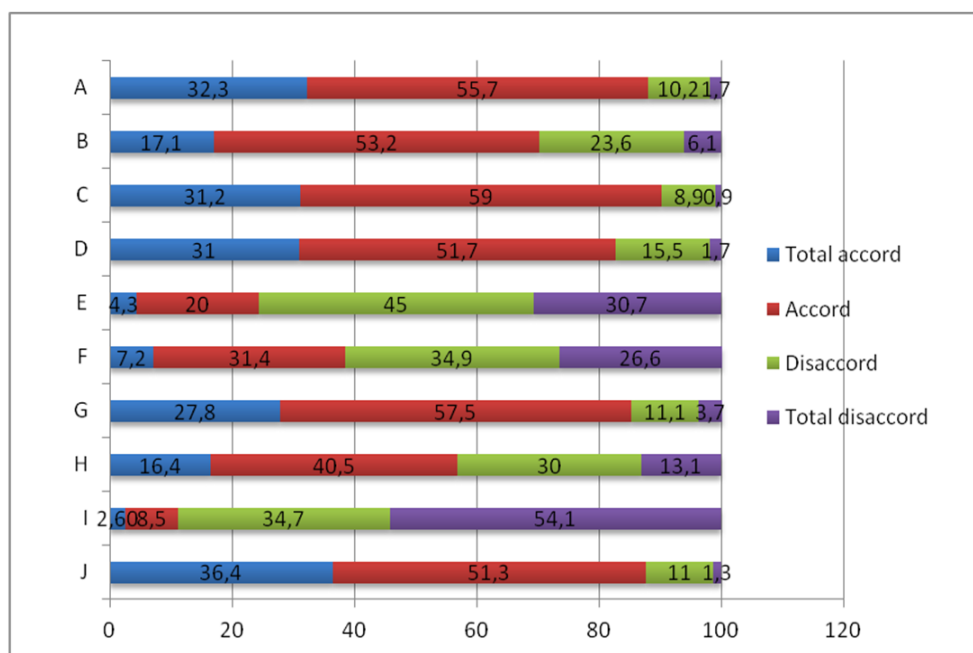
Each of the 10 questions (items) received value as follows:

- The questions 1,3,4,7,10: Total Agreement (TA) = 3, Agreement (A) = 2, Disagreement (D) = 1 and Total Disagreement (TD) = 0.
- The questions 2,5,6,8,9 (reverse): Total Agreement (TA) = 0, Agreement (A) = 1, Disagreement (D) = 2 and Total Disagreement (TD) = 3.



## Results

The descriptive analysis of the self-esteem indicators (Figure 1) outlines a rather positive picture of how respondents self-perceived and respect self.

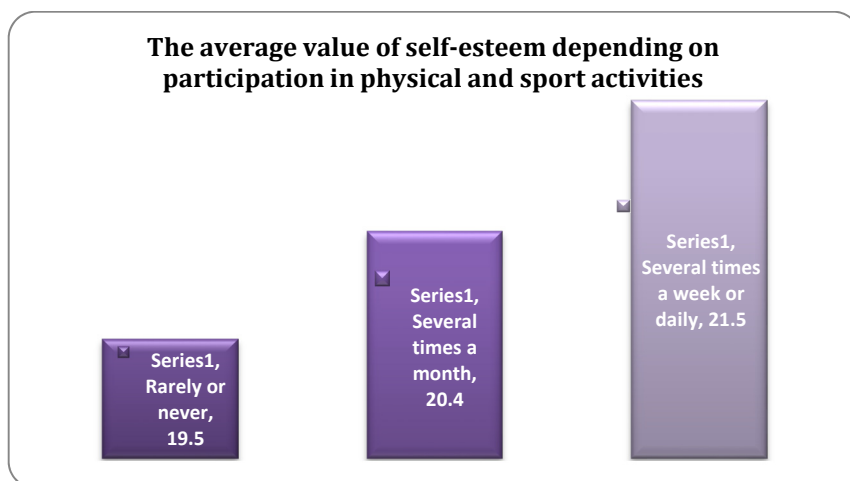


**Figure 1.** Student perception of one's own person

- A. On the whole, I am pleased with myself.
- B. Sometimes I think I'm not good at all things.
- C. I feel like I have a number of good qualities.
- D. I'm able to do things like most the other people.
- E. I feel that I do not have much, that to be proud of myself.
- F. Sure sometimes I feel useless.
- G. I feel like I am a valued person, at least on an equal footing with others.
- H. I wish I could have more respect for myself.
- I. Overall, I'm inclined to think I'm a failure.
- J. I take positive attitude towards myself.

Thus, 87.7% (agreement and total agreement) have a positive attitude towards themselves, 88.8% do not think about them that are a failure, 56.9% would like to have more respect for their own person, 85.3% 71.7% do not think they are unnecessary, 75.7% do not feel that they have no reason to be proud of them, 82.7% think they can do things like most other people, 90.2% feel that they have a good number of good qualities, 70.3% admit that sometimes they are not good at all things and 88% say they are happy with themselves. Analyzes show that there are no statistically significant differences in self-esteem among students who practice individual or team sports.

***The association between the frequency of practicing physical and sports activities and self-esteem***



**Figure 2.** Self-esteem and participation in sports activities

**Table 1.** The average value of self-esteem based on the frequency of participation in physical and sports activities

ANOVA Table							
			Sum of Squares	df	Mean Square	F	Sig.
The self-esteem score	Between Groups	(Combined)	98,948	2	49,474	2,543	0,080
	Within Groups		8539,082	439	19,451		
	Total		8638,029	441			

The value of the coefficient  $F = 2,543$  at a significance threshold  $p = 0,080$  shows that there is a significant difference between the average scores of self-esteem depending on the frequent or rare practicing of physical and sports activities.

The factorial analysis presents a number of 10 items that refer to how much the research respondents appreciate themselves. The distribution of respondents by the number of valid answers to the 10 items is given in the following table.

**Table 2.** Distribution of valid answers to self-esteem items

Number of valid responses	Persons	%
10 from 10	440	95,7
9 from 10	19	4,1
8 from 10	1	0,2
Total	460	100,0

We used all 460 cases to identify the factors (the few invalid responses will be replaced by the arithmetic mean of the responses valid for that item). The KMO value (Kaiser-Meyer-Olkin) for the suitability of the 10-item system for a factorial analysis is very good (0.828), also, and individual, the items have a high suitability measure (between 0.745 and 0.879). From the statistics of own values (Table 3), we find that the unifactorial model explains 34.6% of the item variance (on average), the model with two factors has an explanation power of 48.4%, the one with three factors 57.4%, etc.

**Table 3.** Own Value Statistics

Nr.	Own value	Variance explained	
		Individual	Cumulative
1.	3,460	34,6	34,6
2.	1,381	13,8	48,4
3.	0,902	9,0	57,4
4.	0,810	8,1	65,5
...	...	...	...
10.	0,399	4,0	100,0
Total	10,000	100,0	

Besides the unifactorial model, we find adequate the model with two factors, when one of the factors correlates very well and positively with the items with positive enunciation, and the other factor correlates very well and positively with the items with the negative enunciation. In the unifactorial model, the general factor of self-esteem (GSSF) positively correlates with the items with positive enunciation and negatively correlates with the items with the negative enunciation (Table 4).

**Table 4.** Correlations between factor and items and variance explained by the unifactorial model

The item	Factor-item saturation	Factor-item correlation	The variance explained
I feel that I do not have much, that to be proud of myself	-0,743	-0,745	55,3%
Overall, I'm inclined to think I'm a failure	-0,732	-0,733	53,6%
I take a positive attitude towards myself	+0,653	+0,653	42,7%
Sure sometimes I feel useless.	-0,645	-0,649	41,6%
On the whole, I am pleased with myself.	+0,634	+0,634	40,2%
I feel like I have a number of good qualities.	+0,596	+0,596	35,6%
I feel like I am a valued person, at least on an equal footing with others	+0,545	+0,545	29,7%
I wish I could have more respect for myself.	-0,523	-0,524	27,4%
I'm able to do things like most the other people	+0,348	+0,349	12,1%
Sometimes I think I'm not good at all things	-0,283	-0,283	8,0%
Total 10 items (mean)			34,6%

In the table, the saturations and correlations between factors and item appear separately, the difference between them results from the number of cases for which they are calculated: for example, the correlation between the first item in the table and factor ( $r = -0,745$ ) is calculated for 458 cases and the saturation ( $R = -0,743$ ) for 460 cases used in factorial analysis, when in the two non-responding cases the mean of the item was used for the 458 cases with a valid response. The small differences between saturations and correlations are explained in the small number of cases with no response to the elements of the factorial analysis.

The distribution of the factor ( $M = 0$ ,  $SD = 1$ ) is very good in the sense that it closely resembles the normal distribution (Gauss's bell), so the general self-esteem factor (GSSF) can be used in statistical tests.

In the bifactorial model, the two factors have almost equal explanation power (25.0% and 23.3%), and factors saturation with the items proves close and very close links between factor and the factor's items. (Table 5.).

**Table 5.** Correlations between factors and items and the variance explained by the bifactorial model

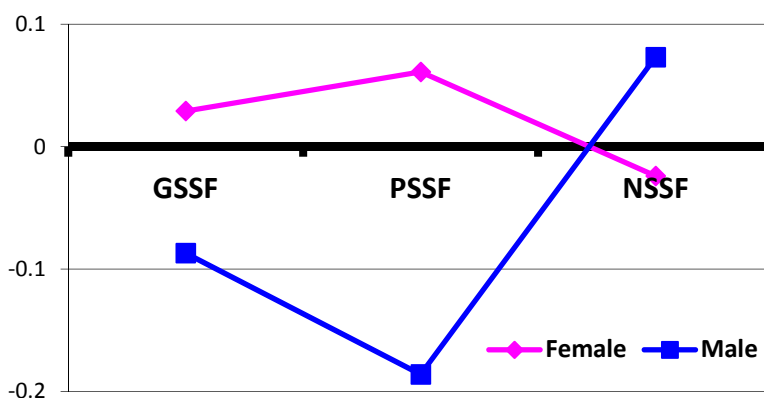
The item	Self-esteem factors saturation		Explained variance
	Positive	Negative	
I feel that I do not have much, that to be proud of myself	<b>-0,743</b>	-0,081	55,9%
Overall, I'm inclined to think I'm a failure	<b>-0,613</b>	-0,305	46,9%
I take a positive attitude towards myself	<b>-0,607</b>	-0,152	39,1%
Sure sometimes I feel useless.	<b>-0,598</b>	-0,293	44,4%
On the whole, I am pleased with myself.	<b>-0,582</b>	+0,111	35,1%
I feel like I have a number of good qualities.	+0,175	<b>+0,760</b>	60,8%
I feel like I am a valued person, at least on an equal footing with others	-0,230	<b>+0,660</b>	48,9%
I wish I could have more respect for myself.	+0,435	<b>+0,625</b>	58,0%
I'm able to do things like most the other people	+0,157	<b>+0,597</b>	38,1%
Sometimes I think I'm not good at all things	+0,458	<b>+0,587</b>	55,5%
Total 10 itemi (mean)			48,3%

### *Gender self-esteem*

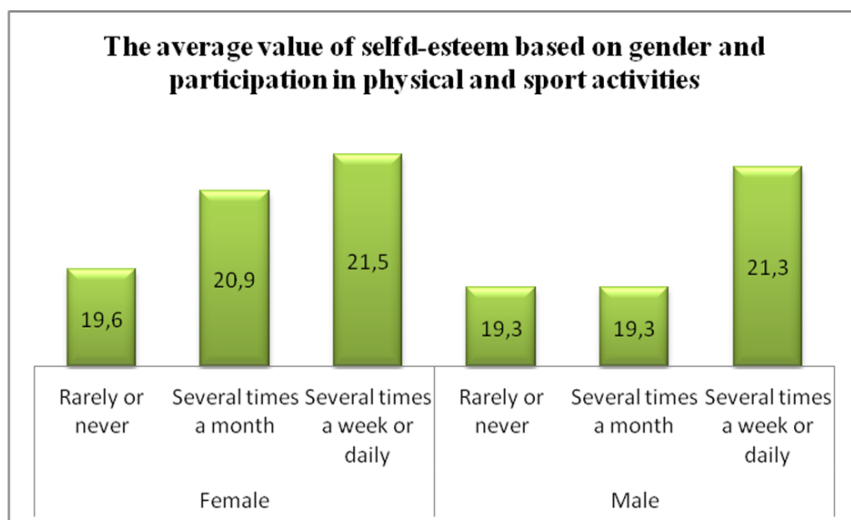
**Table 6.** Comparison of factors of self-esteem among the gender

Gender	N	GSSF	PSSF	NSSF
Female	346	+0,029	+0,061	-0,024
Male	113	-0,087	-0,186	+0,073
Together	459	0,000	0,000	0,000
Significance threshold		0,285	<b>0,023</b>	0,373

On the graph, it can be clearly seen how male students have a lower self-esteem than girls, but the difference is not significant ( $p = 0.285$ ). On components, however, we notice a significant difference between male and female in the positive factor of self-esteem (PSSF), i.e. in the 5 positive items, female respondents agree more strongly than male responders ( $p = 0.023$ ), and at the negative items (the negative factor of self-esteem / FNSS), male are more in agreement with, comparatively with females, but not significantly different ( $p = 0.373$ ).



**Figure 3.** Gender profile of self-esteem



**Figure 4.** Self-esteem and participation in sports activities by gender

In the case of the separate sample on girls and boys, although the data suggest the same trend, the difference was not statistically significant, possibly due to the relatively small number of cases. Instead, there is a distinction between the relationship of self-esteem and the frequency of sporting activities by gender. From the data, the plausible assumption is that in the case of girls the higher values of self-esteem correspond to higher frequencies of practicing physical and sports activities. In the case of boys, there is no difference between those who rarely practice sports and those who practice on a monthly basis, but self-esteem is much higher for those practicing a few times a week or daily.

## Conclusions

Self-assessment is considered to be essential for mental and social well-being because it influences aspirations, personal goals, and interaction with others, in other words self-esteem can lead to better health and social behavior. Students' perception of their own person outlines a rather positive image of how they are self-perceived and esteem themselves. Analysis of the influence of more frequent or rare participation in physical and sports activities shows that there is a significant difference between the average scores of self-esteem measured across the sample. Depending on gender, there was a distinction between girls and boys, data suggesting that girls who reported greater self-esteem are more often involved (several times a month or several times a week or daily) in motric activities, and boys only those who practice very often (several times a week or daily) reported a greater self-esteem.

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## THE DECLARED GOALS OF PRACTICING PHYSICAL AND SPORTS ACTIVITIES BY THE STUDENTS OF BABES-BOLYAI UNIVERSITY FROM CLUJ-NAPOCA ACCORDING TO GENDER AND FACULTY PROFILE

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**ABSTRACT.** This study aims at highlighting the purposes for which UBB Cluj-Napoca students practice physical and sports activities, depending on the gender and profile of the faculty they are studying. Statistical data was obtained by applying a questionnaire to a total of 465 students from 13 faculties. The respondents' age was between 18 and 40, with most students aged 19-21. The conclusions drawn from the statistical analysis of the comparison of the factors of purpose to practice physical and sports activities show that there are significant differences between the sexes. For girls, the goal is health, and for boys, performance and participation in competitions, the social goal, is a bit more important for boys than for girls, but the difference is not significant. Students from Physical Education and Sports appreciate the physical movement both from the competitive point of view, as well as for the health and social. Students with specialization in socio-human sciences have appreciated the factors for improving and maintaining the health status and the socialization factor. Students at the Faculty of Orthodox Theology have chosen sport as important for the competitive and social factors, and those in the exact sciences faculties consider the practicing of sport is important to measure forces through competition and achieving performance.

**Keywords:** *sport, physical activity, health, gender, faculty profile.*

**REZUMAT.** *Scopurile declarate ale practicării activităților fizice și sportive de către studenții Universității Babeș-Bolyai din Cluj-Napoca în funcție de gen și profilul facultății la care studiază.* Studiul de față urmărește evidențierea scopurilor pentru care studenții UBB Cluj-Napoca practică activitățile fizice și sportive, în funcție de gen și profilul facultății la care studiază. Datele statistice

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au fost obținute în urma aplicării unui chestionar pe un număr de 465 de studenți din 13 facultăți. Vârsta respondenților a fost cuprinsă între 18 și 40 de ani, majoritatea studenților având vârsta cuprinsă între 19 – 21 de ani. Concluziile rezultate din analiza statistică de comparare a factorilor scopurilor de a practica activitățile fizice și sportive arată că există diferențe semnificative între sexe. Pentru fete, primează scopul sănătate, iar pentru băieți obținerea performanței și participarea la competiții, scopul social, este puțin mai important pentru băieți, decât pentru fete, dar diferența nu este semnificativă. Studenții de la specializarea educație fizică și sportivă, apreciază mișcarea fizică atât din punct de vedere competițional, cât și al sănătății, dar și social. Studenții cu specializare în științele socio-umane au apreciat factorii scop de îmbunătățire și menținere a stării de sănătate și factorul socializare. Studenții de la Facultatea de Teologie Ortodoxă au ales practicarea sportului ca importantă pentru factorul competițional și cel social, iar cei din facultățile cu profil real consideră practicarea sportului importantă pentru măsurarea forțelor prin întrecere, prin competiție, și pentru atingerea performanțelor.

**Cuvinte cheie:** *sport, activitate fizică, sănătate, gen, profil.*

## Introduction

The sport combines all forms of physical activity, whether organized or not, to express or improve physical condition and spiritual comfort, to establish social relationships or to lead to results in competitions of any level. Physical activity has a recognized role in maintaining optimal health status by medical specialists. As the theories of physical education support, the main purpose of practicing physical exercise is to increase the biological potential of man, whose size can express a good health.

By practicing various forms of sport, taking into account the particularities of individual, it ensures harmonious and proportionate physical development and optimal functioning of major organs of the body. The effort well-established, dosed and organized, will result in beneficial effects on the muscles by maintaining optimal tonus, correct body posture, increasing the volume of the respiratory and systolic volume, optimizing the quality of neuromuscular control processes.

Modern life brings many disadvantages to the health plan due to the low level of physical activity. Because of the many technical means that are the result of scientific progress in the life of modern man dropped considerably situations that require the body to manifest itself through physical movements. Evidence is based on modern epidemiological studies showing that sedentary living together with the associated obesity status, are important factors that contribute

to the development of serious diseases such as diabetes and atherosclerosis. Currently, the coexistence of these two diseases is a common cause of mortality, and the morbidity in diabetes is represented by cardiovascular complications (A Report of the World Health Organization, 2014).

Health is deeply related to lifestyle. Obtaining an ideal health, with all the endeavors, will always remain a mirage, because human life is subject to permanent change. Health can be described as a potential explained by the ability of an individual or a social group to change continuously for themselves or for themselves, depending on the changing circumstances of life in order to give a better performance today, but also to be prepared for the future (Pehoiu, Pehoiu, 2010).

Involvement in leisure activities of the young people, especially in physical activities, can be result of the healthiest ideology embrace that supports the idea a healthy person at the centre of life, interested of their own wellbeing, which shows a healthy lifestyle behavior (Nistor, Tîrhaş, 2013).

## **Hypothesis**

Hypothesis 1. There are gender differences in emphasis on certain purposes of practicing physical activities.

Hypothesis 2. There are differences in the appreciation of the importance of certain aspects of practicing sport depending on the profile of the faculty studied.

## **Methods and materials**

Investigation of the research issue was based on a questionnaire through which several objectives were pursued. Some of the objectives targeted, was the purposes for which students participate in physical activities during their leisure respondents by gender and the faculty that they study. The questionnaire was taken from a credible SSP Research Group (2009): International Social Survey Program: Leisure Time and Sports - ISSP 2007. GESIS Data Archive, Cologne. ZA4850, successfully applied in many countries. In the processing and statistical analysis of the data were used the programs SPSS and Microsoft Excel.

In Section C of the questionnaire aimed at the above-mentioned objectives, there are 14 items that refer to the importance of physical exercise goals. The scale of these items ranges from 1 (Not Important) to 5 (Very Important).

## Results

From the statistics of own values (Table 1) we find that the unifactorial model explains 22.2% of the item variance (on average), the model with two factors has an explanation power of 36.3%, the model with three factors 48.8%, etc. We stopped at the three-factor model because it explains almost half of the variance of the items and their grouping has a theoretical relevance in the light of previous studies.

**Table 1.** Own Value Statistics

Nr.	Own Value	Explained Variance	
		Individual	Cumulative
1.	4,007	28,6	28,6
2.	1,869	13,4	42,0
3.	1,534	11,0	52,9
4.	1,056	7,5	60,5
...	...	...	...
14.	0,291	2,1	100,0
Total	14,000	100,0	

**Table 2.** Correlations between factors and items and the variance explained by the unifactorial model

Purposes of practicing physical activities	Factor-item saturation			Explained Variance
	F1	F2	F3	
Wheight control	<b>+0,690</b>	+0,029	+0,030	47,7%
Increasing energy	<b>+0,671</b>	+0,018	+0,246	51,1%
Body image	<b>+0,661</b>	+0,190	+0,042	47,4%
Stress control	<b>+0,659</b>	-0,100	+0,369	58,0%
Increasing mobility	<b>+0,622</b>	+0,317	+0,003	48,8%
Physical and mental health	<b>+0,605</b>	-0,079	+0,257	43,8%
Gaining muscle tone	<b>+0,564</b>	+0,345	-0,151	46,1%
Increase cardiovascular capacity	<b>+0,554</b>	+0,111	-0,065	32,3%
Increase performance for a particular sport	+0,105	<b>+0,822</b>	+0,026	68,8%
Achieve performance	+0,108	<b>+0,806</b>	+0,164	68,8%
Participating in competitions	+0,096	<b>+0,763</b>	+0,265	66,2%
Spending time with friends	+0,054	+0,000	<b>+0,792</b>	63,1%
To meet other people	+0,044	+0,198	<b>+0,716</b>	55,4%
The joy of exercising	+0,123	+0,188	<b>+0,621</b>	43,6%
Total 14 items (mean)				52,9%

The first factor can be called the health factor (HEAF), the second called the competition factor (COMPF), and the third called factor social (SOCF).

The health goal factor includes items describing the expectations of the changes that the physical activities produce in the body. Of these, it correlates most strongly with the latent factor the weight control item (0.690) and the least powerful is the increase cardiovascular capacity item (0.554). The competition factor includes the items the increase performance for a particular sport, achieve performance and participate in competitions. Of these it correlates most strongly with latent factor the item increased performance for a particular sport (0.822) and the least strong participation in competitions (0.763). Social factor includes items that describe expectations vis-a-vis the social influence of the practice of physical exercise and sports. The strongest correlation with latent factor appear at item spending time with friends (0.792) and less strong is the correlation with the item the joy of exercising.

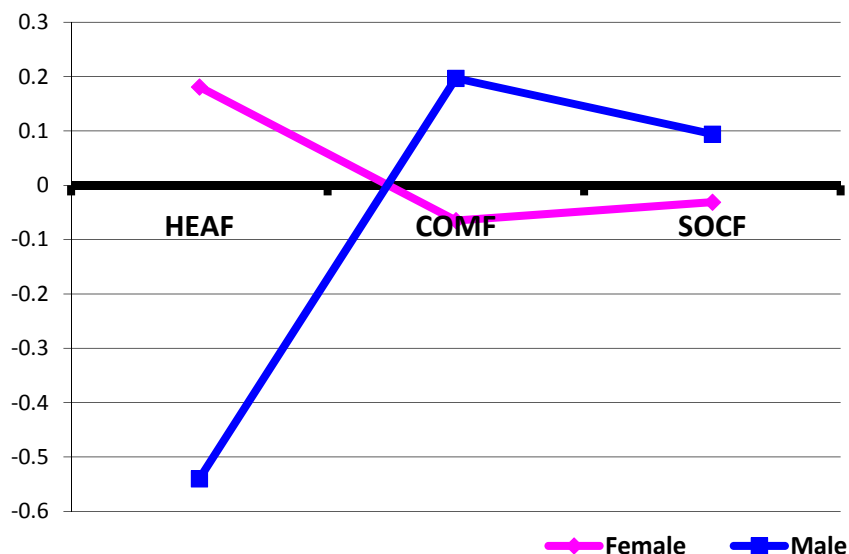
### ***Gender differences in emphasis on certain goals of practicing physical activities***

**Hypothesis 1.** There are gender differences in the emphasis on certain goals of physical activity. Specifically, we expect that for girls to be important the maintenance of body weight, and for boys, the competitive dimension and socialization through sport.

**Table 3.** Comparison of the factors of involvement in physical activities

Gender	N	HEAF	COMPF	SOCF
Feminin	345	+0,181	-0,065	-0,031
Masculine	113	-0,553	+0,197	+0,094
Together	458	0,000	0,000	0,000
Threshold significance		<b>&lt;0,001</b>	<b>0,016</b>	0,249

The statistical analysis of the comparison of the factors involved in physical activity suggest that there are significant differences between of female and male respondents about the importance to the physical activities: girls give greater importance purposes related to body and mental health, while boys think that are more important the purposes for performance and competition. The social purpose is a bit more important for boys than girls, but the difference is not significant. From the statistical data it is clear that the hypothesis stated by us is supported empirically.



**Figure 1.** The purpose of practicing physical activities by gender

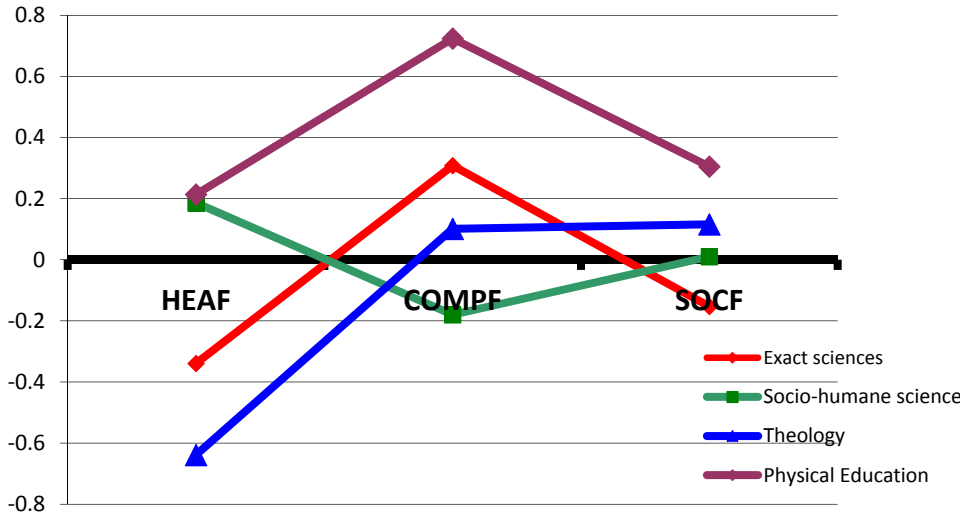
***Differences in the appreciation of the importance of certain aspects of practicing the sport according to the profile of the faculty studied***

**Hypothesis 2.** There are differences in the appreciation of the importance of certain aspects of practicing sport depending on the profile of the faculty studied. This assumption is plausible given that the profile studied by the young people in the sample will mark their lifestyle, volume and structure of free time, but also the social circle that will influence their loisir options. There is an early socialization for the future social status as early as the faculty.

**Table 4.** Comparison of the factors purpose of involvement in physical activities by type of faculty

Faculty type	N	HEAF	COMPF	SOCF
Exact Sciences	99	-0,339	+0,308	-0,153
Socio-human sciences	293	+0,186	-0,180	+0,010
Theologies	41	-0,639	+0,101	+0,116
Sport	25	+0,214	+0,724	+0,305
Together	458	0,000	0,000	0,000
Threshold significance		<0,001	<0,001	0,156

It is noticed how students of physical education and sports give importance to all three factors.



**Figure 2.** Profile of the purposes of involvements in the practice of physical activities by type of faculty

Table 3. and the graph from Figure 1, highlight the importance that students give of some aspects of practicing sport, they being grouped according to the faculty profile that they are studying. It can be clearly seen that, compared to other students, students from the Physical Education and Sports profile view physical and sporting activities most important from the perspective of all three factors: competition, health and social. For them, as was to be expected, the competitive factor is the most important. The practicing of physical movement in order to improve and maintain health and socialization is considered relatively more important by students with socio-human specialization, compared to they from theology and the students from exact sciences, but the relative importance is on average less than for the students of physical education and sports. Students from theology faculties, on average, give less importance to the health factor in practicing of the physical activities, but put a little more emphasis on the competition factor (compared to those from the socio-human profile) and on the social factor, but here the difference with the other profiles is not statistically significant. Instead, they consider the health factor relatively less important, than students of Sport or Socio-Humanities.



The hypothesis that there are differences in the appreciation of the importance of certain aspects of practicing the sport according to the faculty profile studied is supported statistically.

## Conclusions

### ***Gender differences in emphasis on certain goals of practicing physical activities***

The conclusions drawn from the statistical analysis of the comparison of the factors of purpose for to practice physical and sports activities show that there are significant differences between the sexes. Through factorial analysis, we identified three factors that group the items on the declared purpose of practicing sports: health, competition, and social purpose. For girls, the goal is health, which is in line with our expectations. Achieving performance goals and participation in competitions, dominates in the boys' options, when referring to the practicing of physical activities and sports. As a result of these results, it can be said that the playful spirit is more manifest in boys than girls. The third purpose, the social purpose, is a bit more important for boys than for girls, but the difference is not significant. Finally, we can conclude that the hypothesis of "there are gender differences in emphasis on certain goals of practicing physical activities" is supported by empirical data.

### ***Differences in the appreciation in the importance of certain aspects of practicing sport depending on the profile of the faculty studied***

Comparisons of determinants in the involvement in physical activities show the existence of a differentiation for the importance of practicing physical exercise and sports, according to the profile of the faculty at which the respondents study. The students from physical education and sports faculty had highlighted by the fact that physical movement is important both from a competitive, health and social point of view. For them, as expected, the competition factor is the most important. The purpose factors of improving and maintaining the health status and the socialization factor are recognized by the students with specialization in the socio-human sciences of the faculties of European Studies, Psychology and Education Sciences, Sociology and Social Assistance, Political Science and Public Administration, Letters, Law, Theatre and Television. Students at the Faculty of Orthodox Theology have chosen sport as important for the competitive and social factors. And finally, as a feature of

students from faculty of real profile (mathematics-computer science, physics, geography, biology-geology), oriented to the exact sciences, these consider that practicing sport is the important to measure forces through contest, by competition and achieving the performance. Our hypothesis that "there are differences in appreciating the importance of certain aspects of practicing sport according to the faculty profile studied" is supported empirically.

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## INTEGRATION INTO SOCIAL GROUP AS DIMENSION OF SOCIALIZATION

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**ABSTRACT.** The dimension of socialization consists in learning the group rules, in integration and membership in that group. European research underlines that ethnical minorities are less integrated comparing with the majority, both in the labour market or education. Sport has a great impact in the socialization process. According to some authors, the issue of developing a moral judgement using sport has been already raised, since the sport has a different influence upon the individuals and their groups. We should not forget that sometimes sport generates a mass behaviour. When irrational manifestation replaces reasoning, it can lead to violence.

**Key words:** *Sport, socialization, groups, behaviour*

**REZUMAT.** *Integrarea în grupul social ca dimensiune a socializării.* Dimensiunea socializării este de învățare a regulilor grupului, de integrare și dobândire a apartenenței la acel grup. Cercetarea europeană subliniază faptul că minoritățile etnice nu prea sunt integrate, față de cei majoritari, pe piața muncii sau în educație. Sportul are un foarte mare impact în procesul de socializare. Potrivit unor autori se ridică problema dezvoltării unei judecăți morale cu ajutorul sportului, acesta influențând diferit indivizii și grupurile acestora. Nu poate fi neglijat faptul că sportul uneori dă naștere la situații de masă, când rațiunea este schimbată cu manifestări iraționale, ducând la acte de violență.

**Cuvinte cheie:** *Sport, socializare, grupuri, comportament.*

### Introduction

One dimension of socialization, either socialization on younger age or secondary socialization or even considering the process organization dimension is to learn the group rules and to integrate and acquire the sense of belonging to

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the group. The year of 2004 was the “European Year of Education through Sport”, and one of its main objective was to promote multicultural understanding and integration through sport. A report presented by Amara et al (2004) shows that 20 countries of the European Union are involved in this type of projects.

On European level, the research revealed that ethnical minorities are less integrated in social life domains as the labour market and educational system, than the majority of population (Gowricharn, 2002). One representative example is Norway, which at an unemployment rate of 1,8 % has at the same time a four times bigger unemployment rate in ethnic minorities (Walseth, 2006). According to the same author, the immigrant’s level of education is less than the majority of population, although significant differences between the first generation of immigrants and their descendants are observed. These are the signs of a failed socialization, an inability to adapt to the values, standards and life style of the social group.

In order to study the level of integration into the majority group, Walseth (2006) based its assumptions on macro social indicators, on stories of a subjective experiences narrated by the target group studied. This type of approach can be applied in this research, based on the attempt to understand the subjective feeling of what integration means by recording personal experiences and the meanings attached to these experiences.

Bernard Enjolras, another author concerned with this field of study, portrayed two different bases related to group affiliation: normative behaviour and expressivity.

Normative behaviour as principle of group affiliation supposes a relationship between the individual and community which arises from the desire to be part of a set of practices, norms and values as defined by collective. In Bernard Enjolras’s opinion, expressivity refers to the relationship between an individual and community created as a result of a sense of identity confirmation given by the involvement in the group’s activities.

The relationship between sport and society was long debated. There are two extreme points of view:

The idealistic point of view, which considers sport as a free activity, voluntarily made, separated from the society

The mechanistic, Marxist point of view, which sustains the sport should be an ideological mirror of the prevailing interests in the current society.

As a social phenomenon, sport should always be understood and explained taking into consideration the historical, political, economic, social and cultural context. Sport ideologies, norms and values always represent to a certain extent the expression of work division, knowledge and power within society. However, the

ideas and norms should be refined and modelled in different social environment – such as family, work team, sport team. Within this process, they acquire certain independence, an inner particular dynamics.

Within each social field, at some point there are some critical moments, conflicts and battles for ideas and governing social practices, between individuals and interest groups. It is often obvious that some people defend the existing order against critics and innovative people. Thus, the prevailing culture in sport is the result of the battle between different social groups. (Culeva, Pătru, 2000).

Sport holds a great potential for socialization process. Sport is associated with certain values, such as tenacity, perseverance and reasoning, implied by the attendance to systematic trainings for long periods of time in order to achieve a pre-established goal. Furthermore, sport means the acceptance of competition as a fundamental value for the social group, adhering to the rules and self-discipline. Culeva et al (2000) consider that „theoretically, sport is an ideal activity for encouraging social behavior”.

Same authors raise the issue of developing the moral judgment by means of sport, but they underline that nevertheless the results are contradictory in what concerns this aspect. We noticed the fact that the sport environment exerts in different ways the moral issues, depending on the individuals and their affiliation groups. Although in relation to sport we have already launched this idea of personal development in advantageous ways, including the decrease of delinquency in young athletes, we cannot disregard the fact that the sport phenomenon give raise to group situations, such as “the club culture”, when reasoning is replaced by an irrational mass comportment, which often leads to violence.

Florica Popa brought under discussion the less pleasant part of the sport phenomenon: „Often, the sport organizations face several negative aspects which cast a shadow over the high performance sport, athletes and the countries they represent, and which is even worse these negative aspects overshadow the noble principles of Olympism. Unfortunately, unsocial influences such as discrimination, xenophobia or toxic influences as drugs and doping, violence and lately the ever-growing terrorism occur not only in everyday life but in high performance sport” (Popa, 2005).

Consequently, sometimes sport can lead to deviant behaviors, avoidance of rules for gain, actions which are then transferred to everyday life. Doping has negative impact both on health and fair-play. Use of narcotics and doping substances threaten youths’ health, making young people less prone to socialization, and the presence of verbal and physical violence inside or outside the sport environment harms competition, athletes, trainers, sport leaders and fans. In the experts’ opinion, one possibility to diminish these effects is an intense and constant campaign for promoting moral values of the sport and Olympic principles, addressed to young people, principles that should be applied by all sport enthusiasts.

## Conclusions

As a result, sport environment exerts a different influence upon the moral issues, depending on individuals and their affiliation groups. These influences can be both positive and negative. People who perform well in sport teams, seem to perform well in the society, as well.

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## SPORTS – CHILDREN’S ACTIVE WAY OF SOCIALIZING

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**ABSTRACT.** Through sport activities, either as competitions or as a hobby, by spending free time in a pleasant and organized way, beneficial for health, can be satisfied the need for movement and also the desire to participate in competitions as spectators, which makes sports a social phenomenon. Sport activity develops the spirit of sociability, develops interpersonal relationship, becomes an opportunity to elate, to open yourself to the others and to know it. With this opportunity one can discover common activities, can make friends and can create groups. Moreover, it is noticeable that those who practice sports are more sociable outside the sporting field.

**Keywords:** *sports, socializing, education, children*

**REZUMAT.** *Sportul – un mod de socializare al copiilor.* Prin activitățile sportive, competiționale sau de recreere, prin petrecerea timpului liber într-un mod plăcut, organizat, benefic pentru sănătate, se poate satisface nevoia de mișcare, dar și dorința de a urmări întrecerile sportive ca spectatori, ceea ce face ca fenomenul sportiv să devină fenomen social. Activitatea sportivă dezvoltă spiritul de sociabilitate, dezvoltă relațiile interumane, devine un prilej de a relaționa, de a te deschide către celălalt și de a-l cunoaște. Cu această ocazie se pot descoperi afinități, se pot lega prietenii și se pot încheia grupuri. Mai mult, se observă că cei care practică un sport sunt mult mai sociabili și în afara domeniului sportiv.

**Cuvinte cheie:** *sport, socializare, educație, copii*

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## **Introduction**

Physical education is a particularly complex activity if referred to its content, structure, organization and deployment. When we want to analyze physical education as a social phenomenon, we must consider the multitude of elements that it involves: physical exercise, specific material basis, specific devices and materials, technical and organizational aspects, scientific disciplines that underpin it, specialized teachers. The development of physical education as a socialization factor in the current context is due to the new discoveries in the technical-scientific fields, especially IT, as the new scientific and innovative conquests in the field of physical education can be obtained (Săvescu, 2009).

Socialization is the process by which the helpless child gradually becomes a self-conscious, intelligent and grouped person. Playing, the child evolves from a simple imitation, to more complicated games in which the child can interpret the role of an adult (Giddens, 2000).

The process of integrating the child into the life and work schedule of the kindergarten, in the conditions of the new relationship between the child and the adult, turns into a game with theme, subject and roles, with well established relationships between the game partners.

The game evolves with the creation of the first representations that allow the child to operate mentally, with the experience acquired day by day.

Sociologists, psychologists, pedagogues and scholars, as well as parents, have been more and more concerned with the problems of choosing, guiding, organizing and the results of children's games (Bocoş, 2007.)

All the influences that physical education generally follows, and as a particular case the physical education in schools, on the development and improvement of the individual's motor capacity, the achievement of a harmonious physical development, the maintenance and improvement of the state of health, the correction of some physical deficiencies fall within the general effort to facilitate integrating and increasing the individual's return to society.

### **The role of physical education as a socialization factor can include:**

- the habit of working in a group and the development of collaboration capacity,
- developing organizational capacity,
- developing the critical spirit of conscious discipline,
- increasing personal and collective accountability,
- the development of emulation and dullness.

The school, being the reservoir of performance sports, has the obligation to prepare and train the groups of students, towards the sports that the individual chooses sports, according to the specificity of the area or tradition of the school, the options of the pupils and the specialization of each teacher.

By upgrading lessons, by selecting optimal and efficient methods and procedures, we can shorten the way that pupils develop their skills and quickly acquire the technical-tactical elements, giving them the satisfaction of moving.

In order to successfully accomplish these challenges faced by teaching, tutors should rethink the instructive-educational requirements, new school curricula that through their provisions, confer a teacher's autonomy on how he thinks and acts for his accomplishment, and which is thus more flexible in the choice of objectives, methods, teaching methods used and forms of assessment of the quality of the instructive-educational act.

Due to changes in modern society, children "grow so fast" that their childhood is eroded (Giddens, 2000).

Analyzing in general the work of the teacher of physical education, whether in gymnasium or high school, I think it is everyone's duty, as through the work done, to aim and last but not least to trace, to form new sports talents and then to promote them in performance sports. Interpersonal relationships are critical in achieving sports scores within the sports team.

### **Interrelation criteria**

Social relationships express one of the basic characteristics of the human being: to form and manifest through a set of links with other members of the community: parents, brothers, friends, colleagues, groups, etc. These links have a great diversity, their classification requiring the use of a wide range of criteria:

- nature of content: social, material, spiritual, mixed relationships
- the effects it generates: social relationships of differentiation, integration, modification and social construction
- number of links interwoven in relationships: direct, indirect social relationships
- time development: simultaneous, successive social relationships
- direction of influence: unilateral, bilateral, multilateral
- the nature of the elements and the form of the relationship between them: impersonal, interpersonal
- institutional framework: official, unofficial, mixed.

In the wide category of social relations, interpersonal relations occupy a very special position, which has a constitutive function for all other forms of relations, structures, processes and social phenomena. Social groups, organizations, or institutions cannot be conceived beyond a complex sequence of interpersonal relationships, which in turn are conditioned and modelled in time by the processes taking place within these structures, therefore, between the two dimensions there are dynamic relations of causality and mutual conditioning.

Interpersonal relationships refer to those immediate and reciprocal interactions between people in which there is a conscious and direct psychological involvement. Due to the direct, bilateral and psychological-emotional impregnation, interpersonal relationships constitute a distinct and fundamental category of social relations with manifestations and influences at all levels of social existence:

- at the psycho-individual level - interpersonal relationships are structured as a direct expression of psychic factors, through which the interaction of the partners (cognitive, affective, motivational, and characteristic factors) is structured and developed.

- at the psychosocial level - interpersonal relationships are the indispensable framework of interactive processes and phenomena that give the content of social psychology.

- at socio-cultural level - interpersonal relationships appear as a functional infrastructure on which the development and performance of the different subsystems: economic, political, educational, religious, legal, etc. depend essentially.

During socialization each child develops a sense of identity and ability to think and act independently (Giddens, 2000).

**Preferential relations in the sports group, cohesion** - in the structure of interpersonal relationships, three main elements can be identified: the socio-affective, communicative and influence component. Thus, there are several categories of relationships between athletes who, although obviously social relationships, have some peculiarities.

In team sports, collective trust is probably more important than individual confidence. Sportsmen feel confident in their own ability to perform. Other athletes may feel confident about the team's ability to win, even if they doubt their own qualities (Craciun, 2012).

The athlete, who correctly and objectively assesses the place and role within the group, who establishes interpersonal preferential affective and operational correct and efficient, is perceived by the other members of the group as characterized by the following features in order of their importance: social, altruistic, conformist, cooperative, active, objective in appreciation, creative, facilitator of the interactions within the group to which he belongs and, lastly,

domineering. It is known that students who know how to combine intellectually with intellectual preoccupations that involve spending some of their energy with physical activity have superior functional indices and increased storage capacity and depth of knowledge taught at school. This has demonstrated the positive influence of physical education and sport on the strengthening of health, harmonious physical and psychological development, respect and detention of those who practice them. Regular practice of a sporting branch can later result in achieving the performance of those appropriately equipped for that sporting branch. The consistent practice of a sporting branch also leads to the progressive improvement of motor skills, the improvement of the basic motor skills, the formation of the character and the moral profile of the students, expressed by will, courage, combative spirit, punctuality and discipline, even subordinating individual interests to those of the group they belong to. These attest that physical education and sport are not only a means of strengthening health, enhancing physical and intellectual capacities, harmonious development of students, but also elements - sometimes basic - in character formation. The purpose of the game is action itself, able to satisfy the child's immediate desires or aspirations (Kelemen, 2007).

Before you start learning any action, it is important to determine whether the student is ready to take action and, if not, to make the necessary prior its training. With the help of control exercises and relationships with the student's previous motric experience, training for learning is guided through preparatory training exercises. The verification is mainly done in three directions: the degree of development of motor skills, driving experience and psychic factors.

## Conclusions

Successful execution of a new drive action right from the first attempt is usually only possible when it has a relatively simple structure. In the case of more complex structure, the speed of forming a new driving skill depends largely on the student's motric experience.

As the driving experience is wider and varied, the more the prerequisites for successful assimilation are based on the transfer of skills and habits acquired previously. The problem of preparing for the learning of complex motric actions is solved on the whole by the simple application of the principles of accessibility and individualization, systematization and gradual increase of requirements. New perspectives on the optimal solution of this problem arise as a result of introducing modern methods of promoting the didactic material into the theory and practice of sport. When training is planned, a series of relatively coincidental stages can be devoted to each particular action, to which certain stages of motivation and / or motor skills can be attributed.

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