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CUPRINS – CONTENT – SOMMAIRE – INHALT

PEDAGOGY OF SPORT AT SCHOOL

FRANCESCO PERROTTA[1]

ABSTRACT. This research is aimed as an investigation of the relationship between sport and the training and implementation in particular seeks to explore the potential of what might be the presence of sport in education.

Working Hypothesis

The schools in general, federal, European Year of Education through Sport: give us clarity about the educational potential of sport, on the contrary be not yet clear however how this combination occurs. I is not whether sport can be an educational vehicle, the fact that this is all completely visible and obvious, but the working hypothesis' on what basis is the dynamics that enable this support. It goes beyond, the question of whether sport has a value in education but in asking how and why of this link. These questions are the basis of this research, which undoubtedly would have strategic impact in 'educational potential of sport in identifying training and developmental age in subjects in school.

The presence of sport in the context of training as the school instead, both through the active practice or because of the presence of physical education "experts" who talk about their experience. For the first out door training, we refer to the nineties and even today many agencies have training techniques and new innovations such as experiential training compared to the usual methods. This precocity did come out that scientific research on this subject are still quite limited. This is fine and 'made exciting display the characteristics of these new experiences proposals. The sport is of considerable influence in the development of children and adolescents and is characterized by strong educational and training purposes in particular in the school term and we'll investigate the issue. The teaching of physical activities and sports at school, involves a set of knowledge and teaching skills. Pedagogy of sport can be defined as a set of procedures and techniques of learning, but that can be understood only in relation to goals or standards that are assigned to serve the purposes of the school. As with any subject taught in school, a goal can be advanced: That of relative mastery of the tasks that constitute it. Knowing how to count or know how to swim practices is considered useful and necessary to our social life and from this point of view of their teaching is a part of its legitimacy. Promote access for all to practice one or more sports, is inscribed in this perspective. This is called a sports culture.

Action Sport Pedagogy

The intervention of the pedagogy of sport, will 'ee to indicate the limits to reconsider the possible actions understood as:

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* Model of education and growth for the boy; * Improve self-perception and self-reliance; * Moment of relaxation and aggregation; * Rehabilitation tool for people with disabilities; * Self-esteem and gratification of his own talent * Personal self-affirmation and personal success means that as the concept of lifelong education and sport that goes with the stages of life as continuing education.
These objectives not only of interest to go to the 'physical training, but also "mental training" to motor activity. The purpose 'of the pedagogy of sport achievement is in combining this with the general welfare: feeling good about themselves, with their bodies. Each person in relation to age ', the reasons, to their abilities' will benefit from practicing ACTIVITIES' of exercise and sport.

Key words: Pedagogy, gesture, sports culture, school education, physical activity, sport education, feeling good in school

Introduction

The teaching of physical activities and sports at school, involves a set of knowledge and teaching skills. Pedagogy of sport can be defined as a set of procedures and techniques of learning, but that can be understood only in relation to goals or standards that are assigned to serve the purposes of the school.

Knowing how to count or know how to swim practices are considered useful and necessary to our social life and from this point of view of their teaching is a part of its legitimacy. Promote access for all to practice one or more sports, is inscribed in this perspective. This is called a sports culture.

However, if the sport is taught in school, not just because everyone can practice it, but through the development of a set of motor skills necessary to adopt appropriate conduct, as required by our social life today and tomorrow. In addition to a sports culture, the goal is a culture of the body, as part of a global education that hopes to overcome the mere transmission of techniques to adapt to promote the possibilities of evolution and creation. In this sense we can say that the physical and sporting activities and are simultaneously subject to a quality education as a means of physical and sports. Over the last century of sport and physical educators have emphasized the difficulty to link these two intentions correctly.

The sport requires pedagogy when it comes to make a gesture aimed at the student, or an effective body technique, knowledge is no longer sufficient: We require those related to learning processes. The pedagogy is

based on the tradition of proof that should give a fair idea of the gesture to be made and cause a process of imitation. Theories are "associationists" learning underlying educational interventions. Gradually, this attitude will give way to an analytical approach more "global", where the gesture will be asked to learn a whole to meet its original unity.

From this point of view, the heterogeneity of the class requires an individualization of pedagogy that takes us away from the pedagogy of the formalism is identical for all year.

Learning and athletic movements: The particulars of the various ministerial programs reserve a place more and more sporting activities, sport facilities, however, not always support this need in all environmental situations.

If the sport must have an adequate place in general education, physical education and sport is based on activities organized according to the objectives assigned to you. Physical maturation, intellectual and moral sought by the school, the overcoming of self that promotes not only the means to form a competitive sport: Are those of access to physical and mental health that allows individuals to adapt continuously his reactions and behaviors to the requirements of its environment. Physical education and sports supplements the physical and sporting activities to improve students' ability to establish specific skills.

On practical matters, except for warm-up exercises, sporting activities are being planned in education. The different sports are classified into families. A schedule of each of them, you do research, schooling for all, develop a balance of effects, which are supposed to in terms of perceptual factors, psychological, sociological, organic, regarded as the key determinants of the motor.

In this context, is an eclectic educational purpose in pursuing and implementing procedures? You can see here the influence of mixed theories, developed in psychology in the first half of the twentieth century. The teacher provides a demonstration of the gesture to be done (ideomotor theory), then is repeated in alternation of both parts of the gesture (the gesture is the decomposition into elements to be acquired separately, under the influence of theories associationists) and full implementation, designed to seize the overall "good form" (Gestalt) or to allow for associating items previously learned. Attention is brought to the objective result, but it is still in the form of movement that is privileged. This theory will be called "technical" "in so far as the shape of the gesture of the sample becomes the role model.

The student actor and producer of his learning. The development of the human sciences (in particular under the influence of genetic epistemology of Piaget), cognitive science and neuroscience and especially information theory, transform the pedagogical considerations. The demonstration assumes less importance, the student is led to enter more directly in the activity to determine its possibilities and its difficulties. The teacher "system environment", playing on its processing and sull'aggiustamento material in order to objectify the end of learning ed'offrire the maximum information to the student before, during and after the action, for the latter to assess their procedures and results. There is implemented a pedagogy of "problem-situations".

The assessment procedures reveal the educational ambitions of teachers. In fact, when it comes to award a mark out of physical education in national examinations (in France), teachers consider that the only sport performance is inadequate to represent the pupil's progress and evolution of the motor. Then they shall conduct an assessment of mobility defined generically as "intelligence of the movement, body awareness, mastery and effectiveness of the gesture". I also appreciated the "knowledge about the activities follow". Under the conditions of teaching with a time bound, it is clear that there is a gap between intentions and reality every day.

Sporting activities in school curricula to summarize the current educational trend, we can consider that each sport has taught proposed as a task or set of tasks to learn. These are listed as elements that bring into play a set or a specific configuration of resources (biomechanics, bio-energy, bio-affective, bio-information) that must then be able to mobilize an effective and harmonious implementation (ability). The resources put into play involving the obligations of the environment and the characteristics of the task have the effect of enriching these resources considered necessary skills to be developed to allow the gradual complexification of specific expertise.

On the one hand it will give references to homogenize national sport on the organization of learning at school and other cross-define the objectives to be developed, regardless of his studies. Reflection on teaching physical education and sport tend to find a way to give the sociological need to preserve the variety of learning sports-but without falling into an accumulation of learning ever made-with the need to objectify the acquisitions reinvested. We must not forget that any education is not easily pigeon-hole in a state program, when you know that the diversity of individual experiences, in very varied contexts, the pupil is a singular being that these are to accompany a future.

These brief notes have shown that teaching has moved from the collective preparatory education and trainer for a pedagogy of individual and team that puts the teacher in the face of social and individual meanings of the subject they teach. In this sense we can understand that for many parents the professor of physical education remains a "proof. Exercise," when children become a "proof's Sport". It follows that pedagogy is always at the service of a school culture that must constantly redefine

Conclusion

The sport, in fact, mediate between his values, respect for rules and opponents, ethical values that confirm a function of sport and therefore education is required to use to promote its educational objectives. The contribution of training to the sports world, especially by identifying the reasons for this presence. Often, schools use training to solve problems or to achieve improvement objectives. There fore we tried to identify what the real problems of the world of sports that require training and have been through some of the initiatives that have been developed in recent years, in response to the problem within the world of educational experiences sports. The training involving the presence of sports. No more training for the sport, but sport for the training of young student and have been divided into two parts: the first case we analyze the role of sport in the out door training, in the second case, there are experiences of training in which the 'physical education teacher is not only present in his capacity as a provider of technical knowledge (as in rafting, Jungle Adventure, and other outdoor activities), but especially in the role of spokesperson, a person with an experience raccontare. Nel draw the conclusions from this research, assuming the job as a meeting place between the training and sport. Thus the role of sport in educational contexts, in addition to important pedagogical value of the latter, we compared some characteristics of sport with similar features found in other environments

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THE CIVIL LIABILITY OF THE TEACHERS AND TRAINERS FOR THE ACTS OF THE UNDER-AGE SPORTSMEN[1], FROM THE PERSPECTIVE OF THE NEW CIVIL CODE OF ROMANIA

VOICU ALEXANDRU VIRGIL[*] **& KIS RÉKA**[**]

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

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

REZUMAT. În acest articol, autorii prezintă noutăţile aduse de Noul Cod Civil Român cu privire la răspunderea civilă delictuală a cadrului didactic şi a antrenorului, prin arătarea elementelor de specificitate ale acestei instituţii. Comparaţia, prin care aceste elemente vor fi relevate, este multilaterală, întrucât individualizarea se face, pe de o parte, faţă de soluţiile cuprinse în reglementările juridice străine din acest domeniu, pe de altă parte, faţă de răspunderea civilă delictuală pentru fapta altei persoane, din dreptul comun. Pentru a realiza această analiză, autorul parcurge istoria instituţiei răspunderii cadrului didactic şi antrenor, pornind de la prima lege din acest domeniu - respectiv legea Aquiila -, ajungând la prevederile Noului Cod Civil Român.

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

Defining the Concept of the Civil Liability of the Teachers and Trainers for the Acts of the Under-age Sportsmen

The liability of the teachers and trainers is a form of the civil liability for the acts of other persons. This latter one is regulated by the section 1000 of the Romanian Civil Code and by the aricle 1372 of the New Civil Code.

[1] By sportsmen we understand sportswomen as well, but in order to simplify the language, we might sometimes mention only the prior one.

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Thus, the liability of the teachers and trainers is a civil liability[2]. Two inherent principles particularize civil liability, namely the rule of *restitutio in integrum*[3] and the rule of *restitutio in natura*[4]. Civil liability has two main forms, respectively tort liability and contractual liability[5].

Tort liability - looked upon as the common form of the civil liability – can be defined as one's legal obligation stemming from either a civil wrong, other than contractual ones, or injury for which a court remedy is justified.[6]

The *contractual liability* – thus, the special form of civil liability – is the duty of the debtor of an obligation assumed under a contract or agreement to repair the damage caused by his failure in performing in accordance with the contract; either by delaying the execution of his obligations, or by executing them only partially or not executing them at all[7]. The contractual liability intervenes only between the parties of a contract, as a result of breaching a precise and a priorly determined obligation. Therefore, whenever the conditions of the contractual liability fail to fulfill, one should examine whether the damage doesn't meet the conditions of the tort liability, which is to be applied in that case[8].

Though tort liability and criminal liability are similar in some regards and are often linked together, they are not to be confounded. The essential differences between the two emerge from their different purpose and different field of interest: while the purpose of the tort liability is repairing damages caused by unlawful, extra-contractual acts, the purpose of criminal liability is punishing the criminals, seen as persons having extremely serious, unlawful behavior and to defend the society from the acts committed by them[9]. Thanks to the repairing purpose of the tort liability, the main field of action of it is the *patrimony* of the debtor, while in case of criminal liability - due to its educating and protecting role[10] – the

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[2] The civil law is formed of the ensemble of judicial norms, which stipulate the general rules of the birth, modification, and end of private judicial relations and the content of these. (Ionel Reghini, Şerban Diaonescu: Introducere în dreptul civil. Vol. 1, Ed. Sfera juridică, Cluj-Napoca, 2004, p. 15)

[3] restoration to original condition

[4] As apposed to money damages,

[5] Alexandru.V. Voicu,: *Răspunderea civilă delictuală cu privire specială la activitatea sportivă*, Ed. Lumina Lex, Cluj-Napoca, 1999, p. 41

[6] Liviu Pop: *Drept civil român. Teoria generală a obligaţiilor*, Ed. Lumina Lex, 2000, Bucureşti, p. 177

[7] ibidem

[8] Voicu, *op. cit*, p. 41, Beside this essential difference, there can be found others, such as the ones regarding the proof of neglijance, the extent of the damages, the divisibility of the liability of co-debtors, the legal competency, the extenctive prescription, the lawfullness of the exclusion clauses

[9] Liviu Pop, op. cit, p. 172

[10] Florin Streteanu: *Tratat de drept penal. Partea generală. Volumul I*, Ed. C.H. Beck, Bucureşti 2008, p. 3-9

punishment of the author is pursued and therefore, the sanction has a more *personal nature*[11].

The *tort liability of the teachers and trainers* ought not to be confused with the *professional liability* either, since the latter one is not considered a judicial liability[12].

The tort liability can be classified as follows: the liability for one's personal acts, which is stipulated in sections 998-999 of the present Civil Code[13]; the liability for other persons' acts, of whom conditions are stipulated in section 1000[14] and finally the liability for the objects in one's custody, the rules of which are established by sections 1001-1002[15]. The fundamental difference between the liability for one's personal acts and the one based on section 1000 is the existence of negligence, as a condition of the liability: negligence is an indispensable condition for incurring the liability for personal acts, but the liability for other persons' acts can occur even without the negligent behavior of the one held responsible for paying the damages.

The section 1000 par. 4 from the Civil code stipulates the liability of *teachers* and *artisans*. Regarding the first category, in the field of sport, the subjects are the teachers and trainers, regardless their position and didactic rank, in primar education, as well as from club and associations with non-work purpose. The artisans in the field of sport can be defined as the teachers of physical education and the trainers who have the legal obligation to teach their apprentices a profession, or in this case, the profession of sportsman. Due to Law no. 69/200 and its subsequent modifications, only the persons owning the proper certificates and diplomas, obtained in accordance with the legal stipulations, can teach physical education and sport or can train sportsmen[16]. When practicing their profession, both the teachers and trainers give instructions, educate and supervize their pupils.

The conditions and results of the liability

The activation of the liability of the teachers and trainers is preconditioned by categories of elements. Firstly, there are some general

[11] As a consequence there are other major differences, such as regarding the application of the principle of legality, the egality of the parties, guilt or neglijance, sanctions, the legal capacity, etc.
[12] For more details about the professional liability in the field of sport, see A. Voicu: op. cit, p. 69-74
[13] Sections 1357 and 1379 in the New Civil Code
[14] Section. 1372 in the New Civil Code
[15] Section 1376 in the New Civil Code
[16] Section 58 of Law 69/2000

conditions that are inherent to all forms of tort liability and there are those special conditions that characterize only this type of liability.

The unanimously accepted general conditions are the unrepaired damage – that might be the consequence of breaching one's right or one's legal interest -, the illicit act, and the existence of a causality report between the illegal act and damage. The followers of the traditional theories of civil liability add the culpability of the doer, too to the general conditions[17].

The special conditions are the follow ones:

a) the sportsman or sportswoman is under-age. Though some authors consider that the liability of the teachers or trainers occurs regardless the pupil's age, because the legal stipulations don't mention this condition[18], we adhere to the opposite theory. Otherwise, the liability of the teachers and trainers would be broader than the liability of the parents[19].

b) the pupil commits the unlawful act while being or should have been under the supervision of the teacher or artisan, thus, at the school or club or association, or other organized activity, even outside the sport unit, as long as they are or should have been supervised by the teacher or trainer.

c) *the pupil causes the injury to a third person* and not to the teacher or trainer. In this latter case, the teacher could be held responsible only based on sections 998-999 of the civil code[20].

If all the conditions are fulfilled, the teacher or trainer is liable for the acts committed by his or her pupil. If it can be proven that the sportsman or sportswoman had discernment when he/she committed the act, the victim can sue directly the sportsman/sportswoman, due to section 998-999. Moreover, the victim has the possibility to sue both the pupil and the teacher/trainer. Every time the pupil had discernment when committing the act and the existence of his/her fault can be proven, the teacher's or trainer's liability will be *in solidum*[21].

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[17] The fault can be defined as the psychological attitude of the author of the illegal and injurious act toward the act and toward the consequences of it. (Liviu Pop, *op. cit*,p. 225) The fault has two components: *the intellectual component* – standing for one's ability to understand the social significance of his deeds – and the *volitional component*. The intellectual component is an indispensable part of the discernment, without which the latter one can't exist. Without the discernement,the civil liability for personal acts is unimaginable.

[18] Ion M. Anghel, Francisc Deak si Marin F. Popa : *"Răspunderea civilă"*, Ed. Ştiinţifica, Bucuresti, 1970, p. 161

[19] For further details, see: A. Voicu, *op. cit*, p. 312-313, În acelaşi sens Constantin Stătescu , Corneliu Bîrsan: *Drept civil. Teoria generală a obligaţiilor*, Ed. Hamangiu, Bucureşti, 2008, p. 241, Constantin Stătescu: R*ăspunderea civilă delictuală pentru fapta altei persoane*, Ed. Hamangiu, Bucureşti, 2009, p. 117, L. Pop, op. cit, p. 258, Lăcrămioara Boilă: *Răspunderea civilă delictuală subiectivă*, Ed. C.H. Beck, Bucureşti, 2009, p. 305

[20] For further details, see A. Voicu, op. cit,, p. 313-314

[21] Idem, p. 314

The basis of the liability

This section is probably the most important one of all, because the conditions of the liability, the extent, and the effects of it, even the persons held responsible depend on this.

The birth of the civil liability, as we know it, is linked to the law of Aquilia. The Law of Aquilia puts the basis of the obligation of a person to repair any damage caused by him or her intentionally or out of negligence to another person. It also stipulates the offence of *damnum iniuria datum* (damage unlawfully inflicted). The Law excludes the nonrational human beings from liability, such as children or mad people, establishing therefore the concept of subjective liability, for the first time[22]. Despite all these, Ulpian, in the Supplements of the stipulations of this Law, in Digests 9, 2, 7, 4, points out some exclusion clauses regarding the primar, tort libility in sport activities. He argues that the Law won't apply to sport injuries, because these weren't caused with the intention of harming, but in order to attain glory and victory[23].

In the present, section 1000 par. 4 stipulates the liability of teachers and artisans. According to the traditional theory of civil liability, both the liability of the parents for the acts of their children and the liability of teachers and artisans for the acts of their pupils and apprentices is a subjective liability, based on the legal assumption that the prior ones have disregarded their educating and disciplining obligations, while the latters haven't complied with their supervising obligations[24]. The shortcomings of this theory are the ones, as they follow: the difficulty or even impossibility of proving the culpability of parents, the liability of the minor as a precondition of liability of parents' and teachers[25] and the disadvantaged situation of the victim in case the assumption of culpability of the parents or teachers is confuted[26].

According to another theory, the parents' liability is a strict liability, the parents being responsible regardless their culpability. The plaintiff need only prove that the tort occurred and that the defendant was responsible. The

[22] Idem, p. 10
[23] Idem, p. 12
[24] For more details, see: Stătescu-Bârsan, op. cit, p 216-220, 242
[25] If there can't be proven that the child had the discernment of his deeds, he or she cannot be held liable and consequently – according to the subjective thery – neither can the parent or teacher. Thus, the victim is put in a disadvantaged situation.
[26] For more details, see: Boilă Lăcrămioara: Fundamentul răspunderii civile pentru prejudiciile cauzate de către minori sau de către persoanele puse sub interdicție in Dreptul no. 3/2010, p. 112-114.

basis of the liability is the *idea of warrant*, incurred by *family solidarity*. Only circumstances outside the parents' control, such as the act of God, the act of the victim or the act of a third person, could exclude their liability. In accordance with this theory, the teachers' liability remains a subjective one, based on the idea of their culpability as a consequence of their failure of supervising their pupils. Their liability will be removed if they prove that they have complied with their supervising and educating obligations and they could have done nothing in order to stop the students' deeds[27]. In this latter case, the parents will be held legally responsible for their children's acts, due to their strict liability.

Even though the above mentioned theory seems interesting and fairly advantageous, we consider that the theory conforming to the idea that both the parents' and the teachers' liability is a strict one, seems more suitable[28] in the domain of sport activities. We chose to support this idea because of the special role of the trainer in the sportsmen's and sportswomen's education : unlike the teachers and artisans, who don't have the obligation of educating, but only of teaching or instructing, trainers – due to the specificities of the sport activities and their special assignment – also have the duty of participating in the *sport education* of the trainees, considered an objective of sport activities, focused on at casual trainings, competitions, sport performances and training camps[29]. Thus, because of the the scpeciality of the trainers' liability, „parents can not be held responsible for their children's harmful acts, commited during their sport activities according to their age, because sport activities exclude the parents' possibility of supervision."[30] Therefore, the reasonable and just solution seems to be the strict liability of the trainers, they –and not the parents – having a warranty obligation for the acts of their pupils. In this case, both the trainers' and parents' responsibility can be excluded for the same reasons, namely circumstances outside their control.

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[27] For further details, see Boilă Lăcrămiora, Răspundera civilă delictuală subiectivă..., p. 303 - 305

[28] Liviu Pop: *Reglementarea răspunderii delictuale pentru fapta altuia în textele Noului Cod civil* in Dreptul nr. 5/2010, p. 14 In a prior article, the author proposes the idea of admitting the existance of a general principal of the strict liability for someone else's acts, as stipulated in the section 1000 par. 1, I. thesis Civil code. In his view – and in ours, too – it would be unjustiafiable to have a lighter responsibility, depending of culpability, for parents and teachers, while having a strict liability for all the other people, usually less familiar to the child. (Liviu Pop: Discuții de lege lata cu privire la recunoașterea existenței unui principiu de răspundere civilă delictuală pentru fapta altuia consacrat în Codul Civil român în Dreptul nr. 8/2004, p. 72)

[29] A. V. Voicu, *op. cit*, p. 308

[30] Supr. Court, Criminal Section., dec. Nr. 183/1976,in RRD nr. 9/1977, p. 56

For the future, the New Civil code stipulates the persons "who, due to their legal, judicial or contractual obligations, have to supervise an under-age person"[31] are generally liable for the damage caused by the person in their custody to others. The next paragraph stipulates that the liability subsists even if the one under supervision is exempted from liability because of his age or mental state. The Code also says that the one obliged to supervise can only be excluded if he/she proves that he/she couldn't have prevented the action of the minor. Thus, the New Civil Code includes the liability of teachers and artisans into this general category, without mentioning it separately.

Regarding the ground of the liability, some authors hold that the teachers' and artisans' liability (and thus, the trainers', too – s.n.) is and should always be subjective, based on culpability, while the parents liability is a strict one, regardless of their fault[32].

According to another opinion, which we agree with, both the teachers' and the parents' liability is a strict one. The arguments in favor of this point of view are the wording of the legal text, on the one hand, and the fairness of the solution, because of the special role of the trainer in the pupil's sport life, on the other. The benefit of this interpretation is a direct liability of the teachers, without being preconditioned by the pupil's culpability.

In the *German law* both the parents' and teachers' liability is based on the relatively assumed culpability of the person in charge with the supervision of the minor; the assumption can be confuted by proving that the responsible person has accomplished his/her supervising duty.[33]

Some other law systems, such as the *Belgian, Italian, Spanish, Lebanese, of Quebec, Mexican, Senegalese and Algerian*, adopted the traditional French view, in accordance with which in order for a person to be held responsible for the acts of the minor in his/her custody, it has to be proven that he/her has missed to accomplish his/her supervising obligations.

In the present, *in France*, the liability of the teachers is bound to the proof of their culpability regarding their way of fulfilling their supervising obligations. It is a direct liability for their personal acts, which is in causality relations with the damage inflicted by the minor.[34]

[31] Section. 1372 par. 1 din Noul Cod civil
[32] For further details, see L. Boilă, Răspunderea civilă delictuală subiectivă ..., p. 306
[33] L. Pop: Reglementarea răspunderii delictuale... , p. 18
[34] L. Boilă, Răspunderea civilă delictuală subiectivă ..., p 308

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In this article we tried to gather the main legislative and doctrinal – past, present and future; domestic and foreign - solutions of regulating and interpreting the tort liability of teachers and trainers in sport activities, hoping to pick out the best one. In order to do this, first we defined the largest category of judicial liability and then tried to reveal the differentia specifica of the above mentioned tort liability. We hope that the present study will be a useful starting point for those who would like to go thoroughly into this topic.

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COMMUNICATION IN SPORTIVE CLUBS

MOCA COSMIN MIHAI[1]

ABSTRACT. In this paper I have tried to determine the communicative abilities through a research made at four different sportive clubs from Cluj Napoca. As an instrument of the scientific research I have used the questionnaire regarding The Interpersonal Communicative Ability. The obtained results led to the conclusion that the first four components of the communicative abilities regarding the selected subjects are at very good parameters; about the communicative abilities and the capacity of transmitting information the conclusion was that they need some improvements. At the end I have presented some ways of improving the communicative abilities and some methods of improving the parameters of message transmiting.

Key words: Sportive clubs, communication, information, communicative ability.

REZUMAT. Comunicarea în cluburile sportive. In prezenta lucrare voi încerca determinarea capacităţilor comunicaţionale printr-o cercetare pe teren care a vizat patru cluburi sportive din Cluj-Napoca iar ca instrument de investigaţie ştiinţifică am folosit chestionarul privind Competenţa Comunicativă Interpersonală-CCI. Conform interpretării rezultatului chestionarelor, primele patru componente ale capacităţilor comunicaţionale în cazul subiecţilor chestionaţi se află la parametri buni, în schimb deprinderile comunicaţionale şi capacitatea de transmitere a mesajului mai suportă îmbunătăţiri. In final, am expus unele modalităţi de optimizare a deprinderilor comunicaţionale precum şi unele metode de creştere a parametrilor de transmitere a mesajului.

Cuvinte cheie: Club sportiv, comunicare, informaţii, capacitate comunicaţională.

Sportive clubs must pay a lot of attention to their adopted communicational system. They must establish a coherent flow of information focused on two main directions: internally, inside the club, and externally, towards the environment outside the club. Internally, all the sportive clubs must watch the communication between different departments and administrative units, between employees, sports men, clubs and other affiliated organizations. The external receptors refers to television, radio, mass-media and other organizations and governmental agencies involved in sportive activities and

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responsible of managing the governmental funds: private organizations which finance different sportive activities and which are interested in the sponsorship of different sportive events; and the public, another receptive factor through communication accomplished by mass-media and publicity.

Communication is the essence of the inter-human relationships. It influences the way in which we are perceived and how well we are understood by other people. The communicative capacity has a close relationship with people's the self-esteem and the adaptation to different situations. Low communicative capacity leads to a lot of frustration in inter-human relationships.

In the present work I have tried to determine the communicative abilities based on a research at four sportive clubs from Cluj-Napoca:

- "Marc Tennis" Sportive Club (tennis)
- "Crecos Tennis" Sportive Club (tennis)
- "Galactica" Sportive Club (basketball)
- "University" Sportive Club (fitness- body-building)

I have made an opinion poll based on questionnaires.

The study took a sample of 14 people and I have used the questionnaire regarding The Interpersonal Communicative Ability.

The questionnaire contains 34 items which try to identify the communicative abilities as it is shown in the Table 1:

Table 1.

Communicative Abilities

Nr.crt	**Communicative Abilities**	**Symbol**	**Items**
1	Ability of efficient listening	CAE	5,11,22,27
2	Ability of message transmitting	CTM	1, 2, 3, 14
3	Communicative intuition	IC	6,7,11,13,31
4	Emotion management	ME	9, 16, 17, 20,24,28,30
5	Communicative assertivity	AC	4,18,19,32,33,34
6	Efficient communicative abilities	DCE	8,10,15,21,23,25,26,29

19 items are marked vice-versa: 1, 2, 4, 6, 8, 9, 10, 12, 13, 14, 17, 19, 21, 24, 25, 26, 28, 32, 34.

The other 15 items are marked directly: 3, 5, 7, 11, 15, 16, 18, 20, 22, 23, 27, 29, 30, 31, 33.

A global result of the communicative ability is calculated and it can has values between 34 and 170 points for each subject. At the level of the entire sample it may have values between 476 and 2380. High scores indicates a higher communicative ability. The raw scores can be turned into standard scores with values between 0 (poor communicative abilities) and 100 (excellent communicative abilities).

At the level of the whole sample the score was of 2125 suggesting the existence of good abilities of communication of the subjects.

The maximum score per item is of 70.

The situation of the scores on those six variables of the communicative abilities are presented in the following chart 1:

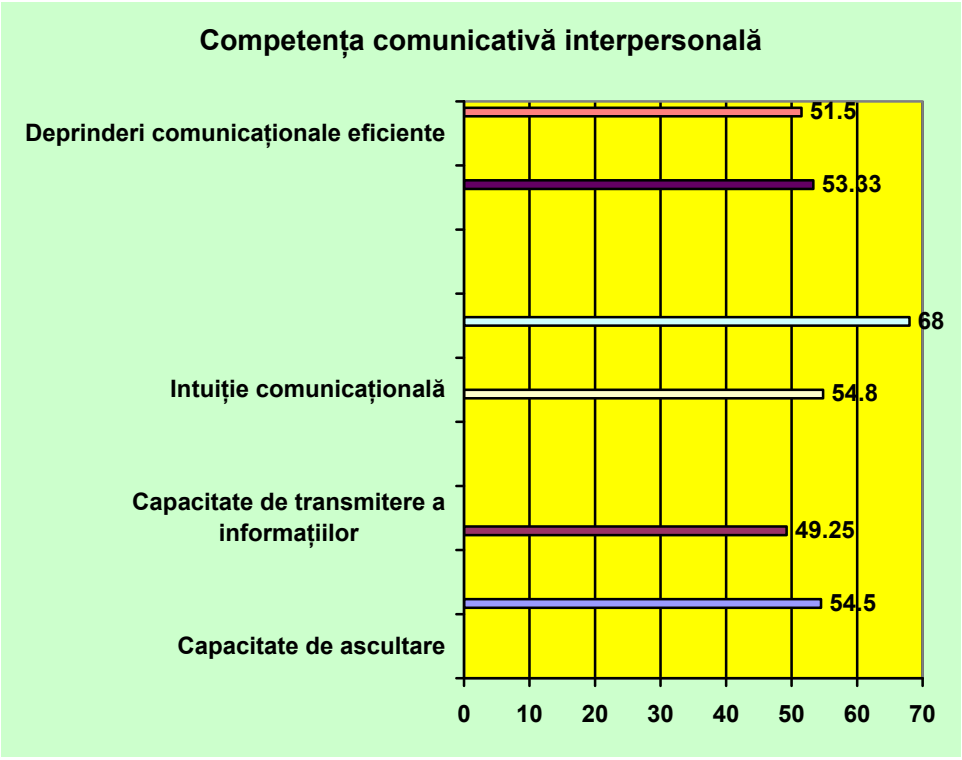


Chart 1. - Interpersonal Communicative Ability

The emotion management has got the best score.

What does the emotion management mean?

In the 90's Howard Gardner has identified the interpersonal intelligence and intrapersonal intelligence which combined represent what is known today as IE. The emotional intelligence refers to the individual's ability of recognizing, expressing and controlling his own emotions and feelings and of the other people.

This state of fact proves that the subjects are able to use their emotions in an intelligent way which means:

- a good capacity of controlling the emotional impulses;
- receptivity at the other people's feelings;
- "the reading" of the others' emotions;
- personal emotional equilibrium;
- conflicts' management and negotiation;
- positive interpersonal relationships;

A very good score was obtained at the "communicative assertivity". What does "communicative assertivity" mean?

Daily we have to face different situations which implies a certain kind of attitude. We do not get what we want, we are not supported as we deserve, our rights are not respected.

Assertive communication can be a solution- it refers to our ability to express our own desires and options in a way that do not harm the self and others' esteem.

A person who has this communicative ability knows and is able to express his desires and thoughts, to refuse and solve conflicts in a determined manner without offending the others.

In the case of the subjects the assertive communication has got high parameters.

The communicative intuition and the ability of listening have also got high parameters.

The communicative intuition refers to the ability of finding a truth, of checking the validity of some received information out of any logic. It is about that kind of knowing that someone is lying. The sportive managers and trainers from the studied sportive clubs have proved that ,based on their answers, they have a high level of interpersonal communicative ability.

The capacity of listening means to listen to different chunks of a message, its understanding and giving a feedback. A good listener will always pay attention to the message and will try to understand it. In the case of the studied sportive clubs the managers and trainers have proved a lot of understanding and patience regarding the employees' problems and have tried to give a as positive feedback as possible to their problems.

Efficient communicative abilities and the capacity of information transmitting have got the poorest scores.

Efficient communicative abilities refers to the capacity of transmitting a clear and understanding message based on a whole accepted code. Referring to the communicative abilities in the case of studied the sportive clubs it may be said that some improvements are needed. As we have already shown, the managers and trainers have proved to be good listeners and receptors to the employees' problems and suggestions. The improvement of the communicative abilities is strictly linked by the inter-human relationships from the sportive clubs. Based on a study, it can be drawn the conclusion that these relations are good and flexible leading to the improvement of the communicative abilities. The objectives must be very well and clear established because the quality of the information depends on the objective. The more clear it is the better the communication at lower levels is. The managers and the trainers must know very well the employees' expectations and desires so that the transmitted message should be perceived efficiently. In other words, the clearer their desires are expressed the easier is their transmission which means an efficient communication. The ability of efficient communication is hereditary but it can also be gained and improved during a lifetime through education, personal training and the gained experience.

At the chapter regarding "the ability of information transmission" the poorest score was obtained. The ability of transmitting information refers to the capacity of transmitting this information in a clear, accessible and convincing way. The improvement of the capacity of information transmission in the case of the sportive clubs can be realized through the managers and trainers' participation to different courses of communication. It is also important for the trainers to make use of the modern techniques during their training sessions: the video-projector, DVD's and other visual aids.

In conclusion we can say that the subjects have proved an intelligent use of their emotions, to be good listeners and to have a good communicative intuition; but referring to their communicative abilities it has been noticed the necessity of developing them and of improving the parameters in the case of efficient transmission of the information.

ANNEX

Questionnaire regarding the interpersonal communicative ability:

Instructions: In the following page there is presented the way in which people usually communicate. Each statement must be carefully read and we ask you to make comments regarding the way in which they affect and influence you personally.

Possible answers:

Almost never: 1 point

Rarely: 2 points

Sometimes: 3 points

Often: 4 points

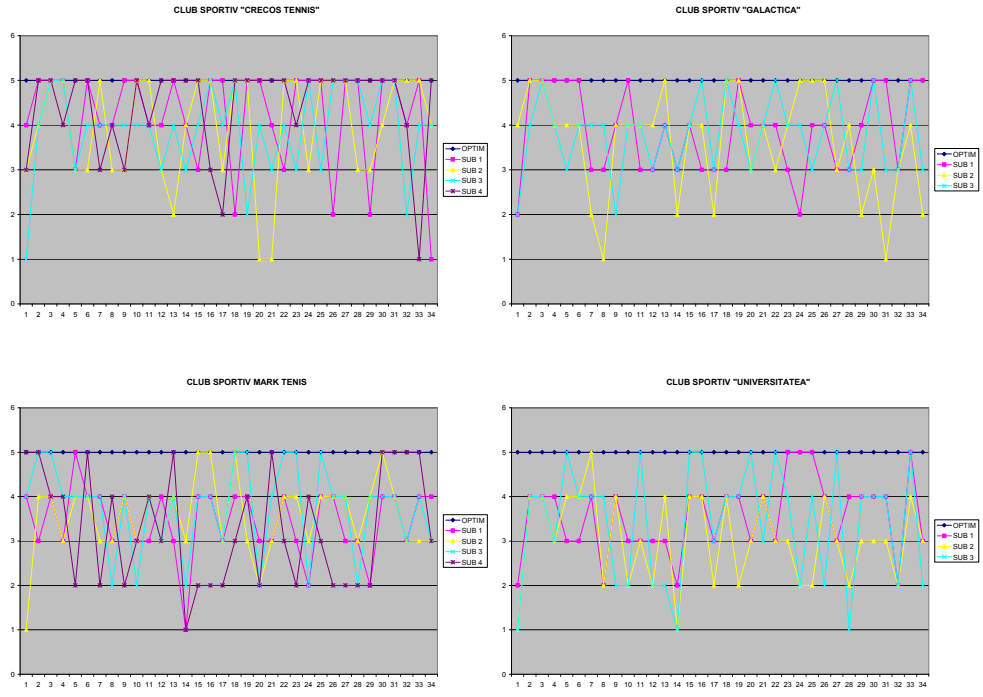
Almost always: 5 points

Nr.crt.	THE STATEMENT	
1.	When I explain something to some people I ask them if they understand me and if they can follow my flow of ideas	
2.	People do not understand what I am telling them	
3.	It is difficult for me to sustain a certain personal opinion especially when the others disagree with it	
4.	I manage to express my ideas clearly and precisely	
5.	If I do not understand a certain problem, I ask for supplementary explanation	
6.	It is not very clear for me what other people say	
7.	It is easy for me to see things from other people's point of view	
8.	I pretend that I pay a lot of attention to what other people are telling me even if my mind is somewhere away	
9.	It is hard for me to express my feelings in front of the others	
10.	If I have something important to add in a conversation, I do not hesitate to interrupt the speaker	
11.	I am able to discover the other people's state of mind just looking at them	
12.	When I can anticipate the other people's words, I do not hesitate to express myself	
13.	I am so concerned about what I am saying that I do not notice the other people's reactions	
14.	I consider that my weaknesses must be kept away of the other people being something very intimate	
15.	When I am making a mistake I do not hesitate to admit it publicly	
16.	The best way to make myself clear is to say openly and sincerely what I am thinking	
17.	I have the tendency to avoid discussions on sentimental issues	
18.	When I realize that I have offended someone, I do not hesitate to apologize promptly	
19.	When I am publicly criticized, I have the tendency to draw back	
20.	When I am angry and someone wants to know about my state of spirit, I do not hesitate to admit that I am angry and I do not get mad on him	
21.	When I express my ideas, I have the tendency to get suddenly to the conclusions	
22.	When I am talking to someone, I try to understand that person and to put myself in his shoes	

Nr.crt.	THE STATEMENT	
23.	When someone has difficulties in find the proper word to express himself, I immediately help him by giving him the right suggestions	
24.	Some people reproach me that I raise my voice when I am talking to them but I do not realize that	
25.	When I am talking to someone I usually keep a distance	
26.	I have the feeling that my presence is somehow intimidating for the others	
27.	I pay a lot of attention to other people's saying	
28.	I get angry when I am contradicted by someone less experienced	
29.	When I criticize someone I am careful not to make a personal critique but a general one	
30.	I am able to solve the daily problems without loosing my temper	
31.	I perfectly aware of my emotional reactions towards what it is said in a conversation	
32.	I have the habit of postponing the discussion of some sensible issues	
33.	I am able to face someone if I feel offended	
34.	I avoid to express my disagreement in order not to upset that person	

Source: adapted in Romanian language by dr. I. Lupu of U.M.F. "Iuliu-Hatieganu" Cluj-Napoca, after Cyberia Shrink, Internet Queendom. Com, 1999

Grafical interpretation of the subjects' answers and optimal reference in case of those four studied clubs:



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OBJECTIVE CRITERIA FOR ASSESSING THE TECHNICAL SKILLFULNESS IN SPORTS

POPESCU FLORENTINA[1]

ABSTRACT. The technique is a system of integrated movements, acts, specialized and automatic skills used for solving the purpose and the tasks of that sport. Assessing the sports skillfulness is made according to criteria more or less objective and knowing them by the trainers will become mandatory for using them in the sports training methodology.

Key words: basketball, technical skillfulness.

REZUMAT. Criterii obictive de apreciere a măiestriei tehnice în sport. Tehnica reprezintă un sistem de mişcări integrate, acte, pricepri specializate şi automatizate cu ajutorul cărora se rezolvă scopul şi sarcinile probei sportive. Aprecierea măiestriei sportive se face după criterii mai mult sau mai puţin obiective iar cunoaşterea lor de către antrenori devine obligatorie pentru folosirea lor în metodologia instruirii sportive.

Cuvinte cheie: baschet, măiestrie tehnică.

The sports technique can be considered as ideal model for solving the task or the tasks provisioned in one sports area. From a metrical point of view, the technique is achieving a program; this achievement is not actually efficient unless it relies on an adequate level of developing the movement skills. At a motrical level, the importance of the technique depends on the role played by the conditional and coordinative abilities in the sports performance structure.

In technique, the fundamental movements are the following two types: open and closed (Manno, R., 1996), mentioning the special case of the tactical skills for sports that are techniques applied in conditions varying according to the type of that "open skill".

During the years have been made observations in which was attempted stating the parameters of the skillfulness, parameters corresponding to the higher technical skillfulness. The results obtained as regards this

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allow certain generalizations. First, there must be stated what "sports skillfulness" mean and what we are taking into accounts when making reference to criteria for assessing it. Usually, this notion means the perfection of the movement. But this idea is too narrow, "sports skillfulness" comprising in itself not only metrical aspects of the physical phenomenon, but also all processes participating in regulating and directing the movements and that ensure their high ending. (Diacicov, W., 1983).

In the sports practice there is the wrong image as regards the notion of criteria, as well as of the actual parameters that express the structure of technical elements, this being of the actual manner of the exemplary technique. As main criterion of the technical skillfulness there must be considered the player's actions, the high level of the sports results obtained (especially in the technical sports), as well as their high stability.

At the same time, there must be acknowledged the second factor: the physical capacity, the development level of the specific movement abilities that determine the possibility of achieving the high performance by the sportspersons. The level of the technical skillfulness must be assessed through the efficacy using degree of the movement potential. Here is showed an extremely important aspect – the reversed pro-rated ratio between the level of the technique and the value of the physical effort, the item made in the measurement unit of the sports result.

The cinematic and dynamic researches of the movement parameters allow the assessment of the movement technique characteristic. Still, an integral indicator is the time indicator, this being the movement rhythm. It comprises the complex interrelation of several factors determining the particulars of making the movement (Diacicov, W., 1983).

An important trait of the sports exercises rhythm is the occurrence of accentuated phases with rationally succession of efforts having different intensities at certain times, focusing the efforts at the same time with increasing their density in active phases and adequately expanding the duration of passive phases (L.M. Offenbach, quoted by Diacicov, W., 1983).

"The body movement – says N.A. Bernstein quoted by Diacicov, 1983 – is as more economic and as more ration as the system uses more the reaction forces and the external forces, and also, as more as the work quantity of the muscles is smaller."

The effort's effect depends on the manner for using the forces and, in conclusion, the perfection degree of the movement technique also depends on the manner for using the forces.

Going from safety and precision criteria, there must be noticed first that they are comprised in the movement structure itself, in optimum constructions of the metrical mechanisms and they are expressed in a certain degree for acquiring the rational technique and the sustainability of the automatic movements. The movement safety is conditioned by the complexity of functions in the given system, this meaning complicating the training as a result of extending the chain of elementary movements, enhancing the coordination prerequisites, increasing the exigency as regards action precision, complicating the external conditions (Korienberg, W.B. quoted by Diacicov, W., 1983). Thus, it less safe the conscious system of elements having a different coordination that comprises a higher number of direction-related, speed, effort intensity changes, such as in the case of sports games.

The following criterion of movement safety and precision is the stabile automatization and the sustainability of the movement ability in case negative conditions and external and internal influences occur. From the specialty literature can be seen that the basic quantitative indicator characterizing this quality can be considered the optimum interdependency between stability and variability of the movement skill (taking into account the particulars and the conditions of the sports combat).

The high level of sport related technical skillfulness is characterized through two types of variation (instability): adjusting and compensating. The main trait of the former is that while the sports advancement occurs, the movement oscillations framework of the abilities is widened. In speed-force sports, this instability shows a clear orientation, expressed in increasing the movement speed parameters under the influence of mobilizing the sportsperson for obtaining the best results.

When talking about technique we must assess it from a psychological point of view, beginning with the role of conscience in directing automatic movement. The basic psychological criterion at the technical maturity of the sportsperson is the occurred of a clear and actual formulation of the movement orientation, adequate to the content, character and structure of the metrical action rhythm.

The technical skillfulness characterizes only the players having a high technical capacity acquired along the years. It is the result of training (collective and individual) and of the self-training, mandatory jointed by “vocational talents” for that sport, the sports talent.

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FUTURE TRENDS IN THE USE OF PHYSICAL ACTIVITY OF THE STUDENTS FROM HIGH SCHOOL

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ABSTRACT. Physical education and sport have always been social activities with real biological data, both contributing to improve human physical traits and thereby increasing the quality and life expectancy.The main objective of this research is to discover the desires among high school students, about the practice of physical exercises in the future.Another objective of the research is the analysis of trends in the practice of physical activity, based on choices made by students in high school.This study was applied to a number of 240 students from classes IX - XII from National College "Samuel von Brukenthal", Sibiu, in the period of 2009-2010.It can be seen, in the study conducted, that physical exercise is part of the concerns in the future, if not daily, even weekly, of the population still in the high school. The overall conclusion is that the desire to practice physical exercise is in the inverse relationship with age of subjects.We consider that physical education teacher has to put a greater emphasis on students' awareness regarding the importance of independent practice of physical exercise in their leisure time in the future.

Key words: trends, practice, physical activities, students, high school, physical education and sports.

REZUMAT. Tendinţe viitoare privind practicarea activităţilor fizice de către elevii de nivel liceal. Educaţia fizică şi sportul au reprezentat întotdeauna activităţi sociale cu un real caracter biologic, ambele contribuind la ameliorarea însuşirilor fizice ale omului şi prin aceasta, la creşterea calităţii şi duratei vieţii. Obiectivul principal al acestei cercetări se constituie în descoperirea dorinţelor, în rândul elevilor din ciclul liceal, cu privire la practicarea exerciţiilor fizice, în viitor. Un alt obiectiv al cercetării îl reprezintă analiza tendinţelor de practicare a activităţii fizice, bazându-ne pe opţiunile înregistrate de elevii din ciclul liceal. Prezentul studiu s-a aplicat pe un număr de 240 de elevi din clasele IX – XII de la Colegiul Naţional „Samuel von Brukenthal", Sibiu, în perioada 2009-2010. Se poate aprecia, în baza studiului constatativ efectuat, că practicarea exerciţiilor fizice în viitor face parte din preocupările, dacă nu zilnice,

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măcar săptămânale, ale populației aflată încă în situație de şcolarizare, acest gen de activitate fiind o continuare logică şi absolut necesară a activității de educație fizică. Concluzia generală este că dorința de practicare a exercițiilor fizice este în relație de inversă proporționalitate cu vârsta subiecților. Considerăm că se impune ca profesorul de educație fizică să pună un accent mai mare pe conştientizarea elevilor în ceea ce privește importanța practicării independente a exercițiului fizic în timpul liber, în viitor.

Cuvinte cheie: tendințe, practicare, activități fizice, elevi, nivel liceal, educație fizică, sport.

Seeing biological side of human nature, and how this is the natural basis of society and the spirit, it is natural to be given special attention to physical education since the human birth, and then the whole journey of life. Referring specifically to childhood, physical education has the burden to ensure the necessary conditions for the timely maturation of human systems, the natural functions and optimal development of personality.

With the evolution of society, and the emergence of harmful factors for a normal physical development and even health, physical education in interaction with other branches of education in the field covers her formative educational new issues such as those pertaining to health and hygiene education, sexual education, physical and somatic deficiencies correction.

Physical education and sport have always been social activities with real biological data, both contributing to improve human physical traits and thereby increasing the quality and life expectancy. Always, exercise carried out systematically and organized stimulated the body's growth and development in childhood and adolescence, contributed to maintaining an optimal human biometric system at maturity.

The practice of exercises as an independent activity should be part of our daily activities, and should be a permanent mean that "fills" efficiently with joy our spare time. Of course, we will not make the mistake of considering the movement as a true panacea, knowing that there are pathological cases that impose prohibitions in this regard. The hypothesis issued, it "aims" those who are able to physically and mentally making the effort required for various types of movements.

Research goals

The main objective of the research is to discover the desires about the practice of physical exercises in the future, among high school students.

Another objective of the research is the analysis of trends in the practice of physical activity, based on choices made by students in high school.

Materials and methods

For data collection:

- ✓ Survey (a questionnaire);
- ✓ Observation method.

Data processing and analyzing:

- ✓ Statistical and mathematical methods;
- ✓ Structuring the data in tables;
- ✓ Graphical method.

Subjects

This study was applied to a number of 240 students from classes IX - XII from National College "Samuel von Brukenthal", Sibiu, in 2009-2010.

Please note that the area of Sibiu is a mountainous area with big traditions in winter sports.

Distribution of research subjects to classes was as follows: 60 students –9th grade (girls 34, boys 26), 60 students –10th grade (girls 37, boys 23), 60 students –11th grade (33 girls, boys 27), 60 students –12th grade (31 girls, boys 29).

Age of respondents ranged from 15 to 18 years.

Results

1. How much free time do you have, on average, per day for physical exercise?

Table 1.

Number of students according to their free time per day reserved for physical exercises

	9th grade		**10th grade**		**11th grade**		**12th grade**	
	girls	**boys**	**girls**	**boys**	**girls**	**boys**	**girls**	**boys**
none	2	1	1	2	1	1	2	0
less than 1 hour	3	3	3	3	12	9	12	10
1 – 2 hours	6	7	6	9	8	11	8	12
2 – 3 hours	6	12	7	13	4	7	2	8
3 – 4 hours	5	10	4	8	3	3	2	3
more than 4 hours	2	3	1	3	0	1	0	1

2. What form of physical exercise do you want to practice in the future?

Table 2.

Number of students regarding the form of physical exercise chosen

	9th grade		**10 th grade**		**11 th grade**		**12 th grade**	
	girls	**boys**	**girls**	**boys**	**girls**	**boys**	**girls**	**boys**
morning exercises	1	1	2	2	2	1	1	2
daily gymnastics	1	1	2	1	3	2	3	2
jogging	6	3	5	4	6	4	7	3
travel, tours, hiking, walks	4	2	5	2	4	2	4	1
different funny games	5	5	4	5	3	5	3	5
aerobics, dance	5	3	7	4	6	3	3	4
sports	2	5	2	5	1	6	2	5
swimming	0	1	0	2	1	2	0	3
table tennis, tennis, badminton	2	3	2	4	1	3	1	3
martial arts	1	2	0	1	1	1	0	0
weight training	0	2	0	0	0	1	1	3
sport performance	2	3	0	1	0	2	1	3
chess	0	1	0	0	0	1	0	0

3. How important are physical exercises to you?

Table 3.

Number of students regarding the importance given to physical exercises

	9th grade		**10 th grade**		**11 th grade**		**12 th grade**	
	girls	**boys**	**girls**	**boys**	**girls**	**boys**	**girls**	**boys**
very important	12	14	12	12	11	11	11	12
important	8	10	10	12	10	13	10	12
I should give them more attention	7	7	6	6	6	8	5	8
not important at all	1	1	0	2	0	1	1	1

Regarding the practice of certain sports in the future, in the following tables is presented the number of pupils by type of activity chosen.

Table 4.

Option of students for future practice of certain sports (boys)

Discipline	9th gr.	9th gr.	9th gr.	10th gr.	10th gr.	10th gr.	11th gr.	11th gr.	11th gr.	12th gr.	12th gr.	12th gr.	TOTAL
Track & Field	1	1	0	2	0	1	0	0	0	0	0	1	**6**
Football	5	5	4	2	3	2	1	2	1	2	0	1	**28**
Basket	2	1	2	3	1	1	0	1	2	2	0	1	**16**
Karate	2	1	1	1	0	0	1	1	2	1	0	0	**10**
Gymnastics	1	5	3	1	0	0	0	0	0	0	0	0	**10**
Swimming	6	2	2	3	0	3	0	0	0	1	1	0	**18**
Skiing	3	6	0	3	0	1	0	0	1	0	0	0	**14**
Box	2	0	0	2	1	0	0	0	0	0	0	0	**5**
Judo	1	0	0	0	0	0	0	0	1	0	0	0	**2**
Tennis field	1	0	1	0	0	2	2	0	1	1	1	0	**9**
Cross	0	1	0	1	2	0	0	0	2	0	0	0	**6**
Bodybuilding	0	0	1	0	1	0	2	0	3	2	1	1	**11**
Volleyball	2	3	2	3	1	1	1	1	0	0	1	2	**17**
Handball	1	0	2	0	2	0	3	0	2	1	0	1	**12**
Skydiving	0	1	0	1	0	1	0	0	2	0	1	0	**6**
Skating	0	0	0	0	0	1	0	0	0	1	0	0	**2**
Badminton	2	1	1	2	0	1	0	3	0	1	0	1	**12**
Climbing	3	2	1	2	3	1	1	2	2	1	0	2	**20**
Table Tennis	1	2	1	2	1	3	3	1	1	2	0	0	**17**
Snowboard	2	3	1	2	2	1	1	2	2	2	1	0	**19**
Motoring	0	0	0	0	0	0	0	0	0	0	0	1	**1**

Table 5.

Option of students for future practice of certain sports (girls)

Discipline	9th gr.	9th gr.	9th gr.	10th gr.	10th gr.	10th gr.	11th gr.	11th gr.	11th gr.	12th gr.	12th gr.	12th gr.	TOTAL
Gymnastics	4	3	5	5	0	0	2	0	0	0	0	0	**19**
Skating	4	3	1	2	0	0	0	2	1	0	0	0	**13**
Tennis	1	2	0	0	0	4	1	0	5	1	1	1	**16**
Karate	1	1	2	0	0	0	2	0	0	1	1	1	**9**
Basketball	2	2	1	3	1	4	6	2	1	1	1	0	**24**
Swimming	0	2	2	4	2	3	3	2	3	1	1	0	**25**
Volleyball	2	1	1	2	2	1	1	2	2	2	1	1	**18**
Ballet	0	0	2	0	0	0	0	0	0	0	0	0	**2**
Ski	1	1	2	1	1	1	1	2	2	1	1	1	**15**
Track & Field	0	0	0	1	0	1	1	1	0	0	1	0	**5**
Handball	1	2	1	0	2	0	2	1	1	2	0	0	**12**
Skydiving	0	0	1	0	0	0	0	2	0	0	0	0	**2**
Aerobic	1	2	0	2	1	0	1	2	5	2	2	9	**27**

Discipline	9th gr.	9th gr.	9th gr.	10th gr.	10th gr.	10th gr.	11th gr.	11th gr.	11th gr.	12th gr.	12th gr.	12th gr.	TOTAL
Modern Dance	1	2	1	0	2	1	0	1	1	2	0	1	**12**
Jogging	1	1	2	1	2	1	0	2	4	6	5	4	**29**
Badminton	0	1	0	2	1	0	2	1	1	1	1	1	**11**
Cross	0	0	0	0	0	0	0	0	0	0	0	1	**1**

Discussion

Most students in 9th and 10th grade allocate around 2-3 hours of their leisure time to practice physical exercises. Girls from 11th and 12th grade have less free time (less than 1 hour) available for physical exercises. Boys from 11th and 12th grade have between 1-2 hours for physical activity, daily. For older students the spare time is clearly a problem, their priorities are focused on school-leaving examinations and university admissions.

The majority of older students prefer jogging and running. All students like sports activities related to tourism, trips and excursions. Only two students prefer to practice chess as a sport.

For a great number of students the physical exercises are important and very important.

The boys want to practice football in the future. Other popular sports among high school boys are basketball, climbing, table tennis, snowboarding and swimming.

The girls prefer: jogging, aerobics, swimming and basketball.

Regarding the structure of physical activities that they want to practice in the future, we can notice a wide range of physical activities among high school students.

The gender of subjects also causes some significant differences for the place of physical activity among students, females consistently topping second place (with few exceptions for the 'travel, tours, hiking, walking').

Most subjects' preferences are pointing towards aerobics and daily gymnastics, tennis, jogging, swimming, volleyball, karate, and cycling.

Conclusions

It can be appreciated, based on the study conducted, that physical exercise is part of the concerns in the future, if not daily, even weekly, of the young population.

Related to these actions it is necessary to make available to the population bases, lands, rooms, trails, swimming pools, close to residential

areas, recreational or tourist areas, where citizens can practice the physical exercises, as they like more.

There is a need for further action made by the mass media to spread the knowledge, understanding and acceptance by various groups of people regarding the importance of physical exercises.

The overall conclusion is that the "appetite" for the physical exercise is in inverse relationship with age of subjects. This situation is influenced by several negative factors that we can reduce if we take appropriate measures. To do so, we need to implicate in the process more competent organizations and specific state structures.

We consider that it is important for the physical education teacher to emphasize among students the importance of independent practice of physical exercise in the future.

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INFLUENCE OF THE ADMINISTRATION OF FLAVONOIDS AND PHYSICAL EXERCISE ON THE OXIDANT/ANTIOXIDANT BALANCE IN RATS

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ABSTRACT. *Background*. The study of the effects of flavonoids on aerobic exercise capacity has evidenced their favorable influence, attributed to their in vivo ergotropic, anti-fatigue and antioxidative action. *Aims*. To study the influence of the administration of flavonoids on the oxidant/antioxidant (O/AO) balance in rats subjected to physical exercise of various intensities. *Methods*. The researches were performed in 6 groups of rats (n=10 animals/group): 2 groups of sedentary controls (group 1) and exercise trained rats (group 2) and 4 groups exercise trained for 21 days and supplemented with flavonoids, without loading (group 3), with 5% loading (group 4), with 10% loading (group 5), and with 15% loading (group 6), in which the indicators .of the O/AO balance (malondialdehyde – MDA, protein carbonyls – PC, hydrogen donor capacity – HD, and total sulfhydryl groups – SH) were measured in the serum at moments T1 – day 1 and T21 – day 21. The running treadmill test was performed. *Results*. The rats supplemented with flavonoids and exercise trained for 21 days have a significant MDA decrease compared to initial values and to the values of all the other groups subjected to physical exercise and supplemented with flavonoids; a significant PC increase compared to initial values; a significant HD decrease compared to initial values; a significant increase in SH groups compared to initial values. The rats supplemented with flavonoids and exercise trained with loading have at 21 days a significant MDA decrease compared to initial values – groups IV and V; a significant PC increase compared to initial values – groups IV, V and VI, and a significant PC increase compared to the values of all the other exercise trained groups supplemented with flavonoids – group IV; a significant HD decrease compared to initial values – group IV, and insignificant differences in HD changes between the groups at 21 days; a significant SH increase compared to initial values and to the values of all the other groups – groups V and VI. *Conclusions*. Flavonoids have *in vivo* AO effects, determining a HD and SH increase in sedentary rats and a SH increase in rats subjected to physical exercise of various intensities.

Key words: flavonoids, physical exercise, oxidative stress, antioxidants.

REZUMAT. Influența administrări de flavonoizi asupra balanței oxidanți /antioxidanți la animale. *Premize*. Studiul efectelor flavonoizilor asupra capacitatii aerobe de efort au evidentiat efectul favorabil al acestora, atribuit actiunii ergotrope,

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antifatigante si antioxidative in vivo. *Obiective*. S-a studiat influența administrării de flavonoizi asupra balanței oxidanti/antioxidanti (O/AO) la animale supuse efortului fizic de diferite intensități. *Metode*. Cercetarile au fost efectuate pe 6 loturi de sobolani (n=10 animale /lot) grupate astfel: 2 loturi martor sedentari (lot 1) si antrenat la efort (lot 2) si 4 loturi antrenate la efort 21 de zile si suplimentate cu flavonoizi, fara incarcare (lot 3), cu incarcare 5% (lot 4), cu incarcare 10% (lot 5) si cu incrcare 15% (lot 6), la care s-au determinat din ser indicatorii balantei O/AO (malondialdehida - MDA, proteinele carbonilate - PC, capacitatea de donor de hidrogen - DH si gruparile sufhidril totale– SH) in momentele T1-ziua 1 si T21-ziua 21. Efortul s-a efectuat prin proba de alegare pe banda de fuga. *Rezultate*. La animalele suplimentate cu flavonoizi şi supuse efortului fizic timp de 21 de zile se produc: scăderi semnificative ale MDA faţă de valorile iniţiale şi faţă de valorile tuturor celorlalte loturi supuse efortului fizic şi suplimentate cu flavonoizi; creşteri semnificative ale PC faţă de valorile iniţiale; scăderi semnificative ale DH faţă de valorile iniţiale; creşteri semnificative ale grupărilor SH faţă de valorile iniţiale. La animalele suplimentate cu flavonoizi şi supuse efortului fizic cu încărcare determină la 21 de zile se produc: scăderi semnificative ale MDA faţă de valorile iniţiale pentru loturile IV şi V; creşteri semnificative ale PC faţă de valorile iniţiale pentru loturile IV, V şi VI şi creşteri semnificative ale PC pentru lotul IV faţă de valorile tuturor celorlalte loturi supuse efortului fizic şi suplimentate cu flavonoizi; scăderi semnificative ale DH faţă de valorile iniţiale pentru lotul IV şi modificări nesemnificative ale DH între loturi la 21 zile; creşteri semnificative ale grupărilor SH faţă de valorile iniţiale şi faţă de valorile tuturor celorlalte loturi pentru loturile V şi VI. *Concluzii*. Flavonoizii au efecte AO *in vivo* determinând creşteri ale DH şi grupărilor SH la animalele sedentare şi creşteri ale grupărilor SH la animalele antrenate la efort de diferite intensități.

Cuvinte cheie: flavonoizi, efort fizic, stres oxidativ, antioxidanti.

Introduction

The increase in reactive oxygen species (ROS) and reactive nitrogen species (RNS) and the diminution of antioxidant (AO) defense capacity with the deregulation of oxidant/antioxidant (O/AO) homeostasis and the production of oxinitrosative stress (ONS) under physiological physical exercise conditions have been evidenced by many studies (Tache 2000 and 2001). Other researches have shown the beneficial effects of supplementation with natural (nutritional and non-nutritional) AO under physical exercise conditions on exercise capacity and sports performance (Tache 2000 and 2001).

Our experimental researches (Kiss et al. 2011) regarding the influence of flavonoids (natural AO) on aerobic exercise capacity evidenced their favorable effect in physical exercise, attributed to their *in vivo* ergotropic, anti-fatigue and AO action.

Aims

The influence of the administration of flavonoids on the O/AO balance was studied in rats subjected to physical exercise of various intensities.

Material and methods

The researches were performed in 6 groups of white male Wistar rats (n=10 animals/group) with a weight of 200-250 g from the Biobase of the "Iuliu Haţieganu" University of Medicine and Pharmacy Cluj-Napoca, maintained under adequate vivarium conditions at the Biobase of the Department of Physiology.

The following groups were formed:

- Group I – sedentary control group, supplemented with flavonoids
- Group II – control group, exercise trained for 21 days
- Group III – exercise trained for 21 days, without loading, supplemented with flavonoids
- Group IV – exercise trained for 21 days, with 5% loading, supplemented with flavonoids
- Group V – exercise trained for 21 days, with 10% loading, supplemented with flavonoids
- Group VI – exercise trained for 21 days, with 15% loading, supplemented with flavonoids

Flavonoids in a 5% concentration were administered by oropharyngeal gavage in a dose of 10 g/day. The"Grape Seed Oil TX-008041"product from the Textron Técrica SL company was used.

Physical exercise was performed by the running treadmill test at a speed of 3.2 km/h. (Kiss et al.).

The indicators of the O/AO balance measured in the Laboratory for the Study of Oxidative Stress of the Department of Physiology, "Iuliu Haţieganu" UMPh Cluj-Napoca, were:

- malondialdehyde (MDA) (method used by Conti et al.);
- protein carbonyls (PC) (method used by Reznick and Packer);
- hydrogen donor capacity (HD) (method used by Janaszewska and Bartosz);
- total sulfhydryl groups (SH) (method used by Hu).

The samples for measurements were taken from the retro-orbital vein blood, at moments T_1 - day 1; T_{21} - day 21.

Statistical calculations were performed using the SPSS 13.0, Statistica 8.0 and Microsoft EXCEL applications.

Results

Malondialdehyde

MDA was compared between groups I - VI at moment T_1. On day 1, MDA was not significantly different between the groups (Table 1).

Table 1.

Comparison of MDA between groups I - VI at moment T_1

Group A - Group B	Group A		Group B		p
	Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation	
Group I – Group II	1.91	0.10	2.01	0.08	0.61
Group I – Group III	1.91	0.10	1.94	0.11	0.99
Group I – Group IV	1.91	0.10	1.96	0.06	0.96
Group I – Group V	1.91	0.10	1.98	0.06	0.81
Group I – Group VI	1.91	0.10	1.88	0.27	1.00
Group II – Group III	2.01	0.08	1.94	0.11	0.91
Group II – Group IV	2.01	0.08	1.96	0.06	0.97
Group II – Group V	2.01	0.08	1.98	0.06	1.00
Group II – Group VI	2.01	0.08	1.88	0.27	0.35
Group III – Group IV	1.94	0.11	1.96	0.06	1.00
Group III – Group V	1.94	0.11	1.98	0.06	0.98
Group III – Group VI	1.94	0.11	1.88	0.27	0.92
Group IV – Group V	1.96	0.06	1.98	0.06	1.00
Group IV – Group VI	1.96	0.06	1.88	0.27	0.81
Group V – Group VI	1.98	0.06	1.88	0.27	0.56

MDA was compared between groups I - VI at moment T_{21}. On day 21, MDA was significantly different between the groups. MDA in group II was significantly higher than in the other groups; MDA in group III was significantly lower than in the other groups; group I had significantly lower MDA values than group VI (Table 2).

Table 2.

Comparison of MDA between groups I - VI at moment T_{21}

Group A - Group B	Group A		Group B		p
	Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation	
Group I – Group II	1.54	0.23	3.14	0.33	**<0.00001**
Group I – Group III	1.54	0.23	1.24	0.05	**0.004**
Group I – Group IV	1.54	0.23	1.59	0.06	0.99
Group I – Group V	1.54	0.23	1.68	0.05	0.46
Group I – Group VI	1.54	0.23	1.77	0.10	**0.04**

Group A - Group B	Group A		Group B		p
	Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation	
Group II – Group III	3.14	0.33	1.24	0.05	**<0.00001**
Group II – Group IV	3.14	0.33	1.59	0.06	**<0.00001**
Group II – Group V	3.14	0.33	1.68	0.05	**<0.00001**
Group II – Group VI	3.14	0.33	1.77	0.10	**<0.00001**
Group III – Group IV	1.24	0.05	1.59	0.06	**<0.00001**
Group III – Group V	1.24	0.05	1.68	0.05	**<0.00001**
Group III – Group VI	1.24	0.05	1.77	0.10	**<0.00001**
Group IV – Group V	1.59	0.06	1.68	0.05	0.85
Group IV – Group VI	1.59	0.06	1.77	0.10	0.19
Group V – Group VI	1.68	0.05	1.77	0.10	0.84

Protein carbonyls

PC were compared between groups I - VI at moment T_1. On day 1, PC were significantly different between the groups. PC in group I were significantly higher than in the other groups; PC in group VI were significantly lower than in groups I, II, IV and V (Table 3).

Table 3.

Comparison of PC between groups I - VI at moment T_1

Group A - Group B	Group A		Group B		p
	Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation	
Group I – Group II	1.52	0.06	1.33	0.05	**<0.00001**
Group I – Group III	1.52	0.06	1.30	0.04	**<0.00001**
Group I – Group IV	1.52	0.06	1.32	0.04	**<0.00001**
Group I – Group V	1.52	0.06	1.37	0.07	**<0.00001**
Group I – Group VI	1.52	0.06	1.24	0.08	**<0.00001**
Group II – Group III	1.33	0.05	1.30	0.04	0.75
Group II – Group IV	1.33	0.05	1.32	0.04	0.99
Group II – Group V	1.33	0.05	1.37	0.07	0.73
Group II – Group VI	1.33	0.05	1.24	0.08	**0.009**
Group III – Group IV	1.30	0.04	1.32	0.04	0.97
Group III – Group V	1.30	0.04	1.37	0.07	0.08
Group III – Group VI	1.30	0.04	1.24	0.08	0.24
Group IV – Group V	1.32	0.04	1.37	0.07	0.35

Group A - Group B	Group A		Group B		p
	Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation	
Group IV – Group VI	1.32	0.04	1.24	0.08	**0.046**
Group V – Group VI	1.37	0.07	1.24	0.08	**<0.00001**

PC were compared between groups I - VI at moment T_{21}. On day 21, PC were significantly different between the groups. PC in groups IV and II were significantly higher than in the other groups; group VI had significantly lower PC than the other groups (Table 4).

Table 4.

Comparison of PC between groups I - VI at moment T_{21}

Group A - Group B	Group A		Group B		p
	Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation	
Group I – Group II	1.51	0.09	2.57	0.13	**<0.00001**
Group I – Group III	1.51	0.09	1.53	0.09	1.00
Group I – Group IV	1.51	0.09	1.79	0.09	**<0.00001**
Group I – Group V	1.51	0.09	1.47	0.08	0.94
Group I – Group VI	1.51	0.09	1.31	0.08	**0.0004**
Group II – Group III	2.57	0.13	1.53	0.09	**<0.00001**
Group II – Group IV	2.57	0.13	1.79	0.09	**<0.00001**
Group II – Group V	2.57	0.13	1.47	0.08	**<0.00001**
Group II – Group VI	2.57	0.13	1.31	0.08	**<0.00001**
Group III – Group IV	1.53	0.09	1.79	0.09	**<0.00001**
Group III – Group V	1.53	0.09	1.47	0.08	0.73
Group III – Group VI	1.53	0.09	1.31	0.08	**<0.00001**
Group IV – Group V	1.79	0.09	1.47	0.08	**<0.00001**
Group IV – Group VI	1.79	0.09	1.31	0.08	**<0.00001**
Group V – Group VI	1.47	0.08	1.31	0.08	**0.008**

Hydrogen donors

HD were compared between groups I - VI at moment T_1. On day 1, HD were significantly different between the groups. HD in groups V and VI were significantly lower than in the other groups (Table 5).

Table 5.

Comparison of HD between groups I - VI at time T_1

Group A - Group B	Group A		Group B		p
	Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation	
Group I – Group II	48.67	4.25	49.87	1.99	0.93
Group I – Group III	48.67	4.25	50.98	2.12	0.47
Group I – Group IV	48.67	4.25	47.30	2.63	0.89
Group I – Group V	48.67	4.25	41.96	3.78	**0.00004**
Group I – Group VI	48.67	4.25	41.39	1.07	**<0.00001**
Group II – Group III	49.87	1.99	50.98	2.12	0.95
Group II – Group IV	49.87	1.99	47.30	2.63	0.35
Group II – Group V	49.87	1.99	41.96	3.78	**<0.00001**
Group II – Group VI	49.87	1.99	41.39	1.07	**<0.00001**
Group III – Group IV	50.98	2.12	47.30	2.63	0.06
Group III – Group V	50.98	2.12	41.96	3.78	**<0.00001**
Group III – Group VI	50.98	2.12	41.39	1.07	**<0.00001**
Group IV – Group V	47.30	2.63	41.96	3.78	**0.001**
Group IV – Group VI	47.30	2.63	41.39	1.07	**0.0003**
Group V – Group VI	41.96	3.78	41.39	1.07	1.00

HD were compared between groups I - VI at moment T_{21}. On day 21, HD were not significantly different between the groups, except for group I, in which they were significantly higher than in the other groups (Table 6).

Table 6.

Comparison of HD between groups I - VI at moment T_{21}

Group A - Group B	Group A		Group B		p
	Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation	
Group I – Group II	56.04	4.22	40.07	2.30	**<0.00001**
Group I – Group III	56.04	4.22	39.21	1.83	**<0.00001**
Group I – Group IV	56.04	4.22	39.78	2.28	**<0.00001**
Group I – Group V	56.04	4.22	38.88	1.21	**<0.00001**

Group A - Group B	Group A		Group B		p
	Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation	
Group I – Group VI	56.04	4.22	37.90	1.57	**<0.00001**
Group II – Group III	40.07	2.30	39.21	1.83	0.97
Group II – Group IV	40.07	2.30	39.78	2.28	1.00
Group II – Group V	40.07	2.30	38.88	1.21	0.88
Group II – Group VI	40.07	2.30	37.90	1.57	0.36
Group III – Group IV	39.21	1.83	39.78	2.28	1.00
Group III – Group V	39.21	1.83	38.88	1.21	1.00
Group III – Group VI	39.21	1.83	37.90	1.57	0.84
Group IV – Group V	39.78	2.28	38.88	1.21	0.96
Group IV – Group VI	39.78	2.28	37.90	1.57	0.52
Group V – Group VI	38.88	1.21	37.90	1.57	0.94

Sulfhydryl groups

SH were compared between groups I - VI at moment T_1. On day 1, SH were not significantly different between the groups (Table 7).

Table 7.

Comparison of SH between groups I - VI at moment T_1

Group A - Group B	Group A		Group B		p
	Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation	
Group I – Group II	0.11	0.015	0.13	0.026	0.48
Group I – Group III	0.11	0.015	0.13	0.020	0.19
Group I – Group IV	0.11	0.015	0.13	0.021	0.29
Group I – Group V	0.11	0.015	0.13	0.017	0.41
Group I – Group VI	0.11	0.015	0.13	0.018	0.55
Group II – Group III	0.13	0.026	0.13	0.020	0.99
Group II – Group IV	0.13	0.026	0.13	0.021	1.00
Group II – Group V	0.13	0.026	0.13	0.017	1.00
Group II – Group VI	0.13	0.026	0.13	0.018	1.00
Group III – Group IV	0.13	0.020	0.13	0.021	1.00
Group III – Group V	0.13	0.020	0.13	0.017	1.00

Group A - Group B	Group A		Group B		p
	Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation	
Group III – Group VI	0.13	0.020	0.13	0.018	0.98
Group IV – Group V	0.13	0.021	0.13	0.017	1.00
Group IV – Group VI	0.13	0.021	0.13	0.018	1.00
Group V – Group VI	0.13	0.017	0.13	0.018	1.00

SH were compared between groups I - VI at time T_{21}. On day 21, SH were significantly different between the groups. SH in group I were significantly higher than in group II and significantly lower than in groups III, IV, V and VI. SH in group II were significantly lower than in the other groups; groups III and IV had significantly lower SH than groups V and VI and significantly higher SH than groups I and II. In group III, SH were not significantly different from group IV. SH in group V were significantly higher than in groups I, II, III, IV and significantly lower than in group VI. SH in group VI were significantly higher than in the other groups (Table 8).

Table 8.

Comparison of SH between groups I - VI at moment T_{21}

Group A - Group B	Group A		Group B		p
	Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation	
Group I – Group II	0.18	0.011	0.15	0.018	**0.002**
Group I – Group III	0.18	0.011	0.23	0.019	**<0.00001**
Group I – Group IV	0.18	0.011	0.22	0.012	**0.00003**
Group I – Group V	0.18	0.011	0.29	0.018	**<0.00001**
Group I – Group VI	0.18	0.011	0.32	0.022	**<0.00001**
Group II – Group III	0.15	0.018	0.23	0.019	**<0.00001**
Group II – Group IV	0.15	0.018	0.22	0.012	**<0.00001**
Group II – Group V	0.15	0.018	0.29	0.018	**<0.00001**
Group II – Group VI	0.15	0.018	0.32	0.022	**<0.00001**
Group III – Group IV	0.23	0.019	0.22	0.012	0.63
Group III – Group V	0.23	0.019	0.29	0.018	**<0.00001**

Group A - Group B	Group A		Group B		p
	Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation	
Group III – Group VI	0.23	0.019	0.32	0.022	**<0.00001**
Group IV – Group V	0.22	0.012	0.29	0.018	**<0.00001**
Group IV – Group VI	0.22	0.012	0.32	0.022	**<0.00001**
Group V – Group VI	0.29	0.018	0.32	0.022	**0.02**

Discussion

a. In sedentary rats supplemented with flavonoids for 21 days, the following occur:

- a significant MDA decrease compared to initial values;
- absence of PC changes;
- a significant HD and SH increase compared to initial values.

b. In rats subjected to physical exercise for 21 days, the following are found:

- a significant MDA and PC increase compared to initial values;
- a significant HD decrease compared to initial values;
- an insignificant SH increase compared to initial values.

c. In rats supplemented with flavonoids and exercise trained for 21 days, the following are seen:

- a significant MDA decrease compared to initial values and to the values of all the other groups subjected to physical exercise and supplemented with flavonoids;
- a significant PC increase compared to initial values;
- a significant HD decrease compared to initial values;
- a significant SH increase compared to initial values.

d. In rats supplemented with flavonoids and subjected to physical exercise with loading, the following occur at 21 days:

- a significant MDA decrease compared to initial values for groups IV and V;
- a significant PC increase compared to initial values for groups IV, V and VI and a significant PC increase for group IV compared to the values of all the other exercise trained groups supplemented with flavonoids;
- a significant HD decrease compared to initial values for group IV and insignificant HD changes between the groups at 21 days;

- a significant SH increase compared to initial values and to the values of all the other groups for groups V and VI.

Our results are in accordance with the experimental data of authors who have shown the antioxidant effect of various flavonoid supplements in exercise trained rats (Oh et al. 2007; Nakazato et al. 2010; Yu et al. 2010; Aronescu Cârjan and Tache 2010)

Conclusions

1. Flavonoid supplementation for 21 days influences the O/AO balance in sedentary rats, with a decrease in OS on account of MDA and an increase in AO defense capacity on account of HD and SH.
2. Flavonoid supplementation and physical exercise determine changes in OS, with its decrease on account of MDA and its maintenance on account of PC, and a significant decrease in the AO defense capacity on account of HD.
3. Flavonoid supplementation and high intensity physical exercise cause changes in OS, with a significant decrease on account of MDA and a significant increase on account of PC, and changes in the AO defense capacity, with a decrease on account of HD and a significant increase in SH groups.
4. Flavonoids have *in vivo* AO effects, determining a HD and SH increase in sedentary rats and a SH increase in rats subjected to physical exercise of various intensities.

Additional information: The study is based on researches as part of the doctoral thesis of the first author.

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IMPROVING THE DETENT – THE EXPLOSIVE STRENGTH AT THE INFERIOR LIMBS THROUGH MEANS SPECIFIC TO THE SPORT GAMES AT AN ADULT AGE

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ABSTRACT. This study started from the premise that detent – the explosive strength of the inferior limbs can be improved also through means other than the ones purely athletic, combining the last ones with the ones specific to the sport games. The evaluation has been made with the help of the Sargent test for the detent in vertical plan and with the help of the standing long jump for the explosive strength of the inferior limbs. From the resulted data of the experiment we demonstrated that the efficiency of the means of the sport games in the development of these combined qualities, improvement that has been realized in a dynamic manner, pleasant and really loved by the subjects from the experiment. We consider that the diversification of the specific means represent a benefit in the increase of performances at a post-puberty age, age at which the experiment is referring to.

Key words: detent, explosive strength, means, sport games.

REZUMAT. Ameliorara detentei - Forţei explozive la membrele inferioare prin mijloace specifice jocurilor sportive la vârstă adultă. Acest studiu a plecat de la premisa că, detenta - forţa explozivă a membrelor inferiore pot fi îmbunătăţite şi prin alte mijloace decât cele pur atletice, combinându-le pe cele din urmă cu cele specifice jocurilor sportive. Evaluarea s-a făcut cu ajutorul testului Sargent pentru detenta în plan vertical şi cu ajutorul săriturii în lungime de pe loc pentru forţa explozivă a membrelor inferioare. Din datele reieşite din experiment s-a demonstrat eficienţa mijloacelor jocurilor sportive în dezvoltarea acestor calităţi combinate, ameliorare care s-a realizat într-un mod dinamic, plăcut, foarte îndrăgit de către subiecţii experimentaţi. Consider că diversificarea mijloacelor specifice reprezintă un atu în creşterea performanţelor la vârsta postpubertară, vârstă la care se face referire experimentul.

Cuvinte cheie: detentă, forţă explozivă, mijloace, jocuri sportive

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Introduction

The present paper started from the premise that in the physical education and not only the performances of the combined motor qualities can be improved also through ludic means, through sport games, the paper starting from one of the main problems, that is the increase of the physical training hours, through the so-called knitting of the "beautiful" with "useful".

The hypothesis from which I started in realizing this study was that if we introduce in the annual organization of every physical training class (physical education) the means specific to sport games (handball, basketball, volleyball, football) then we will realize an improvement of the combined motor qualities – detent and explosive strength at the inferior limbs.

From the specialty literature results that the main factors that condition the development of the detent – explosive strength at the inferior limbs can be of biomechanical, biological and psychological nature. Synthesizing the information about these factors we can say that the main factors are:

- age, sex, diurnal rhythms (daily oscillations of the strength are of approximately 5%);
- classes frequency;
- the level of synchronization of the motor units;
- the methods and means that are being used;
- the concentration capacity of the fundamental nervous processes (excitation and inhibition);
- the thickness of the muscular fiber and the number of muscular fibers engaged in contraction;
- different mental factors (motivation, attention, emotional states);
- the intensity of the muscular contraction;
- the angular value of the segments that are implied in this type of action;
- the quality of energetic substances from muscles and of the metabolic processes etc.

In what concerns the definition of detent, there are certain frictions between specialists, some of them considering the detent as the speed in strength regime, others as the explosive strength (strength in speed regime). After Tudor V. (1999) the difference between the two forms is the predominance of one of the qualities. If at the detent the predominant motor quality is speed (with over 50% speed and under 50% strength), at the explosive strength the predominant motor quality is strength (with over 50% strength and under 50% speed).

The motor qualities strength and speed manifest in a variable percentage in the physical education activity. In the present case the education of these qualities does not take place in an isolated place, the determination of one of them having an influence also over the other one's development.

Through interdisciplinary researches we noticed that, by the increase of the strength, it is directly realized also the increase of the movement frequencies, without implying the speed's manifestation. It is known that through the increase in thickness of the muscular fiber, the reaction speed of any muscle is not decreased.

Material and Methods

This experiment has been realized having at its base a number of 80 boys, students at the Petroleum and Gas University from Ploiesti, students in the first year, divided into two groups, an experimental one formed of 40 students, randomly chosen, and a control one that had also a number of 40 students, chosen through the same criterion as the ones from the experimental group. The ones from the experimental group have been using means specific to the sport games during every class, while the ones from the control group have made the physical education classes according to the existent program.

The experiment was developed across a university year that is from October 2008 until June 2009. The evaluation of the two aimed tasks has been made with the help of the Sargent test for the detent in vertical plan and with the help of the standing long jump for the explosive strength of the inferior limbs.

At the Sargent test has been realized only one single jump on vertical, without fast flexion, both at the beginning of the university year and at the end because it is possible that when there are more consecutive repetitions the technique to influence the height of the jump.

This type of jump is named by the so-called "Sargent jump" after the name of the one that analyzed it from a biomechanical point of view, this being one of the simplest and most relevant tasks in determining the detent at the level of the inferior limbs in vertical plan. This task has been executed from standing laterally from a graduated wooden ruler of 4 m length, the performer stretches the arm across the ear up leaving a mark on the ruler fixed on the wall with the tip of his toes, than executes a slight flexion after which he jumps on vertical and makes another mark on the ruler. The distance from the two marks it being calculated, expressed in centimeters.

From the used methods and techniques we mention: the bibliographic study method, the measurements and recordings method, the experimental

method, the statistical-mathematical method and the graphic method. The statistical-mathematical process had the following indicators: the arithmetic mean, the median, the superior limit (x_{max}), the inferior limit (x_{min}), quartiles – are those values of the characteristic that share the series in four equal parts, amplitude (W), the quadratic medium deviation (S) and the variability coefficient (Cv).

Across the university year have been used a series of exercises specific to the sport games that from the lack of space we cannot present all of them, from them we will present only a few examples:

Basketball:

- Standing with the ball between the ankles: jump with the knees at the chest, jumps with the ball on a distance of 15-20 m.
- 10 free throws followed by 10 throws on vertical with touching the ring with the hand or of a suspended object.
- Play with a theme (the ball is not reaching the ground).
- Different exercises that contain the pass, changes of directions, jumps on a foot or on two feet, throwing at the basket etc.

Handball:

- Successive jumps from standing or with shifting, with the handball ball in the hands, on one or both feet, jumped step with moving the handball ball forward-up, jumped step with moving the ball at the chest.
- Successive throws from standing or with movement on both legs with the ball kept between the ankles.
- Throwing at the gate from jumping (or from jump over the gym bench) with or without shifts of direction.
- Throwing at the goal from jump by making certain double jumps on the left or right foot etc.

Volley:

- Passes from jump with the volley ball or basket ball over the net.
- From squatter position in pairs, unbalancing the partner through jumps from squatter in squatter position and pushing in the palms.
- Imitating the attack hit on all over the field's length (élan, jump, hit, landing).
- Jump on a foot, on two feet, from squatter with trunk extension.
- Successive attacks from passes "in rising" with retreat, complexes of exercises for attack and blockage etc.

Football:

- Jumps imitating hitting the ball with the head.

• 10 m jumps on the left foot, 10 m jumps on the right foot, turning around in dribbling between poles.

• Bilateral game with a theme (goal valid only by hitting the ball with the head).

• Passes between two players by hitting the ball with the head etc.

Also, an important role in the detent development is held by the plio-motor exercises, realized under different forms (different exercises specific to the sport games have at the base this principle), exercises that assume the solicitation of a muscle first through an eccentric phase, the phase in which the muscular heads are moving away, and then through a concentric phase in which the muscle is shortened.

Obtained Results and Their Interpretation

The experiment previously presents is found, as statistic data, in tables 1 and 2 where are presented the statistic calculations of the initial and final values of the detent and jump in length from standing for the two groups (experimental and control one).

Table 1.

Statistic Values Calculated of the Detent

	Experiment group		*Control group*	
	TI	TF	TI	TF
Arithmetic mean	46,022	50,795	44,568	45,863
Minimum	30,5	36,5	31	33,5
Maximum	56	60	55	57
Amplitude	-	4,772	-	1,295
Median	47,5	52	45	46
First quartile	42,5	47	41	42,25
3rd quartile	50,75	55	48,75	49,75
Standard deviation	6,45	5,86	5,54	5,39
Variability coefficient	14,03	11,53	12,43	11,76

Table 2.

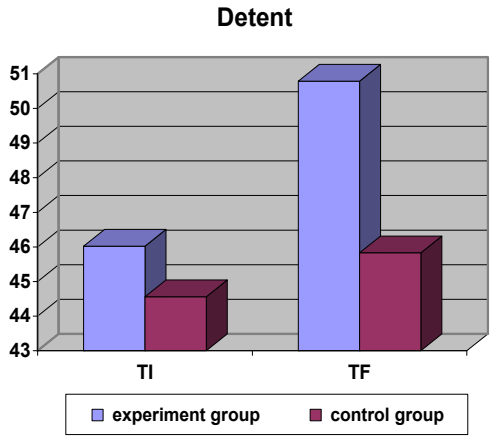
Calculated Statistic Values of the Standing Long Jump

	Experiment group		*Control group*	
	TI	TF	TI	TF
Arithmetic mean	2,278	2,373	2,243	2,299
Minimum	2	2,14	2	2,08

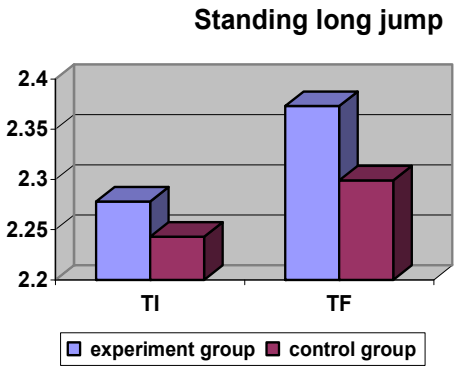
	Experiment group		*Control group*	
	TI	TF	TI	TF
Maximum	2,7	2,78	2,8	2,84
Amplitude	-	9,55	-	5,64
Median	2,23	2,33	2,2	2,23
First quartile	2,15	2,25	2,11	2,16
3rd quartile	2,4	2,4825	2,35	2,385
Standard deviation	0,18	0,17	0,20	0,19
Variability coefficient	8,24	7,42	8,92	8,48

After the analysis and statistic indicators analysis previously presented, we can notice a superior evolution at the experimental group in comparison with the control one, the amplitude at the detent being of 4,77 cm at the first one in comparison with just 1,29 cm at the second one and at the jump in length from standing the experiment group having an amplitude of 9,55 cm in comparison with 5,64 cm at the control one.

Also, figures 1 and 2 present graphically the evolution of the medium values both at the detent and at the long jump from standing position.



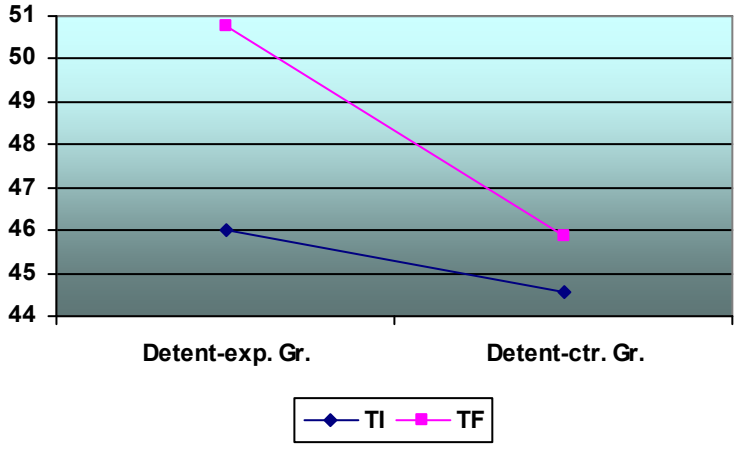
GRAPH 1. The evolution of the mean detent



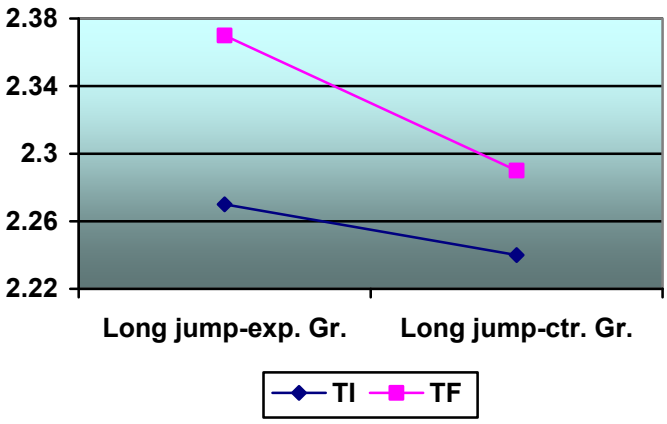
GRAPH 2. The evolution of the mean of standing long jump

Also, we noticed that at the detent, at both groups, there is a high spreading of the data (there is no grouping of the values around the mean), the variability coefficient pointing out the fact that, the homogeneity level of the values is medium.

In this context, at the jump in length form standing position we notice at both groups a low spreading of the data (the grouping of the values around the mean), the homogeneity level of the values being high.



GRAPH 3. The evolution of the detent



GRAPH 4. The evolution of the standing long jump

From a percentage point of view we notice that in the case of detent the increase of the experimental group is of 9,4% while at the control group the increase was only of 2,8%.

In what concerns the jumps in length with take-off its percentage increase is of 4% at the experimental group and of 2,5% at the control one.

Conclusions

After the made experiment we can say that the hypothesis is valid, so by introducing in the yearly planning at every physical education class (physical training) the means specific to the sport games (handball, basketball, volley-ball, football) we can realize an improvement of the combined motor qualities – detent and explosive strength of the inferior limbs.

From the previously presented tables and figures results that the experiment group had superior increases at both experimented tasks in comparison with the control group, group that had not been working using the means specific to the sport games at every class of physical education (physical training).

By using the means specific to the sport games we notice a percentage increase higher than at the detent (on vertical) – the difference being of 6, 6 percentage between the experimental group and control one, in the favor of the first one – in comparison with the jump in length with take-off (the explosive strength) where the difference between the two groups is of only 1, 5 percentage.

So, we can conclude that the detent, the explosive strength at the inferior limbs can be improved also at higher ages, taking into account that the researched subjects are not performance athletes, fact that can be applied with success in the physical training, knowing that the polyvalent training of a students represents a very important objective in the actual context.

We can say that, during the specific training process, the introduction of these means specific to the sport games have as result an increase of the amenity of the physical training classes simultaneous with the improvement of the two combines motor qualities (motor aptitudes), leading to, in the end, at the increase of the general physical training level.

The detent development can be realized either through the muscle contraction speed increase or through the increase of the maximum strength but the most correct can be made through combining those two working directions and using the exercises specific to the sport games.

Plio-motor exercises hold an important role in the detent development, this being able to be realized under different forms even through the multitude of exercises specific to the sport games that have at their base this principle.

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PERSPECTIVES ON THE BASKETBALL DETERMINED BY THE TRAITS AND TENDENCIES OF THE COMPETITIVE SPORT

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ABSTRACT. Basketball became a sport in which technical practice at a high competitive sports level are not enough in order to provide a victory. It is also necessary a multi-sided and specific physical training, condition for ensuring the consistency of the high great performance that must take into account the somatic particularities of the body and the specific effort.

Key words: basketball, performance, perspective.

REZUMAT. Perspectiva jocului de baschet determinată de caracteristicile şi tendinţele sportului de mare performanţă. Baschetul a devenit un sport în care execuţiile tehnice la nivel de înaltă măiestzrie sportivă nu sunt suficiente pentru asigurarea victoriei. Este necesară o pregătire fizică multilaterală şi specifică, condiţie în asigurarea constaţei marilor performanţe care trebuie să se adreseze particularităţilor somatice ale organismului şi efortului specific.

Cuvinte cheie: baschet, performanţă, perspectivă.

The development now held by the competitive sports activity relies on numerous formation talents and on highly valuing the human skills, manifested at a physical and a psychic level. The vastness of the sport as show and the value generated by it can be seen within all sport types. The value of the sports performances achieved in competitions also increased the spectacular degree of the competitions; these high performances relying more and more on the science intervention (Gheorghe, D., 2005).

Nowadays we are witnessing a competitive sport that is varied, gigantic, problem-posing and multifunctional. Among the most significant vital data of the contemporaneous competitive sports we can mention:

- it is a highly important social fact, involving the commitment of some special material, organizational and educational efforts; in most cases, it is a permanent concern of the governments;

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- given its definition-supplying traits – the competition -, it attracts, through specific shows, great crowds of spectators and a significant source of acquiring some financial incomes;
- it comprises a fierce and permanent competition for developing an internal or international championship;
- it assumes a rigorous and scientifically directed training, in which the volume and the intensity are rationally combined with its complexity;
- in many cases, it can supply solutions for some financial obligations that orients it towards show and "sensational" seeking.

The competitive sport, especially in the present day phase, is one of the activity areas in which the international collaboration was highly increased and it gained a systemic character.

The great discovery of the last decades in the past century and in the beginning of the 3rd millennium is involving some young generation groups, even extremely young, in the competitive highly performance sport. It is amazing that the great performance, in most sports, prove to be accessible to these ages if a special, systematic and scientifically guided training is preformed for at least 6 to 8 years.

Thus, nowadays we are witnessing a "pulverization" of the world records at extremely short intervals of time for most sports types and branches. There is a functional relation between world records (dependent variable) and time (independent variable). In general, it is believed that the evolution of sports performances is of exponential type. The experts believe that in the future phase we will witness a new exponential type of evolution of the sports performances in which the annual growth rate will be 0.5 – 1% (especially due to the sciences in this area and to the connected ones) (Carstea, Gh., 1995).

The competition is the fashionable incentive in the socialites' world. In the highly performing sports, the competition is generalized.

Also, we are witnessing the all-gathering tendency of the sport as spectacle. In the contemporaneous professional sport we can talk about a real sports show industry; the professionalism – amateurism is also a consequence of the spectacular character.

When talking about the contemporaneous high performance sports, I hear extremely often the term "gigantism" and "universalism". There are many discussions about the summer Olympic Games as regards their gigantism. The universalism in the nowadays competitive sports can be seen in the following main directions: the Olympic sports movement, the world

sports movement, internal or international sports events having certain specific significances, concepts and values.

Along the time and especially in the first 20 years, the basketball went through profound mutations, fact marked through the evolution of the games dynamics developed during the final tournaments of different European or world competitions (also including the Olympic Games).

In making reference to a series of researches and studies of some experts such as Gerard Bosc and Bernard Grossgeorge (1995) and Pierre Dao and Francis Jornade (1998), I will enumerate the main present day traits and tendencies that are the most visible in the games supplied by the teams in the high performance basketball teams:

- fight for imposing a game rhythm and tempo;
- enhancing the importance and using more frequently the air game;
- simplifying the constructions of the collective attack;
- high importance of the defensive efficacy;
- optimizing and numerically enhancing the tactical schemes specific to the fixed phases;
- perfecting the game within the 2 and even 3 players' couples.

The modern attack technique comprises mainly the rapid counterstrike and attack, achieved in any situation implying ball possession, directing the collective actions on game phases, shortening the duration of the attack through finishing after 2 or 3 passes, offensive recovering with the participation of all attacking players, positional attack in 3-4 guards (Popescu, F., 2008). It is constantly followed by simplifying and increasing the efficacy, no matter what the level of the offensive strategy or of the attack philosophy conception in the players related outnumber situation and in the number equality situation.

For the defense it is found more and more the existence of defensive forms implying "high risks" and the higher and higher occurrence of the "strict control" (trapped player) having the intention of stopping the dribbler (Negulescu, C., 2002). The modern form of defense assumes organizing the defense even in the attack group, after losing the ball. Thus, the defense will expand from the first phase on the entire court, aggressively watching the ball holder, the launcher or the one dribbler and on interception with other attacking players that are not holding the ball, within man to man pressing defense systems or in pressing area (Popescu, F., 2006). In the collective defense on the own half field imposed in the modern basketball it is alternated one phase with another (or following the guidance supplied by the

coach in different game phases) the man to man defense system with different variants adapted to the opposite attack specific or to passing from the 3-2 area to the 1-2-1 or 1-3-1 area (adjusted areas).

The individual technical and educational level is characterized by technical skillfulness and virtuosity. It is showed a high yield in the 1 to 1 relation specific to the position. The players have a high robustness and a complete physical training. The stature and the physical power grow in parallel, "the basic five" having an average height most time over 2.00 m (1.88 m in women).

Through the collective team tactics each individual's potential belonging to each player is highly valued, taking into account his / her interaction to the closest colleague without negatively influencing the quality and character of collective game. The mobility of each team's adaptation capacity to these tendencies, as against the own possibilities, remains a highly significant factor for orienting the training, beginning even in the phase of children initiation (Popescu, F., 2006).

The game idea must be seen as a tendency indicating the game orientation and its development perspectives at the level of club teams and at a national and international level. Thus, the game concept must have a continuous character, must be adjusted to the items signifying actuality on European and world level, and must represent the "optimal game model" for that team.

The prospective game model: Man basketball tournament during the Olympic Games in Athens, 2004.

Main game parameters		**1**	**2**	**3**	**4**
Points	scored	83.93	92.554	95.08	90.51
	received	83.93	70.83	70.83	75.19
Total shoots while playing	attempts	62.68	62.00	62.00	62.22
	successful	30.07	34.00	34.00	32.69
	%	47.97	54.83	54.83	52.53
- 2 points	attempts	42.91	45.66	47.21	45.26
	successful	22.79	27.62	28.82	24.41
	%	53.11	60.49	61.04	58.35
- 3 points	attempts	19.17	16.33	19.95	18.68
	successful	7.28	6.37	8.41	7.35
	%	36.83	39.03	42.17	39.36
Free shooting	attempts	22.84	25.33	22.29	23.48
	successful	16.50	18.16	17.70	17.45
	%	72.24	71.69	79.40	74.41

Main game parameters		1	2	3	4
Recovering the ball	offensive	9.88	10.00	12.91	10.93
	defensive	21.73	24.29	25.00	23.67
Balls	won	7.36	9.33	10.33	9.00
	lost	14.27	13.12	12.58	13.32
Personal errors		20.83	20.04	18.65	19.84
Players used each, time		8-9	9-10	10	9-10
		21’34”	20’12”	19’20”	20’22”

Cartouche

1. Average of all participating teams
2. Average of the first 3 teams holding medals
3. Average of the first 3 teams in the parameter hierarchy
4. Average values of the prospective game model

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POSTEFFORT RECOVERY CAPACITY IN TEEN-AGERS

SABĂU ELENA[1], CISER DORINA[2] & BOSI MONICA-ELENA[3]

ABSTRACT. This work treats the restoration process of the body among teen-agers, through an investigation on a group of school students which ages were between 15-18 years. Their possibilities to restore the body capacity has been evaluated in standard effort conditions, particularly by Dorgo Index, which makes use of the resting heart rate and other posteffort moments. In all, 137 male teen-agers have been investigated in two lyceums, their restoring capacity being preponderantly weak. It indicates a weak effort capacity, a small motor potential, which does not sustain a medium intensity effort and therefore the body hardly restores.

Key words: recovery, teen-agers, effort, heart rate.

REZUMAT. Capacitatea de refacere postefort la adolescenţi. Lucrarea tratează aspectul procesului de refacere al organismului în etapa adolescenţei, cu aplicaţie pe un grup de levi cu vârsta între 15 şi 18 ani. Posibilitatea de refacere a organismului acestora a fost evaluată în condiţii de efort stabdard, respectiv prin testul Dorgo, care operează cu frecvenţa cadriacă, în stare de rapaus şi alte câteva momente post efort. Au fost investigaţi 137 de adolescenţi, băteiţi de la 2 unităţi de învăţământ liceal, care au dovedid o capacitate de refacere, dominant slabă. Acest fapt indică o slabă capacitate de efort, un potenţial motric redus, care nu susţine un efort deintensitate medie, şi ca atare organismul îşi revine greu.

Cuvinte cheie: refarcere, adolescenţi, efort, frecvenţă cardiacă.

Introduction

The teens is the period to the maturity and integration into the adult society, when the instruction process goes deeply, having as background the aspiration to a spiritual and cultural independence. According to J. Piaget, the teen-agers are 15-18 years old and U. Schiopu (1997) considers the teens is by 14-18/20. The somatic evolution is slower, the neuro-endocrine system is maturating and the motor capacities subject to the physical fitness and

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metabolic efficiency are able to improve considerably. Physical activity is an important stimulus, that produces a large sort of adaptation (Derevenco P. & collboratores, 2005). A detrimental factor for the physical capacity of the teen-agers is their increased tendency to avoid physical efforts, with unfavorable consequences for their biological evolution. Sometimes for teen-agers a moderate physical demand become a significant effort, proved by heart rate values. Their process of recovery becomes an answer on the way of the adaptation. Often lot of teen-agers have luck of physical activities and that can be a reason for poor adaptation. The level of the teen-agers's recovery is a feed-back of their adaptation. The recovery is a process rehabilitation of the effort ability, untill the level before the effort (Roman, Gh.,& Batali C.F. 2007).

Object and Hypothesis

The investigation aim was to find the degree of posteffort restoration and implicitly the level of the physical fitness of teen-agers students. We started from the basic hypothesis the teen-agers have a modest posteffort restoring capacity and limited biological possibilities for posteffort restoration.

Subjects and Method

The study represents an constative kind of experiment on 137 boys belonging to the Lyceum “Octav Onicescu” and “Technical Energy College” in Bucharest. Their ages were between 15-19 years with an average of 17 years. They are practicing only physical education lessons. The subjects had a standard effort test, the Dorgo test, including an uniform effort of running on the spot, during 3 minutes, each minute of 160 steps. The heart rate was registered in four moments – rest and first, third and fifth posteffort minutes respectively. The registered values were introduced into the Dorgo index formula and then analyzed in a statistical and mathematical way, using the parameters indicating the grouping and dispersing tendencies of the registered values. According to the index value, got through statistical and mathematical calculations, each subject got his mark. The results have been analyzed and represented also in a graphic manner.

Results

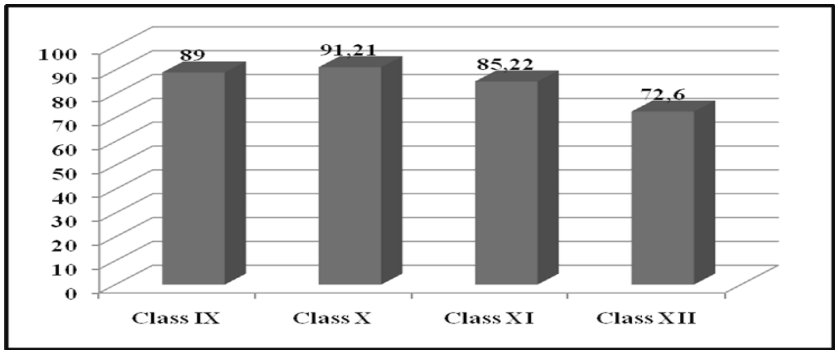
1. Analyzing the values of the resting heart rate, we noted it has the tendency to become stable in the area of adult values. It’s to be specified the medium values of the resting heart rate, for the 15-17 years group

(corresponding to the Class IX and Class X) are higher, being characteristic to sedentary subjects. The amplitude is between 8 up to 16. The group homogeneity is moderate the Class IX up to Class XI and inexistent in the Class XII (Table 1 & Graph 1). So, the investigated students are in a normal stage for their ages.

Table 1.

Resting heart rate - Statistical parameters

Parameters **Class**	**IX**	**X**	**XI**	**XII**
N	39	33	35	30
Mean	**89.00**	**91.21**	**85.22**	**72.60**
Standard deviation	21.20	22.37	18.05	29.85
Amplitude	16	8	12	12
Minimum	84	88	84	72
Maximum	100	96	96	84
Coefficient of variation (Cv %)	23.82	24.52	21.80	41.11



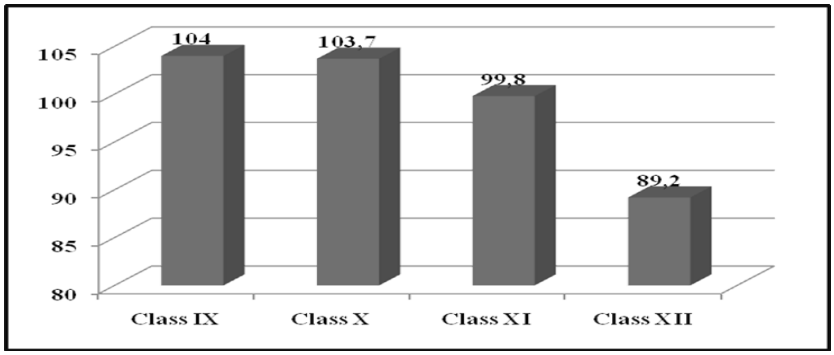
Graph 1. Resting heart rate (bpm)

2. The analysis of the heart rate values at the end of the first posteffort minute shows a good recovery, as is noted also by the specialized literature, which appoints the body has a significant recovery in the first minute after the effort. The heart rate get a good recovery in the first and second minute after the effort (E. Zamora, M., Kory Mercea, D-C., Zamora, 1996). The data show medium values for the heart rate, between 104 bpm, at 15-16 years, 99.80 bpm at 17 and 89.20 bpm at 18/19 years of age. The amplitude of these values is high, by 32 – 36 units. Homogeneity is moderate in all classes (Table 2 & Graph 2).

Table 2.

Heart rate posteffort - Statistical parameters

Parameters Class	IX	X	XI	XII
N	39	33	35	30
Mean	**104.00**	**103.70**	**99.80**	**89.20**
Standard deviation	25.47	24.40	16.85	30.49
Amplitude	36	36	32	32
Minimum	100	92	88	80
Maximum	136	128	120	112
Coefficient of variation (Cv %)	24.49	23.52	16.10	16.88



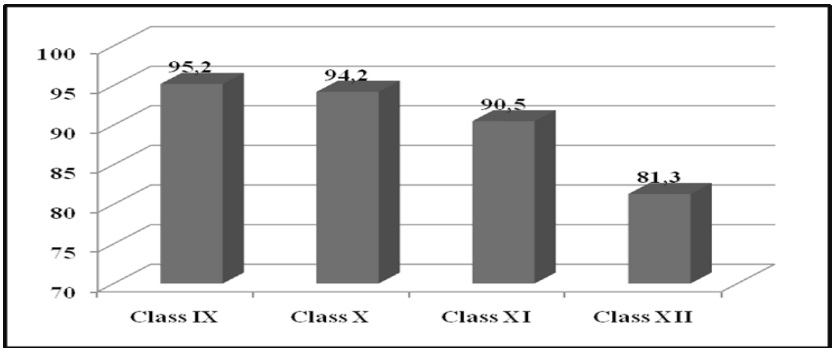
Graph 2. Heart rate (bpm) – The first minute posteffort

3. The analysis of the heart rate values in the third minute after the effort shows the recovery was different, while the medium values of the heart rate decreased different. At 15 – 16 years of age, the medium values of the heart rate were 94 – 95 bpm, at 17 about 90.5 bpm and at 18 years, 81.3 bpm. The amplitude was quite large and its value was between 12 and 28 units. The homogeneity was still moderate at Class IX-XI, becoming low at Class XII (Table 3 & Graph 3).

Table 3.

Heart rate - The third minute posteffort - Statistical parameters

Parameters Class	IX	X	XI	XII
N	39	33	35	30
Mean	**95.2**	**94.2**	**90.5**	**81.3**
Standard deviation	22.69	20.10	18.24	23.70
Amplitude	28	28	12	16
Minimum	84	80	80	76
Maximum	112	108	92	92
Coefficient of variation (Cv %)	23.83	21.33	20.15	29.15



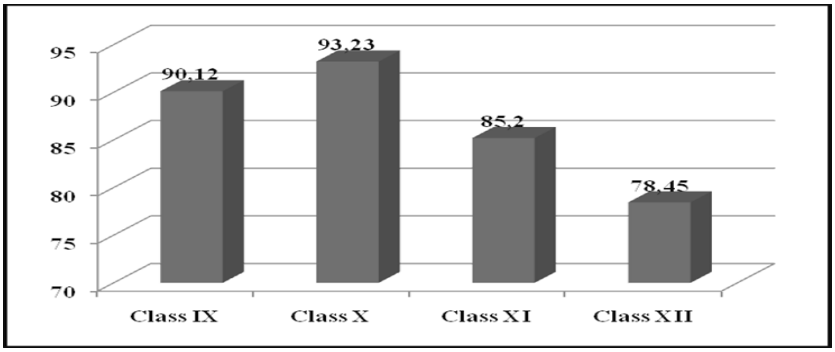
Graph 3. Heart rate (bpm) - The third minute posteffort

4. The analysis of the heart rate values in the fifth minute after the effort indicates a continuous different diminution of the heart rate, by 3 – 8 units. The medium value of the heart rate is still close, 90.12 – 93.23 bpm at 15 – 16 years, 85.2 bpm at 17 years and 78.45 bpm at 18/19 years. The amplitude was by 16-24 units. The homogeneity is kept, being moderate in Class IX up to Class XI, and low in the last class (Table 4 and Graph 4).

Table 4.

Heart rate - The fifth minute posteffort - Statistical parameters

Parameters **Class**	**IX**	**X**	**XI**	**XII**
N	39	33	35	30
Mean	**90.12**	**93.23**	**85.2**	**78.45**
Standard deviation	19.56	24.45	15.89	25.05
Amplitude	16	16	16	24
Minimum	84	84	80	72
Maximum	100	100	96	96
Coefficient of variation (Cv %)	21.70	26.22	18.65	31.93



Graph 4. Heart rate (bpm) - The fifth minute posteffort

5. The analysis of the processed data aiming to evaluate the recovery capacity, through Dorgo Index, shows moderate values for all four study levels.

So, the Dorgo Index indicates, for the restoring values (Table 5 & Graph 5):

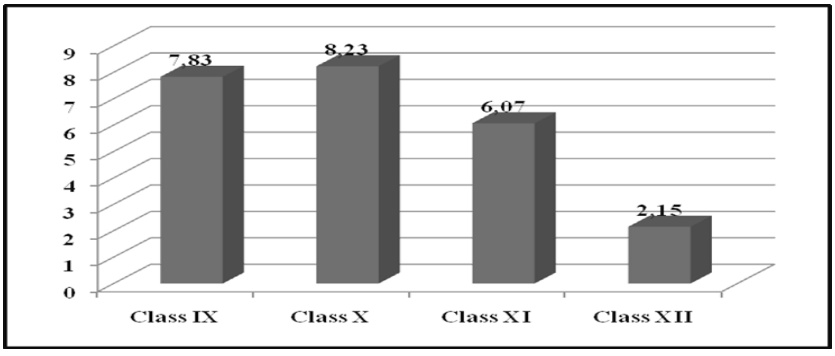
- In the class IX and class X, with subjects of 15 – 16 years of age, the Index value by 7.83 - 8.23 suggests a weak recovery capacity.
- In the class XI, having subjects of 17 years, the Index value (6.07) gives as characteristic also a weak recovery capacity.
- In the class XII, with subjects of 18/19 years of age, the Index value (2.15) suggests a medium recovery capacity.

As far as homogeneity of groups by age level is concerned, for the recovery index we may see a large dispersion of values and it means a high lack of homogeneity.

Table 5.

Dorgo Index - Statistical parameters

Parameters **Class**	**IX**	**X**	**XI**	**XII**
N	39	33	35	30
Mean	**7.83**	**8.23**	**6.07**	**2.15**
Standard deviation	2.19	2.85	1.97	0.98
Amplitude	6.40	5.85	6.2	8.4
Minimum	4.60	4.40	3.2	-0.8
Maximum	11	10.25	9.4	9.2
Coefficient of variation (Cv %)	27.96	34.62	32.45	45.58
Rate	Poor	Poor	Poor	Medium



Graph 5. Dorgo Index

Conclusions

- The analysis of the results gives ground to consider as confirmed the initial working hypothesis.
- The medium value of the heart rate decreases as the teen-agers grow up.
- The cardiac activity of the teen-agers is less economic comparatively with the adult people.
- The cardiac activity of teen-agers comes near to that of adult people, reaching the maturity values at the end of period.
- The recovery capacity of the investigated teen-agers is particularly moderate, but mentioning the older subjects have a better restoring potential. It could be a consequence of their biological potential, which is near to the maturity, but not of their physical activity, weaker in the superior classes (one hour per week).
- The teen-agers have to be more active, more adaptable practicing physical exercises as basic mean to increase their capacity to adaptation and biological recovery.

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FORCE DEVELOPMENT AND SPEED ACCORDING TO SCHEDULE ANNUAL TRAINING PLAN OF A TEAM PERFORMANCE – RUGBY

CHIHAIA OCTAVIAN[1] & POP SERGIU

ABSTRACT. To meet current modern rugby is a need for general and specific force at the highest level and speed development in all its forms of expression. Values of the graphical representation of volume effort in periodization, the training of force indicate that at the end it was a preparatory medium volume increases in inverse proportion to the same period the intensity in this period with maximum values with small variations. Force exercises, the preparatory period, starting at a unique degree of complexity of the exercises, following the end sophistication with high values during the preparatory training competitive line complexity gradually increases, reaching maximum values are used during the competition means development of rugby-specific strength decreased in the transition period when a few days rest after passive exercise begins with the development of general labor compensation agonist muscle development and stabilizers. Volume increases during the transition from small to medium for the preparatory and competitive periods (return) chart to follow the same route as the first period of the macrocycle. At the beginning of the two preparatory periods increased volume, side aerobic and anaerobic reaching maximum strength. Intensity located in inverse relationship with the volume gradually increases in the two preparatory periods reaching maximum values at the end of the preparatory periods, maintaining a high level of competition in both periods showing small oscillations depending on the competitive calendar. Specificity means time and specific exercises to speed development of rugby players, gradually increasing in the preparatory design requirements approaching the game of rugby.

Key words: Rugby, periodization training volume, intensity, specificity.

REZUMAT. Pentru a face față rugby-ului modern actual este necesară o forță generală şi specifică la cel mai înalt nivel precum şi dezvoltarea vitezei sub toate formele ei de manifestare. Valorile din reprezentarea grafică a volumului efortului în cadrul periodizării, a antrenamentului de forță indica ca la sfârşitul perioadei pregătitoare s-a ajuns la un volum mijlociu invers proporțional cu creşterea intensității în aceeaşi perioadă intensitatea în această perioadă având valori maxime cu mici variații. Exercițiile de forță, în perioada pregătitoare, pornesc de la un grad unic de complexitate a exercițiilor, urmând gradul de complexitate la sfârşitul perioadei pregătitoare având valori mari în perioada competițională de pregătire linia

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complexității creşte treptat ajungând la valori maxime în perioada competițională când se folosesc mijloace de dezvoltare a forței specifice rugby-ului scăzând în perioada de tranziție când după câteva zile de odihnă pasivă se începe cu exerciții de dezvoltare a forței generale compensatorii dezvoltarea muşchilor agonişti şi stabilizatori. În perioada de tranziție volumul creşte de la mic spre mijlociu pentru ca în perioadele pregătitoare şi competițională (retur), graficul să urmeze acelaşi traseu ca în prima perioadă a macrociclului. La începutul celor două perioade pregătitoare volumul creşte, latura aerobă şi rezistența anaerobă atingând valori maxime. Intensitatea aflată în relație de inversă proporționalitate cu volumul creşte treptat în cele două perioade pregătitoare atingând valori maxime la sfârşitul perioadelor pregătitoare, menținându-se la un nivel ridicat în cele două perioade competiționale prezentând mici oscilații în funcție de calendarul competițional. Specificitatea dată de mijloacele şi exercițiile specifice dezvoltării vitezei la jucătorii de rugby, creşte treptat în partea pregătitoare apropiindu-se de cerințele modelului jocului de rugby.

Cuvinte cheie: rugby, volum, intensitate, specificitate, antrenament , periodizare.

Physical preparation makes the successful completion of the tasks incumbent upon the individual and team overall and each component in achieving performance, sports performance. Physical training is an essential part of the game of rugby which enhances the ability of the player and team performance. Without adequate physical training, rugby player fails to complete the task of playing rugby in the current context is a total physical commitment, hard, leading to natural tolerance.

An important role in training the modern rugby player must force for the development of general and specific strength.

Development thrust and thrust-static, dynamic, explosive - and posts specific lines, sought to push the pile in action, fighting in urban areas, jumping the border and enforcement of plywood.

In developing operational models used for force development:

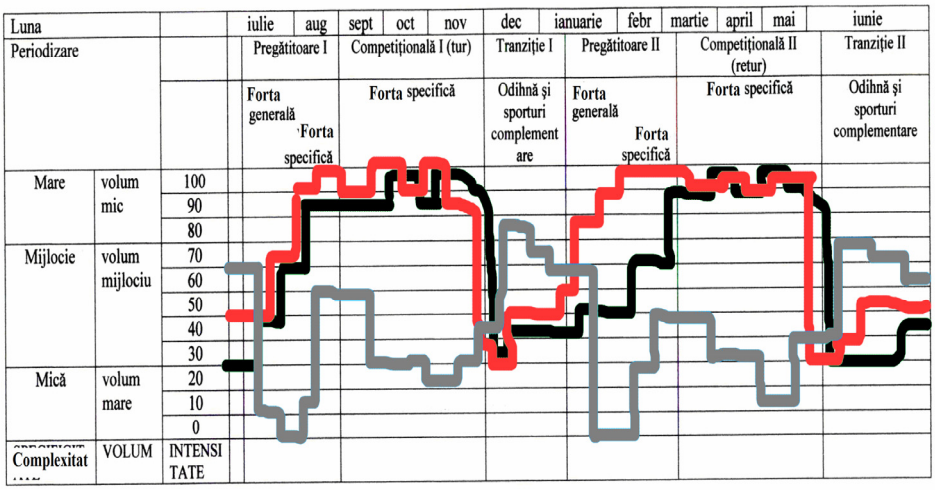
- Free complex exercises general physical development;
- Complex power exercises with a partner;
- Exercises for general strength development, performed in the gym, using weightlifting bar;
- Years of pushing and fighting with a partner;
- Complex power exercises performed with specific materials.

Strength exercises should be preceded by a 10-20 minute easy jog followed by stretching exercises (mobility, stretching), which limits the risk of muscle injuries.

Annual Plan of force development in rugby is divided as follows: a preparatory period I, which lasts approx. from July 15 until September 1, a competitive period (round) in early September to 10 December, a period of transition I, which lasts approx. from December 10 until January 4, II preparatory period lasting from 4 December until early March and competitive II (Return) from March until June 10 to 15, following the transition II ends approx. on July 15 when it begins a new cycle of training annually.

Force is a total cessation of perfect quality training decreases the body's adaptability to high demands of the game of rugby, reducing the size of muscle groups, inducing a state of latency which installs faster than adaptation to exercise. In the two transitional periods represented on the annual schedule of force development, volume, intensity and complexity of the exercise of force is reduced as representative curves in the graph but in no case go away, mentioning in 40-50% of previous training, athletes compensation must work in lesser-used muscles primarily a place with moss agonists and stabilizers. Although athletes have at hand a development program may force them to act freely.

GRAFICUL PLANULUI ANUAL DE DEZVOLTARE A 'FORTEI



Legendă:
volum
intensitate
specificitate

An important role in modern rugby player training and development should be given speed.

In developing operational models to speed development must take into account the following general guidelines:

- Development of the reaction rate, the reaction takes the form home in performing various movements and reaction as selective in choosing and making the most appropriate technical and tactical actions in complex relationships with teammates and opponents;
- The development speed of execution, which is the minimum execution time of a single movement, will take into account that it depends on the level of ownership of technology;
- Travel speed development of short, medium and long, in close conformity with the technical and tactical actions and line item and features competitive effort;
- Duration of exercise (repetitions) should not exceed 10-15 seconds, will be maximum effort;
- Breaks between repetitions will be long enough to allow oxygen debt liquidation and recovery effort following the maximum intensity;
- Efforts will be placed at the top speed fundamental part of the training lesson and after the rest day weekly cycle;
- When the maximum speed builds, use this process without balloon (allowing a maximum mobilization potential speed) which will exert a positive transfer and conducted exercises with the ball speed;
- Development of indices of force - velocity (expansion) of the muscle groups involved in efforts to speed is an objective necessity to increase speed;
- Repeated efforts to speed up basic way to develop speed. Speed in all its forms of manifestation is characterized by specific motor structure of the two compartments, the current rugby tend to disappear differentiation between the two compartments. An important role in modern rugby player training and development should be given speed.

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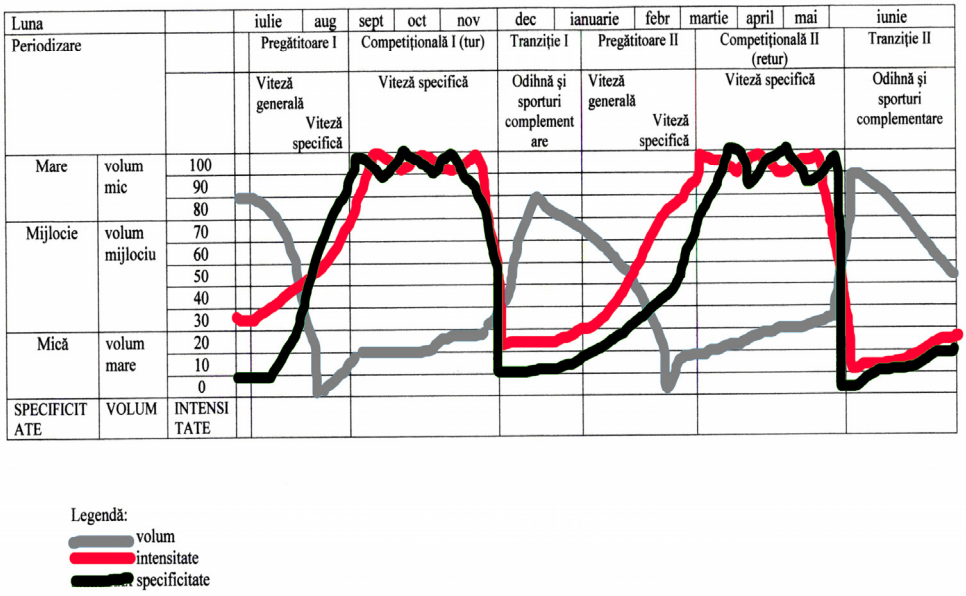
- Duration of exercise (repetitions) should not exceed 10-15 seconds, will be maximum effort;
- Breaks between repetitions will be long enough to allow oxygen debt liquidation and recovery effort following the maximum intensity;
- Efforts will be placed at the top speed fundamental part of the training lesson and after the rest day weekly cycle;
- When the maximum speed builds, use this process without balloon (allowing a maximum mobilization potential speed) which will exert a positive transfer and conducted exercises with the ball speed;
- Development of indices of force - velocity (expansion) of the muscle groups involved in efforts to speed is an objective necessity to increase speed;
- Repeated efforts to speed up basic way to develop speed.

Speed in all its forms of manifestation is characterized by specific motor structure of the two compartments, the current rugby tend to disappear differentiation between the two compartments.

GRAFICUL PLANULUI ANUAL DE DEZVOLTARE A VITEZEI



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