STUDIA

UNIVERSITATIS BABEŞ-BOLYAI

Educatio Artis Gymnasticae

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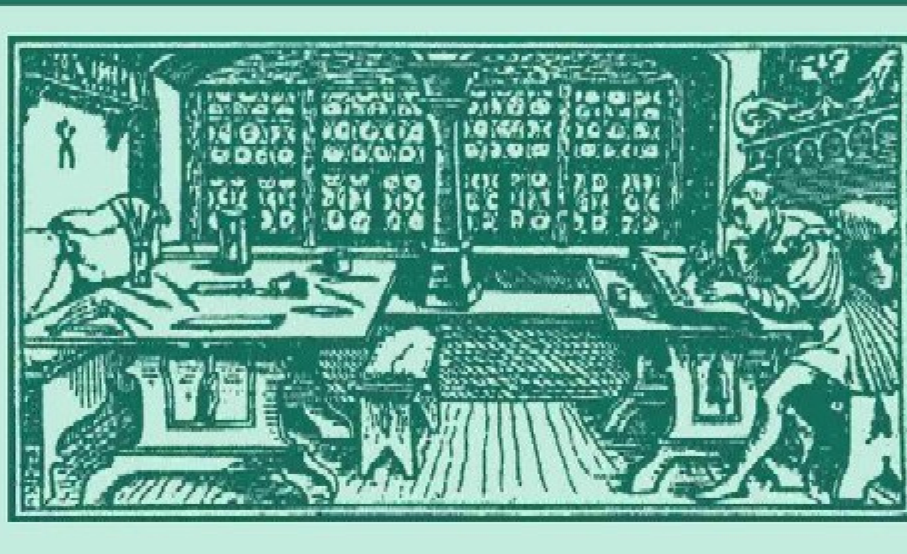

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S T U D I A

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STUDIA UNIVERSITATIS BABEŞ-BOLYAI, EDUCATIO ARTIS GYMNASTICAE, LII, 1, 2007

FACTORS AND CONSEQUENCES OF SOCIALIZATION IN AND THROUGH SPORTS

BACIU ALIN[1]

ABSTRACT. The relationship between sports and socialization concerns two distinct questions: (A) Factors and mechanisms describing socialization in the field of sports and (B): The way activity in sports generally contributes to socialization. Therefore the former issue refers to what is learnt in sports, without a special concern for its utility in other areas of social life, which is called socialization in sports, while the latter implies the answer to the question whether sport has a transferable value into other social areas, and is called socialization through or by means of sports.

A) Research studies approaching the former question, namely socialization in sport activities have for long examined two classes of factors: the needs and motivations of children and young people- their psychological orientation, containing perhaps the role of significant persons as well - and the socialization process, including microsocializing agents (the group of friends, mates, family, school, television), as well as the macrosocial agents (the cultural system, the economic state of society, etc.). Socialization and the role of macrosocial sources represent the sociological orientation. A lot of authors plead for the integration of these orientations and, within their framework, of different theories. R. Brustad (1992) emphasizes in different contexts the importance for the researches on motivation to be conducted in close relationship with researches on socialization.

With a view to integrating and revealing the factors which condition taking up and practising a sport, some schematic models have been elaborated, an illustrative one of which is presented in (cf. G. Patriksson, 1996, p. 54).

As it can be seen, *the factorial complex of physical and cognitive development* is placed somewhere in the centre of the model, its elements are related through direct and indirect connections (the arrows, with the indicative to which they belong), but also directly related to socializing(environmental) factors. This is also shown within the mecanism, described by B. Brustad (1992) as follows: "The characteristics of the cognitive development will affect, with children, the evaluation of the information offered by socializing agents, while the characteristics of physical development can greatly influence the adults' expectations and the rewarding means for the young sportsmen and women" (p. 69).

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As for the "motivation" shown schematically before, alongside and concording with the indicated needs and motives, we must add that a variety of studies on the topic have shown as motivation for participation in sports the following: the "taste of competing", "acquiring and developing skills", "physical shape", "entertainment", "friends' companionship", the "desire to experience success". Gender-related differences (social categories) in motivation have been shown, in the sense that "competition"- and "achievement"- related motivations are more frequent and important with boys, while the social kind ones ("opportunity to meet","friendship","affiliation") - with girls. However, the differences are rather small, the dominant motivational pattern being common with both genders and the desire for "entertainment", "competition and action", "affiliation" and "achievement" are central. The motivation for beginning and continuing to practise sports, and often to change them, is different from one individual to another, and the degree of variation is higher at generation level; hence G. Patriksson's statement (1996): "...It seems that the sports movement exerts more attraction for the young people than any other movements (political organizations, free churches, etc.)" (p55).

Beside numerous investigations regarding the children's and youth's participation in the sports activity, research studies, although fewer, have been conducted over larger age intervals.In such a research conducted on subjects between 6-60 years old, it has been concluded that the participaton in order "to please the dear ones" was higher with the children, while the motivation to assert oneself and the social status-related one - were higher with the preadolescents and adolescents; "entertainment" was more important with the young people and adults.It has been shown that the "team activity" and "competition" are much less frequent with the elderly adults than with the other age groups. Although the research (Brodkin, 1998, cf Patriksson, 1996) has not revealed differences between age groups in what concerns "health", "physical condition", and "affiliation" values, other researches have shown that individuals aged over 40 more often invoke the "health" motivation than young people (Duda and Tappe, 1980).

The existence of significant differences of motivational configuration as concerns practising sports according to age has serious practical implications.There should be different programs and priorities for age groups so as to assure the involvement and pleasure to participate in different sport activities.And we should obviously take into account the clear-cut difference between practising performance (or highly competitive) sport and sport for entertainment and physical exercises. S. Biddle is right when suggesting (1992) a different approach in what concerns physical activity advertising and marketing, in the sense that addressability should focus according to age, social type and exercise or systematic sport. If the physical exercise is made equivalent in publicity, marketing or education

with (performance) sport in itself, many potential exercise fans might give it up from lack of motivation or even "fear" of sport.

As far as the other big category of factors is concerned, namely the socializing factors, the environment in general, here the studies emphasize that a positive social support undoubtedly determines not only the involvement in a sports field, but also constancy, perseverence and performance. With the other conditions being equal, particularly the aptitudes, the support of the family, the primary school teacher, the teachers and the trainer and that of the similar peer-group are crucial. Both the retroactive investigations on elite adult sportsmen, and on children and young people in general show that the combined positive and negative effect of equally significant persons (sometimes the disagreement between coaches and parents), as well as between the socializing factors (tradition, mass-media, etc.) are highly responsible for success or abandonment in sports. Observing the idea of interaction between personal factors (motivation, cognitive-emotional processes) and external factors (very close persons) we can notice that, finally, different outside determinations, sometimes contradictory, are filtered by the individual himself/herself. At small ages he/she is totally controlled and the habitual disposition for sport due to the "cultural heritage" matters (Bourdieu, 1978). At older ages, it is the degree of personal freedom in choices which is expressed; it also depends on the individual's environment and primary socialization.

B) As for the question of the effects of socialization in sport on other behavioural individual areas and on the social life in general, the answer was given to a large extent while debating the functions of sports. It is widely known and mentioned in international official documents as well (UNESCO, OMS) that sport, especially physical exercises have a positive effect on physical and mental health; the more so for a more and more sedentary population. At a lower circumscribed level of the sports influence for the individual and social benefit, namely the question of socialization through or by means of sport, it is to be noticed that many individuals, especially those directly belonging to the sports area, readily answer that practising sports can only improve their social and individual life.

However, as in very many other domains, we can not judge by appearances or traditional statements. Even if not totally reliable, the results of the most accurate researches give answers more closely related to truth than to common sense representations. Such an answer, of a general character is that sport in itself, as any other human activities, is neither "good" nor "bad", but it can produce "good" or "bad", positive or negative consequences (Patriksson, 1996, p.61). More specific consequences as to the effects of socialization in (for) sport(and practising it) on global socialization of individuals are:

a) The "play" and "games", with all their pluses and minuses, are indispensable elements of global socialization at small ages. Even more, alongside the theories of G. Mead and J. Piaget, later research and theories revealed the importance of play for children's harmonious motor, cognitive and social development.
b) A comprehensive research using the "experience sample method" (Csikszentmihaly, 1975) -which allows measuring the subjective experience over a life period in different contexts and activities- was conducted on a group of 75 high-school pupils. The experience they had concerned three kinds of sport practice: organized, informal and physical education classes. The results show that the participation in sports activities, no matter what form and context they had, were felt as more stimulative situations as compared to other life aspects. They were doubled, at the same time, by benefic moods and powerful motivations. Thus, it follows logically that high spirits, stimulating effects, good psycho-emotional mood are favourable conditions for global socialization, for efficient integration into other activities.
c) Many people consider, and especially have considered- because of the financial interest in professional sport things have changed rather much- that *fair-play* in the field of sportivity is transfered to the interpersonal relationships in daily life. More generally - that people's moral behaviour would improve by means of sport. Several researches (Smith,1983, cf.Patriksson, 1996) have first shown that fair-play is not practised on the sport grounds, the more so in the extra-field/ground, between players. In a certain way, the sport clubs (the author Pilz refers to football) are a very efficient socializing and selecting agent with a view to a moral-oriented achievement of the utilitarian calculations (cf. Patriksson, 1996, p.65). Other researches have also shown that one cannot definitely decide whether sports develop moral behaviour and judgements well over the average as compared to other human activities. The results are similar as far as "cooperation" and "solidarity" are concerned as well.
d) But the latest systematic studies investigating the *relationship between socialization through sport and socialization in sport* have shown the importance and the up-to-dateness of the idea that it all depends on the content and form in which socialization and education in sport take place. In other words, this means that it is increasingly needed that *socialization* in (for) sport should restrict its spontaneous and uncontrolled character so as *to become education*. But we refer to education understood in its modern meaning - permissive, based on partnership and negotiation. On the other hand, as it will be seen, sociologists insist that the specific socialization should take place in a large social environment, with its reference points and regularities.

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STUDIA UNIVERSITATIS BABEŞ-BOLYAI, EDUCATIO ARTIS GYMNASTICAE, LII, 1, 2007

ORGANIZATION OF SPORTS IN EUROPEAN COUNTRIES

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ABSTRACT. ***Sport's Organization in European Countries***. Analyzing the European sports we have noticed a series of differences in the organizational structure of the sportive system, which is due especially to each country's national peculiarity, to the level of physical culture and to the political significance of sports in the socio-economic life.

REZUMAT. ***Organizarea sportului în ţările europene*****.** Analizând sportul european am observat o serie de diferenţieri ale structurii de organizare a sistemului sportiv, lucru care se datorează în special specificului naţional al fiecărei ţări, a nivelului culturii fizice şi a ponderii pe care o are sportul, din punct de vedere politic, în viaţa socio-economică.

Analyzing the European sports we have noticed a series of differences in the organizational structure of the sportive system, which is due especially to each country's national peculiarity, to the level of physical culture and to the political significance of sports in the socio-economic life.

Austria. The organization of sport is based on the autonomous activity of the federations and clubs under the leadership of two national level structures – governmental and non-governmental. Sport is supported by the state both at regional level, at the level of the 9 Bundeslander, as well as at national level by non-governmental structures.

Belgium. Sport is organized on the principle of the 3 communities – Flemish, French and German, in a freely and voluntary manner. The sportive associations play an important part as there is no sport administration at national level, only at the level of communities where there are governmental structures. Authorities intervene in favor of practicing sport, supporting the wide-participation, unconditional private initiative.

Cyprus. In this country, the sport structure is based on amateurism, being under the authority of a public semi-governmental body, which ensures the logistic and financial support to regional and local structures, while the non-governmental sportive structures play a very important part in promoting sports.

Denmark. The general conception upon sport is based upon amateurism; sport for everybody is encouraged, especially by the non-governmental structures represented by 3 national organizations: Danish Sports Confederation, Danish Sports Association and Danish Sports

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Federation. There is also the Danish Olympic Committee responsible with sports promotion. The state, by its local authorities, upholds sport and entertaining activities considered as important tools of education.

Finland. In this country, sport is under the command of two structures – governmental and non-governmental. Physic education belongs to the Sports and Youth Department from the Ministry of Education. Within the non-governmental structure there is the Finnish Sports Federation and the Olympic Committee. Public administration creates favorable conditions to sport activities, and clubs are responsible with organizing sport activities.

France. Sport is strongly encouraged and supported by the state which promotes it and the sportive activities under all forms. It is supported by the sportive movement (sports federations, associations) and by local authorities to stimulate by any means the functioning of sports organizations and voluntariate as forms of promoting sport.

Italy. Italian sport is considered a particular model as compared to other national sportive structures. Non-governmental sector represents the fundamental structure of the Italian sport by the CONI and the sports federations which are administratively and financially autonomous. The relationship between the Italian state and sport has a non-interventionist character; the state provides the legislative framework for sports and supervises the relationship between governmental and non-governmental structures involved in supporting the sportive activity.

Germany. At federal level, the responsibility for sports belongs to the Federal Ministry which supports all the table and high level sports, providing funds for preparation of and participation to different competitions. At regional and local level, administrative structures support non-governmental sports organizations in their action to promote sports.

Great Britain. Although there is a national sports strategy and a strong popular support of sport activities, there is no specialized ministry responsible with sport. Sport belongs mainly to the Department of Culture, Media and Sport. The bodies responsible with sport are the local authorities, national associations, sports federations, voluntary sector and the commercial sector. State encourages sportive activities by subventions and legislative support.

Sweden. Sport in Sweden represents a wide and independent movement led by a non-governmental organization called Swedish Sports Confederation which has as a main role that of promoting, developing and coordinating Swedish sportive activities. Swedish sport is based on local sports clubs. The government, the local and regional communities financially support sportive activities performed by sports organizations.

Spain. Sport is organized in compliance with the Sports Law (1990). According to this law, the Superior Sports Council is the central body of the public administration, responsible with sports at national level.

Table 2.
Sport management structures in Europe

Country	Name of the sportive structure	Type of the structure	Tutelary forum
Austria	Federal Ministry of education, Arts and Sports Bundes – Sports – Organisation (BSO)	Governmental structure Non-governmental structure	
Belgium	Ministry of Sports (Flemish, French and German Community)	Governmental structure	
Cyprus	Ministry of Culture and Education	Independent institutions, without a lucrative purpose	
Denmark	Ministry of Cultural Affaires Ministry of National Education	Governmental structures regarding also general problems of physical education and school sports	
Switzerland	Federal Gymnastics and Sports Commission	Governmental structure at the confederation level	Internal Federal Department
Finland	Department of Youth and Sports	Governmental structure	Ministry of Education
France	Ministry of Youth and Sports	Governmental structure	
Germany	German Sports Federation	Governmental structure	Federal Ministry of Internal Affaires
Greece	State Secretariat for Sports	Governmental structure	Ministry of Culture
Italy	Italian National Olympic Committee (CONI)	Non-governmental structure	
Luxembourg	Ministry of Education and Sports	Governmental structure	
Malta	Ministry of Education and Youth	Governmental structure	
Great Britain	Department of Culture, Media and Sport	Governmental structure	Environmental Department
Norway	General Department of Youth and Sports	Governmental structure	Ministry of Cultural and Scientific Affaires
Portugal	President of the Ministries Council (State Secretariat for Sports)	Governmental structure	
Sweden	Swedish Sports Federation	Governmental structure	
Spain	Superior Sports Council	Governmental structure	Ministry of Education

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STUDIA UNIVERSITATIS BABEŞ-BOLYAI, EDUCATIO ARTIS GYMNASTICAE, LII, 1, 2007

RATIONALIZATION OF TECHNICAL-TACTICAL RESOURCES IN TABLE-TENNIS TRAINING

APOSTU PAULA[1], DOBOŞI ŞERBAN[1]

ABSTRACT. Training rationalization represents an operation assessed by the need of optimum biological and psychic capitalization of the sportsman and the time that the coach has at his disposal, to obtain a high and stable performance.

In this paper we present some technical-tactical resources in coaching the national table-tennis team.

Keywords: Rationalization, resources, physical effort

Training rationalization represents an operation required by the need of optimum biological and psychic capitalization of the sportsman and the time that the coach has at his disposal, to obtain a high and stable performance. It rises from the need to save the sportsman's time and physical energy, in order to protect his bio-motile potential and to overcome the solution crisis in improving trainings meeting an increased international adversity, expressed by frequent, as well as remarkable performances.

Rationalization involves minimizing the number of exercises resulted after eliminating those which do not have any contribution in defining the shapes and the accommodation of the body to the efforts of the competition, to its technical and tactical rules; involves the idea of simplification of the content structured on the bio-motile realities of the competition, of the duration and its continuously changing regulations. Also, it imposes the establishment of some modified relationships which require less time to training, but it is additionally engaged with repetitions in under-maximal and maximal conditions. This time redistribution enables a standardized approach of the outlets in the table-tennis game, their typification according to the competition model in a lawful and logical succession, specific to the algorithm. The relationship between the duration of execution and the break, amelioration of metrical density of each training, measured as time, but multiplied in the daily, weekly and yearly cycle, are actions enhancing table-tennis trainings efficiency and they fit (as those listed above) in the wide concept of rationalization.

Presently, during the training sessions of the national table-tennis seniors' team - a series of changes were performed in establishing the outlets (technical-tactical themes) as follows:

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- The number of outlets was significantly reduced, recollecting only those which are essential to the real needs of the competition as some of the inadequate outlets can physically and technically elude or recede the “tracks” of other specific outlets necessary to the scheduled performance. Practice has shown that from the multitude of outlets used by players, only that small number of outlets has a real significance and contributes to obtaining an appropriate performance by their effect.
- Although training can become wearisome, one can achieve a specialization of outlets which directs their cumulate effect towards the needs of the competition. We can state that, nowadays, the multilateral principle loses its significance, as training specialization is the main reason of the table-tennis training.

The monotony of trainings due to outlets shortage might be diminished by the coach’s pedagogical mastery, which adds dynamism and emotions to the lesson, by means of competitiveness and the alternation of structures, rhythm and tempo.

- The essential outlets have changed into control tests, whose level cumulatively challenges that of finite performance and which, by repetition, increase their value and implicitly the prominence power upon the training stage and the level which is to be reached during the next stage.
- The circle of knowledge regarding the outlets selection according to the training objectives subordinated to the competition objectives, their repetition quantity within the lesson, within the weekly stages and the monthly stages, the intensity and density of the generated effort, at the same time with evaluation of the body’s biological effort and of the resulting motile effects was enlarged.
- The intermediate and final effects of the standardized outlets application depend also on their succession, on the order of their usage in time, on the effects correlation process continuity or discontinuity, on their removal. Not any outlet succession gives rise to the same performance or, in any case, not to the highest.

The value of the outlets used in the table-tennis national team training presents the following aspects:

a) Physic – knowledge of the exercises which directly act upon this competition component.
b) Technical-tactical – implies retaining the outlets essentially influencing most of the table-tennis competitions, detecting the physical support indispensable in performing the technical-tactical procedures.

c) Establishment of the intensity steps which best solicit the sportsman, therefore not necessarily the maximum stress, avoiding the under-stresses, discontinuities and exaggerations.
d) The value of time based upon reducing the training time, enhancing their motile and functional density and the repetition (of the volume) quantity with growing intensities of the specific outlets.

With the table-tennis, the improvement of a technical procedure does not represent a purpose in itself, but it is caused by a certain tactical rationale.

Therefore, during the table-tennis players' training, one starts with the analysis and recollection of just those outlets which are directly compatible with the requirements of the important competitions, imposed by the most efficient technique and by the level of stress upon the body by its specific effort.

These outlets (technical-tactical themes) will be performed in 15-20 minute stages each:

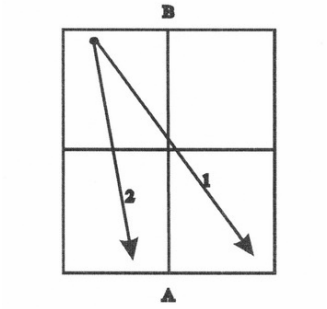
Theme 1

Forehand from 2 or 3 points. Player A performs to the forehand or the backhand of player B.

A – the active player who performs the theme with decisive closings,
B – the passive player who performs the theme for uniformity.

- This can be performed as doubles, topspin or these two combined.

According to the training stage, the theme may be performed for regularity or with decisive closings.



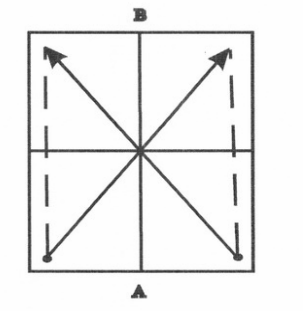
Theme 2

Forehand and backhand in diagonal with the changing of the line direction by the one serving the ball. Player A performs.

A – the active player who performs the theme with decisive closings.
B – the passive player who performs the theme for uniformity.

- This can be performed as doubles, topspin or these two combined.

According to the training stage, the theme may be performed for regularity or with decisive closings.



Theme 3

Backhand in diagonal with forehand exit to the backhand, continuing with forehand from the middle of the table, continuing with forehand from the forehand corner in line.

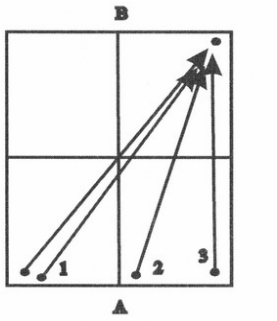
Player A performs towards player B's backhand, who replies in diagonal, middle and line (1.2.3.).

A – the active player who performs the theme with decisive closings.

B – the passive player who performs the theme for uniformity.

- This can be performed as doubles, topspin or these two combined.

According to the training stage, the theme may be performed for regularity or with decisive closings.



Theme 4

Backhand in diagonal with forehand exit to the backhand, optional, continuing with diagonal forehand from the backhand corner, continuing with diagonal forehand from the forehand corner.

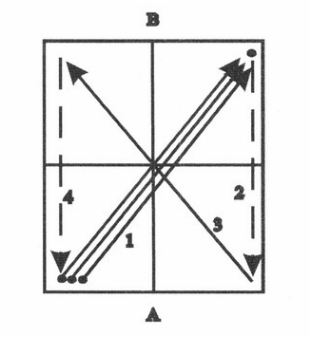
Player A performs towards player B's forehand and backhand. Player B replies in line from forehand and backhand.

A – the active player who performs the theme with decisive closings,

B – the passive player who performs the theme for uniformity.

- This can be performed as doubles, topspin or these two combined.

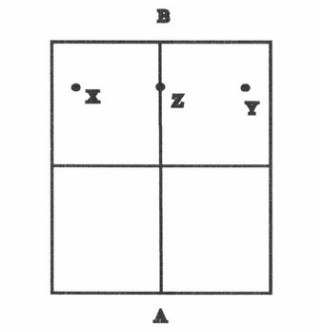
According to the training stage, the theme may be performed for regularity or with decisive closings.



Theme 5

Free forehand and backhand towards forehand, backhand or middle.

Player A executes from the entire table towards the three points of player B.



A – the active player who performs the theme with decisive closings,

B – the passive player who performs the theme for uniformity.

- This can be performed as doubles, topspin or these two combined.

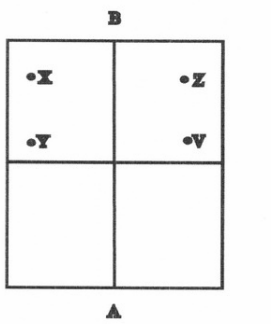
According to the training stage, the theme may be performed for regularity or with decisive closings.

Theme 6

Individual services towards different points of the table.

Player A performs towards a fix point (X, Y, Z, V), followed by aggressive topspins or decisive attack.

- One can choose tactical schemes according to each player's profile.



The remarkable effects achieved by the rationalization of training of the national table-tennis senior team can be expanded in several teams all over the country, where they still apply old theories, which are not accepted anymore in present international table-tennis.

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STUDIA UNIVERSITATIS BABEŞ-BOLYAI, EDUCATIO ARTIS GYMNASTICAE, LII, 1, 2007

TESTS USED TO MEASURE THE LEVEL OF PSYCHOMOTRIC DEVELOPMENT: COORDINATIVE CAPABILITY

GROSU EMILIA FLORINA[1], NUT ANCUȚA MARTA[1], SZABO PETER[1], PASCAN IOAN[1], PETREHUS DENISA[1], ISAC CARMEN ANETA[2]

ABSTRACT: Testing as a method of evaluation of psychomotric abilitiesThe need of measuring has extended a lot in sports with the purpose of reaching into the depths of this social phenomena. Measuring is a notion that designates attributing numbers to certain facts or continuous or discontinuous data, which does not stop here but continues with the evaluation of this data. Sports, gymnastics as well, are looking for a measuring stick, an instrument of a high practical and theoretical value. As a means of measuring, tests have been ellaborated and developed by the applied psychology with the beginning of the XIXth century.

The test consists of a task, more often a series of tasks, designed to establish the presence or the absence of a certain aspect, of the peculiarities of manifestation or the degree of its development.

The conditions for a task to become a test are standardization and calibration.

Standardization refers to: - the standardization of the present stimuli that could produce the reactions that are going to be recorded as exact and as complete as possible, - the standardization of the explanations given in connection to the task that needs to be performed, - the standardization of the way in which the reactions are scored

Calibration – means that the individual results are measured by comparison to the ones obtained by the most representative population both from a numerical point of view as well as its content. The examination of the diagnostical values of the tests or the testing of the tests depends on the final purpose, validity and sensitivity.

The fidelity of a test indicates the measure by which the results obtained by a test are reliable. Knowing the degree of confidence of a test we can determine whether the individual differences obtained are determined by real differences among the subjects.

The main aspects of the fidelity of a test are: - the steadfastness in time of the obtained results by using the test, - the constancy of the result in the case when the same subjects are measured by different examiners,- the tasks match the overall test,- the tasks are homogenous

In a broader sense, the validity of a test is the fact that this test measures what it aims to measure. The validation procedures are: - empirical validation – is used when the test has been created to outline a selection, - predictive validation – analyses the measure in which the subjects who had a good outcome during the test will perform in the same manner in real life activity, - competitive validation – refers to the fact that the person who creates the test must make sure that all the major aspects that represent the content of the measured trend are found in the content of teach of the tasks and they have the proper dosage.

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1. Measuring coordination

In the research studies, is limited as of necessity by some observational definitions on eye-hand coordination or eye-leg coordination in connection to certain tasks. These have been used to measure the coordination in researches in tasks like throwing the ball, kicking the ball, dancing steps and locomotric tasks. Juggling represents a classical activity for eye-hand coordination that has been frequently used in experiments for the motric abilities. The “Mashburn” task, which uses a sofisticated testing device requires the subject to simultaneously use both hands and feet while they follow a target. The task represents a cotinuous tridimensional procedure, with independent situations, pedals for left-right position and a handle (like the playsticks), that can move back and forward and left and right. The targets’ locations are presented on a screen and the subjects must position the control points so that each one of them matches a location of a target (Lewis, McAllister&Adams, 1951). A model of this kind of instrument was developed during the second world war to test and train the pilots. Some researchers suggested that this is the beginning of research in the field of motric education (see the historical presentation of research in physical education, chapter 1).

Numerous manipulative tests that were used in researching motric learning contain the hand and eye coordinates (e.g. devices with holes, rotative machines and even children’s toys). Measuring the coordination claimed in general a logical validity and the nature of the coordination leads probably in itself towards the determination of a constructing validity.The coordinative capabilities are inconceivable without physical factors of performance: strength, speed, endurance, and their involvment contribute to the birth of movement. Thus, they are not efficient in sports performances unless they cooperate with the conditional capacities (Hirtz, 1976).

Categories of coordinative capacities

We have general and special coordinative capacities. The coordinative capacities are the result of a polivalent gestual instruction in different motric actions or sports. Therefore, they manifest themselves in different fields of everyday life and in sports, because any gestual problems can be solved in a creative manner, according cu Harre, Deltow and Ritter (1984).The special coordinative capacities develop more in the case of sport educational subjects, regarded by N. Ozolin (1984) as “characterized by various traits in the sporting techniques accordin to the subject and the various combinations”.

The importance of coordinative capacities

In very broad terms, the coordinative capacities are used for the mastery of certain situations in which one is required to have a fast and rational reaction, being of most value in preventing accidents. Coordinative capacities stand at the basis of a good sensorio-motric learning capacity. Of course, an inherent economy, conditioned by the precision of the gestures, allows one to perform an

identical movement with less energy consumption of muscular mass, that leads to the accomplishment of an energy saving.

Components of the coordinative capacity

To allow an instruction of the coordinative capacities, seems important on one hand to also outline the actions that correspond to those capacities in the process of educating the skill. Knowing exactly the components we have already mentioned is extremely important because it enables the suppressing the potential partial weaknesses (Hirtz, 1978).

2. Techniques used for the study of the temporal, spatial, of speed and acceleration characteristics of the coordination movements, of kinestesic sensitivity, of balance, of ambidextruosity

The corporeal movements and the movements of the objects used in the bodily activities are characterized by indicators of length, trajectory, distance, speed, acceleration, energy, etc. The study of these movements demands and objective recording of these factors and their measuring, their transformation into a standard unit of measurement. Besides these measurable indicators, that bear, as I have already stated, the name of parameters, the corporeal movements have characteristics or peculiarities that are the result of a qualitative assessment, a pedagogical assessment – a method. Such characteristics are easiness, elegance, strain, expressivity and are the result of the level of adaptation of the movements to the requests and tasks. (Epuran, 1976)

The perceptive-motric field (psychomotric)

Studying the first field, Fleishman distinguishes 11 factors, which we find represented in the table below, which is confirmed and accepted also by R. Thomas, J.P. Eclache, J. Keller (1995). The list, description and method of measuring the factors that compose the field of perceptive-motricity, according to Fleishman:

FACTORS	DESCRIPTION	TESTING
1. Precision of control	A common factor of the tasks that demand fine and rigorously controlled muscular adaptation – however not hipercontrolled ones – especially when they imply important muscular groups. This capacity is in an equal measure important for both superior and inferior limbs.	Circular following. The subject is trying to maintain the dirk in contact with the target which is situated on the margins of a plane in movement.
2. The coordination of all limbs	The capacity to coordinate simultaneously all the different limbs.	The coordination of both hands. The test of the one who rotates can be regarded as valid.
3. The orientation of the response	Common factor for the psychomotric tasks regarding the discriminatori visual reaction	Discriminative reaction time. The subject must activate one of the 4 switches according to the luminous configuration shown.
4. The time of the reaction	The speed with which a subject is capable of responding to a stimulus when this one appeared.	Classical task of reacting to a luminous signal. The subject presses a button as soon as the light comes up.
5. The speed of movement of the arm	The speed with which a subject can perform a wide movement of the arm, without much precision.	To knock with a dirk, two planes, A and B, alternately, as soon as possible.
6. The control of speed	Common factor of tasks that imply a continuous anticipation to the motor adaptations connected to the changes of speed and/or direction of an object in movement.	To maintain on a target board, with the help of a steering wheel, a line that keeps changing its position randomly.
7. Manual dexterity	Capacity known to the psychology of labour. The adaptation of direction of the superior limb when it manipulates big objects.	The Minessota manipulation test. The O'Connor test is equally pertinent.
8. Finger dexterity	Manipulation of small objects that involve the fingers	The Perdue test. To place, as fast as they can, small wooden nails in holes made in a plank.
9. The precision of the arm	Precision in the movements created by the complex arm-hand, without the help of speed or strength. This factor implies also the pozitioning of this complex.	A test similar to those called "the Greek of Bonnardel"
10. The speed of the complex created by wrist and fingers	Fleishman mentions that this factor could also be named "tapping"	To tap with a pencil three times inside a circle, to fill as many circles in a certain amount of time.
11. Marking or aiming	The eye-hand coordination	The subject must draw a point inside the circles of a picture.

3. Measurements in the cognitive and emotional field

In the systems of physical education and sports, a special attention is given to – together with the psychomotric objectives – the cognitive and emotional objectives, both in what regards their operationalisation as well as evaluation. We will not go into much detail, but we will resume to some examples that emphasise the importance of the problem.

Measuring in the cognitive field aims to optimize the level of:

a) knowledge
b) understanding
c) the ways to apply the knowledge
d) the capacity of analysis
e) the capacity of sinthesis
f) the capacity of evaluating, of judging – all related to the established objectives for the different activities in physical education or sports

Measuring in the emotional field looks at the atitudes or capacities of:

a) reception of values (awareness, willingness to accept them, attention)
b) response (behaviour) – obeying the rules, the desire to be right, the satisfaction of obeying the rules
c) valutating (accepting the ethical values in sports, the desire to abide by them, the belief in their importance)
d) generalisation by using the ethical sporting values in everyday life.

3.1. Set of tests for the assessment of the level of development of the coordinative capability

1. The sensorio-motric coordination (the test for the estimation of a distance) Valentina Horghidan (1997)

Props: glasses, measuring tape, a straight line of 5-7m drawn on the floor.

Instructions given to the subject: "you have in front of you a straight line drawn on the floor. It indicates the itinerary that you have to make. Starting from point A, with the tip of your toes touching the margins of point A, you walk and you stop in point B in the same position. Before you start, I will cover your eyes with this dark glasses. This means that you will have to make this itinerary without the help of the sight. Try to keep the line and the distance. When you think you reached point B, you stop and you wait without moving until we measure with the measuring tape the distance you went. Before starting, you position yourself in the starting point and try to memorise the best you can the point in which you have to reach."

Examining procedure: The subject is positioned on the direction of the walking, with the feet altogether, the toes reaching the far ends of point A of the line. Total silence must be kept in order not to allow the subject to

get help from sound for the guidance. When the subject has stopped, the examiner will measure the deviation from point B.

Markings for the recordings and the calculations: the examiner makes an X in the middle of the line that unites the tip of the toes of the subject. Then the examiner will imagine a vertical line that crossed the AB line or its extension up to the point C.

The examiner will measure the B-C distance. If C is situated between A and B, the number will be negative, if C is situated beyond the AB line the number will be positive, and the number will be 0 (zero) if there is no deviation; the X-C distance will be written down, writing down the left or right deviation from the line.

Two values are recorded:

- The number that tells us about the overestimation (+), of underestimation (-) or of correct estimation of the distance. This number, taken in absolute value, is confronted with the standard and we get the rank of the subject for the kinestesic coordination
- The number that expresses the variation of the deviation, that is if the deviation was on the left or on the right side. This number, confronted with the standard, will give us the rank of the subject for the vestibular-motric coordination.

2. Segmentary coordination (the Bruininks-Oseretsky test)

The test consists of 7 items and measures the capability of coordination of the movements acted out simultaneously with the segments of both sides of the body.

Item 1 (simultaneous movements: circular moving of the pointers and clumping alternatively with the feet)

Props: timer, two chairs

Examination procedure: two chairs are placed one in front of the other; one of them will be occupied by the examiner, the other one by the subject. The examiner explains and demonstrates each sequence of the movements: by clumping alternatively with the feet on the floor; the correct positioning of the arms, with the armes crossed above the chest; the positioning of the pointer fingers and their movement (one of the pointers must rotate clockwise, the other one counterclockwise). Then, the examiner demonstrates all the movements simultaneously. After the signal, the examiner starts the timer for 90 seconds and starts counting the clumping of the feet as soon as they have become steadfast.

During the test, the subject may be corrected by additional instructions if:

- The subject does not maintain a constant rhythm (when the rhythm is constant, the exercise is regarded as correct even if the subject clumps with the entire sole of the foot, the toes or only with the heels);
- The subject does not alternate the feet

- He does not uses both pointer fingers to draw the circles
- He uses the entire arm or forearm to accomplish the task
- He does not moves the fingers in complete circles

Whenever the mentioned mistakes appear, the counting is started again for the clumping on the floor from the moment they are correctly executed constantly.

The test is stopped after 90 seconds, this interval includes also the additional instructions. Observations: the subject is given only one chance, irrespective of the result (only one time for 90 seconds).

Marking for the recording: the recording chart mentions whether the subject is accepted or rejected. “Accepted” is given to the subject who executed 10 clumpings one after the other correctly during the 90 seconds. For less than 10 clumpings, the subject receives “rejected”.

Item 2 (a syncronized clumping and the pointer finger from the same side of the body)

Props: timer, two chairs, a table

Instructions given to the subject: “please execute simultaneously the tapping on the table with the pointer finger of one hand and with the foot of the same side of the body the clumping on the floor (the subject is being shown how). Do the same thins with the other hand and foot. Continue to do this alternatively untill I tell you to stop. Pay attention, start!”

Examination procedure: the subject is seated on the chair, in front of the table. The examiner is situated in a position that enables him to examine both hands and feet of the subject. Time for this task: 90 seconds (including additional instructions, if they are required). The counting of the strikes is started from the moment they become constant. If the subject does not manage to keep the constant rhythm and additional instructions are needed, the counting is resumed during the 90 second period of time. After 90 seconds the movements are ordered to be stopped.

Observations: the subject is given only one shot.

Marks for the recording: the examination chart will read “accepted” if the subject managed to perform 10 tappings and clumpings in a correct manner or “rejected” if the subject performed less than 10 correct actions one after another.

Item 3 (syncronised clumping of the foot and the opposite pointer finger)

Props: the same as for item 2

Instructions given to the subject: “please clump with your foot on the floor and tap on the table with the pointer finger of the opposite side”. The subject is shown what to do. “When I tell you to, start doing this and do not stop until I tell you to. Start!”

Examining procedure: the subject is placed in front of the table. The examiner is positioned in a favourable spot to be able to follow the hands and

the feet of the subject. Total time of the test is 90 seconds, that includes additional instructions, if needed. The counting of the tapping and clumping is started from the moment the movements are constant. If there were additional instructions needed, the counting starts again from that moment on.

Observations: the subject gets only one try. The movement is validated if the subject clumps with the entire sole, with the toes or with the heel.

Marks for the recording: the recording chart will mention "accepted" if the subject made at least 10 consecutive finger and foot movements, or "rejected" for a number of correct movements less than 10.

Item 4 (jumping up and down with syncronized movements of the arm and leg of the same side of the body)

Props: a timer

Instructions given to the subject: "please place one foot in front and another one in the back, lift your arm from the same side of the body like the foot that is in front, and place the other arm in the back (the examiner will show how). When I tell you to start, jump, switching the front foot with the back one and the arms from the same side of the body (the examiner will show how). Continue to jump like this untill I tell you to stop. Now start jumping."

Examination procedure: the examiner will be positioned in front or on the side of the subject, times the task for 90 seconds and starts counting the jumpings. The subject is given corrections or additional instructions if:

- he does not move in synchrony the arm and the leg of the same side of the body
- does not perform the movements in the same rhythm
- makes extra steps (in front or in the back)

If such things happen, the counting is resumed in the strict interval of 90 seconds.

Observations: the task is performed during 90 seconds.

Markings for the record: the chart will say "accepted" for 10 complete jumps, correctly performed and "rejected" for less than 10 jumps.

Item 5 (jumps up and down using the leg and arm of the opposite sides of the body)

Props: same as for item 4

Instructions given to the subject: "please put your left/right leg in front (the subject will indicate the preffered leg) and the other one in the back. Lift your right/left arm (the opposite one) in front up to the shoulder and put the other arm in the back." The examiner will show how to do it. "When I tell you to start, you will jump up and down alternating the movements (the examiner will show how). Start now."

Examination procedure: the examiner will stand on the side or in front of the subject, starts timing the task for 90 seconds and starts counting the jumps from the moment they begin to be performed with a certain speed.

Observations: the task takes 90 seconds, irrespective of the result.

Marks for the recording: the chart will say “accepted” if the subject makes at least 10 jumps correctly and one after the other or “rejected” if the number of jumps is less than 10.

Item 6 (a high jump with the clapping of the hands)

Instructions given to the subject: “when I tell you to start, jump as high as you can and clap your hands (the hands are positioned frontally at the shoulder level). I will show you how. Now start jumping”

Examination procedure: the examiner will be positioned in front of the subject to be able to count the number of the clapping of the hands in the interval that the subject is involved in jumping. The clapping is not valid if:

- the hands are situated below the chest level
- before the subject has landed or before he jumped

Observation: the subject may be given a second chance if they don’t score the maximum of points in the first attempt.

Marks for the recording: the chart will mention the number of clapping performed correctly during the jumps.

Item 7 (vertical jump with touching the heels with the hands)

Instructions given to the subject: “when I tell you, jump as high as you can. When you jump, bend your knees and touch the heels with the hands, I will show you how. Now jump!”Examination procedure: the examiner will stand behind the subject to be able to watch the performance.

Observation: the subject may get a second try with additional instructions if the first time they did not execute the task correctly.Marks for the recording: the chart will mention “accepted” when the subject performs correctly or “rejected” when the subject does not touch the heels with the hands at the same time, looses his balance and touches the floor with one or both hands or does not jump with both feet at the same time.

3.2.Coordination of the upper limbs (the Bruininks-Oseretsky test) quoted by Horghidan V. (1997)

The test has 9 items, which outline the coordination of the arms, the precision of the movements of the hands and fingers, as well as some aspects connected to the hand-eye coordination.

Item 1 (bouncing the ball and catching it with both hands)

Props: a tennis ball, a rectangular carpet with a rough surface (if this is not available, a rectangle will be drawn on the floor with a piece of chalk).

Instructions given to the subject: “please stand with your feet on this carpet. When I tell you to start, bounce the ball against the floor and catch it with both hands, repeating this untill I tell you to stop, without stepping outside of the carpet (the examiner will show how). Now please bounce and catch the ball with both hands untill I tell you to stop. Don’t forget, during

this task you must not step outside the carpet and you must catch the ball with both hands. Start bouncing the ball!"

Examination procedure: the examiner will be positioned in front of the subject to be able to watch the performance. The subject is given one practice round. During the test, after the subject has performed five bouncings, the test is stopped.Recording chart: the chart will specify the number of correct catches.An incorrect catch is:

- if the subject does not manage to catch the ball but catches it with the body
- if the subject steps outside the carpet
- catches the ball with only one hand

Item 2 (bouncing the ball and catching it with one hand)

Props: the same as for item 1

Instructions given to the subject: "please stand on the carpet. When I tell you to start, bounce the ball against the floor and catch it with your left/right hand (the subject can chose the hand he prefers). You are given only one shot. Now, you will continue to bounce and catch the ball only with the hand chosen untill I tell you to stop. You must not leave the carpet during the test.

Examination procedure: the examiner will stand in front of the subject to be able to observe the performance and to count the correct catches. The task consists of five bouncings and catches and it is stopped afterwards.

Recording chart: the chart will mention the correct catches during the 5 attempts. The maximum points is given for 5 correct catches.

Item 3 (catch with both hands the ball that is thrown by the examiner)

Props: a tennis ball, a carpet and cellotape

Instructions given to the subject: please stand on this carpet and catch the ball with both hands every time I throw it at you. The subject is given one try for training.

Examination procedure: the carpet is placed on the floor. The cellotape is stuck on the floor, on the same line with the carpet, on one side of it at a distance of 3m from the carpet. The examiner stands in front of the subject facing the subject immediately behind the cellotape. From this position, the examiner throws the ball at the subject for 5 times and counts the correct catches. An incorrect catch is if the subject:

- did not manage to catch the ball with the hands
- steps outside the carpet
- catches the ball with one hand only

Chart: the chart will mention the number of correct catches. The maximum score is given for 5 correct catches.

Remark: one of the shots is repeated if the examiner threw the ball above the level of the hands of below the knees or outside the range of the subject.

Item 4 (catch the ball with one of the hands)

Props: the same as for item 3

Instructions given to the subject: “please stand with the feet on the carpet and try to catch the ball with the left/right hand, whichever you prefer, that I am going to throw at you. Please try to catch the ball every time only with the hand and do not step outside the carpet. Catch!”

Examination procedure: the same as for item 3

Chart: the chart will mention the number of correct catches. The maximum points are received for 5 correct catches (out of 5 throws)

Item 5 (throw the ball at a target with only one hand)

Props: tennis ball, a target board against the wall, cellotape or chalk.

Instructions given to the subject: “please stand right behind the line on the floor facing the wall. Hold the ball with the left/right hand, whichever hand you prefer, lift the ball above the head and throw the ball at the target.” The examiner will demonstrate the task and will give the subject one training shot.

Examination procedure: a target board will be placed against the wall. The height of the target the lowest point of the target is at the level of the eyes of the subject. At 1,5m from the wall, a line is drawn on the floor, on the same line with the wall. The subject is placed facing the target, right behind the line, and from there he will throw the ball 5 times. An incorrect throw is:

- if the subject misses the target
- throws the ball from below
- steps over the line

Chart: the examiner will mark on the chart the number of all the throws, giving one point for a correct hit and zero points for a miss. The maximum of points is given for 5 correct throws.

Item 6 (touch a swinging ball with one of the hands)

Props: a tennis ball tied to a rope of 50 cm.

Instructions given to the subject: “please stand in front of me. Bring your left/hand to the chest, gather your fingers into the fist, except for the pointer finger, which you will stick out in front. Now watch the ball swinging, point your finger towards it and hit it with your tip of your finger when it is right in the front of you. Continue to hit it every time when the ball is in front of you. Do not move your feet.”

Examination procedure: the examiner will sit in front of the subject, holds the ball with one hand and the end of the rope in the other, to make sure that the ball swings in a 180 degree arch. The position and the height of the arms of the examiners will have to be in such a way that the point of 90 degrees of the trajectory of the swinging ball is right in front of the face of the subject, at a distance that is smaller than the length of the arm. The test has 5 attempts.

Chart: the chart will record the number of successful attempts. The subject is given 2 trial attempts and 5 for the record. An attempt consists of

passing the ball in front of the subject 4 times. If the subject hits the ball more times than once during an attempt, no points are given. Hitting the ball is regarded as incorrect if the subject:

- runs into the ball
- stops the ball with a side of the finger and not with its tip

Item 7 (successive touching of the nose with the pointer of both hands alternatively, with the eyes closed)

Props: a timer

Instructions given to the subject: “please stretch your arms sideways. Touch the tip of your nose with the pointer finger of one hand and come back to the initial position of the hand, then touch the tip of your nose with the pointer of the other hand and so on. Now do this exercise with your eyes closed, without moving your head and touching your nose alternatively with both hands. Keep doing this untill I tell you to stop. Now close your eyes and start!”

Examination procedure: the examiner marks down the time of the test, giving the subject 90 seconds for it. The examiner will start counting the correct performances as soon as the subject moves the arms and touches the nose correctly and in a continuous movement. Chart: the chart will say “accepted” if the subject manages to perform 4 correct touching of the nose, 2 with each finger or “rejected” if the subject did not manage to do so.

Item 8 (with the eyes closed, touch alternatively the other fingers with the thumb)

Props: timers, table, chair

Instructions given to the subject: “please stretch out your left/right arm (the subject will indicate the prefered hand). Now please touch with the tip of your thumb, from this hand, the tips of the other fingers, one by one, starting with the pinky and continue by touching with your thumb the pointer towards the pinky. Please do this with your eyes closed untill I tell you to stop. Now close your eyes and start!”

Examination procedure: the subject is seated at the table next to the examiner. The examiner marks down the time for the task (90 seconds), and counts the correct performances.Chart: the chart will mention “accepted” if the subject manages to perform the entire task, or “rejected” if the subject does not complete the task. The subject will have to repeat the task if:

- the movements are not continuously performed
- the subject touches two fingers at the same time
- the subject does not touch the finger above the first knuckle
- the subject opens the eyes

Item 9 (revolving the thumb and the pointer)

Props: a timer

Instructions given to the subject: “please touch the tips of your pointers of each hand with the thumbs of the other hand (the examiner will show how)”

Examination procedure: the subject is seated on a chair next to the examiner. The examiner will demonstrate the revolving of the fingers in an up and down movement. The time of the task is 90 seconds. The examiner will start counting the movements as soon as the subject manages to perform them without interruptions.

Chart: the chart will mention “accepted” if the subject accomplishes a complete task in 90 seconds, that is 5 correct ones one after the other, or “rejected” if the subject does not manage to accomplish 5 correct movements one after another.

3.3.The Denisiuc test – for general coordination

This test consists of: a 5m running, a complete turn of 360 degrees around a flag, running, rolling forward, running, a turn of 180 degrees around a second flag, running with the bended back with support, rolling forward, a complete turn of 360 degrees and arriving to the same place where the race started. The mattress is placed at the mid distance between the two flags. The round trip itinerary measures 30m and is timed.

3.4.The Matorin test for general coordination

The Matorin test measures the general coordination and the balance and consists of a turning jump along the longitudinal axis of the body (leftwise or rightwise). Upon calibrating the test, Matorin equated the performance over 360 degrees with “very well”

Ion Tudusciuc (1977) suggests a change that consists of the fact that, instead of reading the degrees, he reads the sector. The circle is divided into eight sectors and is numbered either clockwise or counterclockwise, the subject is standing with his soles closed together, having in between the line that separated sector 1 from sector 8. For example, after a jump with a turn towards the right, the subject might land in sector 7, or if he has good jumping skills and a higher spinning speed, he might land in sector 3, which means he entered into the second rotation and therefore he will be marked for a very good performance, by the number 11 (8+3=11). The turning is done in both ways.

Props: a compass, a ruler of 40, 50 cm

Instructions given to the subject: “you have to perform a turn around your longitudinal axis, by jumping, with a maximum angle. First assume the initial position, with the feet on both sides of the line drawn on the floor or with your arms along the body. You have to perform three turns to the left and three to the right. Wait in the initial position until I measure with the compass the value of each turn.” Examination procedure: a line is being drawn on the ground, on the direction north-south, of about 30-35 cm. The

subject has to be facing north. After each turning, the examiner will measure the angle. After the jump, on the landing spot, a measuring stick is places and the compass and, according to the deviation of the compass, the examiner reads the angle of the rotation.

Notes for the chart and calculation: the chart will mention the value (in degrees) of each of the jumps. The best result will be marked. The arrow indicates the way of the turning (diagram B- a turn towards the right, diagram C – a turn towards the left).

3.5.The "MYL" test – coordination in physical education and sports – Firea E., Gagea A., (1990)

This test that we named MYL, has the same instruments and technique of investigation like Myra Y Lopez, only it is simplified and modified in terms of interpretation, from the significance that is predominant psychological to a motric one.

We argue for the simplification and the transformation of the test by out intention of widening the practicality of the test: it is simpler, faster, more accessible of the different categories of users and so by this adapting the significance of the test to the field of physical education and sports, by completing the information about the motric coordination.The evaluation of the motric coordination is useful for a primary selection, the assessment of the level of training, the observation of the biological echo of the acute effort during the lessons of physical education or during trainings, and also, but to a smaller extent, for the evaluation of future performances during tournaments.

Instruments: to apply the Myl test the examiner will need:

- a white sheet of paper, A4 format, with four zig-zags on it and two horizontal lines (see fig. 1), in the following structure:
- two zig-zags of 10 mm, at 60 degrees angles and three points towards the exterior, symetrically placed from the vertical symmetry axis of the piece of paper, at a distance of 20 mm from the superior margin of the paper and with the points at a 30 mm distance from the side margins
- two zig-zags, of the same dimensions, placed symmetrically from the vertical symmetry axis of the paper, at 20mm distance from the inferior margin of the sheet and with the points at a 70 mm distance from the side margins
- on the piece of paper the examiner will draw two more horizontal lines, from one side to the other of the paper, at a 100mm distance from the superior margin, and one at 100mm from the inferior margin of the paper.
- Two sharp pencils

Recording technique:

1. the printed sheet of paper is fixed horizontally (with thumbtacks) in front of the subject who is seated in a correct writing position
2. The subject is instructed to perform the itinerary, simultaneously with both hands, of the two zig-zags from the upper side of the paper (the one that is farther from him), by flexing the elbows (towards him), starting with his arms completely stretched and the pencils in vertical position, and then, without stopping, to draw the zig-zags as constant as he can (dimension, angles and direction) down to the first line, with visual contact (looking at what he is drawing) and without stopping, but without visual contact, that is with a screen at 20-30 cm in front of his eyes, to draw the same zig-zags, down to the second horizontal line (the one closest to the subject)

The imprint of the MYL test

3. The subject is instructed to make, through an extension movement of the elbows, in anteducation, the zig-zags from the inferior side of the paper (the closest to him), and then up to the horizontal line from the upper part of the paper (the farthest from him)
4. The hands should not be supported on the table.

The grapho-analytical processing

1. the examiner will count the exterior angles of the zig-zags drawn, separating the ones drawn with visual help from the ones without visual help
2. the examiner will measure or will determine the average length of the segments
3. the examiner will measure or will assess the deviation of direction of the zig zags drawn (in comparison to the ones imprinted)

Interpreting the results

1. the shape of the drawing will be interpreted according to table 1
2. the change of shape will be interpreted according to table 2
3. the general score is calculated by multiplying the partial scores according to table 3
4. the motric coordination is evaluated using the Myl test by giving a general mark, according to nomogram 1

Table 1.
The shape indicator

Shape indicator	**Measuring unit**	**"well"**	**"satisfactory"**	**"poor"**
1. number of peaks drawn with visual help	No.	5	5+/-	≥5°/-2
2. number of peaks drawn without visual help	No.	10	10+/-	≥10°+/-3
3. average length of the segments	No.	10	10+/-	≥10°+/-3
4. the deviation from the direction	No.	0°	<(+/-10°)	≥10°

Remarks: each zig zag that was drawn is given a rating (separately for the right side and the left side and separately for an anteduction movement and for a retroduction one). All in all 16 ratings. In the end, the subject will receive the averare of the ratings. In case of equal scores, the S (satisfactory) is given. For instance: Shape (S)=WPSSSSSPPPWSSSS= S

The assessment of the difference of force between the flexing movement of the elbow and the extention movement when in anteduction, between the movement with visual control, between right and left can be observed in table 2.

Table 2.

The difference indicator	**Measuring unit**	**"Small"**	**"Big"**
1. the difference in nature between the movements of retroduction and anteduction	%	≤33	>33
2. the difference in nature between the movement with visual control and without visual control	%	≤33	>33
3. the difference in nature between the moving of the left and and the right arm	%	0≤33	>33

Remark: each type of difference receive a rate.

Table 3.
Points for the ratings of shape and differences of the Myl test

Rating	**Abbreviation**	**Shape**	**Differences CCV FCV**	**Differences DR**	**Differences RET**
WELL	W	2		≥5*/-2	
SATISFACTORY	S	1		≥10°+/-3	
OR	O	0		≥10°+/-3	
BIG	B		1	0,5	0,5
SMALL	S		2	1	1

Remark: the general score is obtained by multiplying the rates of each of the indicators. For example: Score (S)=2.1.0,5.1=1

The non liniar relationship between the score and the overall rating of the test (nomogram 1)

Remark: the score on the vertical will correspond, through the curve, to a rate on the horizontal line. For example: 1=S (satisfactory)

The assessment of the motric bidextric simultaneous coordination, with or withour visual control is ellaborated with other information concerning motricity (speed of reaction, dexterimetry, etc) to help the scientifical research of the process of physical education and sports.

We reach the following conclusion: the global coordination is final: the ability to coordinate the arms, the legs and the body, in activities that involve the entire body, is in motion. The picture of the differences between the global coordination and other abilities is presented below:

Global coordination implies the coordination of the entire body: trunk, arms, legs	The moving speed of the limbs consists of the speed of the acting of the arms without including coordination
Idem	Plurisegmentary coordination consists of coordinating just the arms and legs

Requires a high degree of general coordination of the entire body to accomplish a series of ellaborated movements.

Requires a low degree of head coordination to accomplish simple movements; Capable of choreography; Bends down the branches of a very tall tree; Manages to accomplish a race with obstacles without a deadline; Age; The global coordination scale of evaluation , after V. Horghidan (1997)

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STUDIA UNIVERSITATIS BABEŞ-BOLYAI, EDUCATIO ARTIS GYMNASTICAE, LII, 1, 2007

DEVELOPMENT AND EVALUATION OF PROGRAMMES AND SKILLS FOR CHILDREN WITH SPECIAL NEEDS IN GREEK SPECIAL SCHOOLS

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ABSTRACT. The basic elements in the all vested dexterities are: the kinetic stability, the uniqueness of kinetic performance and the adaptability of kinetic performance under from different conditions (Koutsouki D., Athens 2001, page 11). Newell and Barclay (1982) trying to examine the cognitive development of kinetic activity of person observe that:The cognitive approach does not give the importance that should with regard to the treatment of details of activity, or at the learning, or at the implementation. Nevertheless the cognitive approach accepts the acquisition of cognitive forms at the conduct of learning. Also they observed that the simple and particular movements are studied easily for the reason that their movement behavior analysis is enough easy in conditions of laboratories. However in the daily life the movements are not simple but complicated and are not stored in the memory with base their characteristics. The recording and the treatment of movements become with base the aim that they serve, the physiques and kinetic faculties of person but also the training experiences that are relative with the movement.

Models of athletic activities and exercises in children with intellectual delay

Various events that can happen at the duration of pregnancy (insufficient nutrition of mother), in the childbirth (lack of oxygen) or later in the children's age (children's diseases as is the meningitis) can cause Intellectual Delay. In a lot of cases however the reason of Intellectual Delay is unknown and simply attributes its in accident at the duration of childbirth.

The World Organization of Health (1968) reports that roughly 1% of population of earth has Intellectual Delay, besides that the real proportion of persons with Intellectual Delay is more closer to 1% and that the 3% is a proportion which express those people who in a time of their lives should be estimated as intellectual delayed apart from the age (Koutsouki, 2001). The degree of Intellectual Delay is reported in its entirety the intellectual operations and it is counting from internationally determined tests of intelligence. The individuals with Intellectual Delay are separated in 4 categories depending on the gravity of their infirmity. The person with LIGHT Intellectual Delay, substantially, does not appear that present Intellectual Delay and is capable to face the requirements of life without help. The persons with MEDIOCRE,

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HEAVY and DEEP Intellectual Delay need, without fail, special treatment, support and help in most sectors of their life.

Those who concern the Physical Education in the individuals with Intellectual Delay and particularly in the children that is also our subject, it is permissible, after we take into consideration our fundamentally the Intelligence and the coexisting infirmities that can present the child with which we will work.

The physique and kinetic difficulties that can face a child with Intellectual Delay are many. The most usual physique difficulties are the following:

1. Obesity
2. Divergences of vertebral column (scoliosis)
3. Small muscular power
4. Low physique condition

Apart from physique difficulties the child with Intellectual Delay faces also kinetic difficulties that are related with the situation of nervous system. The most usual kinetic difficulties are:

1. Difficulties in the body balance
2. Difficulties in collaboration and co-ordination of eye- hand and eye- leg
3. Delayed appearance of kinetic models as running, stepping, drops, etc.
4. Decreased level of attention and concentration of small duration

Afterwards we present to you some programmes of gymnastics, that can be used for the training of children with Intellectual Delay, but and for their amusement, so through the games are developed friendly and social relations. Brunner (1973) referring to the skilled action supports the huge importance that the games has in the acquisition of skillfulness. Objective of gymnastics is the improvement of mobility, the force and the better attitude of body, but it is also the rhythm culture, the disposal for the game, the expressiveness and the sociability.

Athletic activities:

1. Free removal at space with music. After the music stops, children stand still every time in a different attitude (ex. with open or close legs, at the knees, cross-legged, e.t.c.)
2. Educator stands in front of children, who are spacing out and he asks them to imitate his movements. This exercise can be suited to music
3. Small groups: a child holds on a garland. The other children are trying to pass the ball into the garland. Change of roles
4. Games in groups adapted in intelligence and in ability of children (basket, volley, football)
5. Activities with kicking of ball
6. Activities with rolling of ball (bowling)

Exercises:

1. Walking on tiptoe with raising of arms

2. The trainee sits at the knees with his arms at nape. Head and neck are in the right attitude. It is becoming transference to the back of torso, head and neck
3. Oblique position: raising of the left arm, the left leg and also raising of the head, slow motion without the trainee falls at his back or at his abdomen. Slow rolling to the left side and exercise's repetition
4. Lying on back, comfortable position of arms. Slow head turns for the left and the right side
5. Position on knees with supporting of arms, knees are supported on the opening of pelvis. Slow motion of ischiums to the right and the left side and to the heel
6. Lying on back with the arms by side, bending of knees to the chest holding a ball with legs.

Control and evaluation of children with intellectual delay

Our experience in the Special Schools taught us that in order to evaluate the course of each child, with regard to the kinetics and their physical situation, we should place certain objectives (short-term and long-term) and we should check systematically how much these were achieved (monthly or weekly). Essential tools for each teacher that deals with the Special Physique Education are the repetition of those activities that the child is unable to execute with the better possible way and the Individualized Teaching (because each child constitutes also a separate case).

SHEET OF EVALUATION 1

ACTIVITY: BALANCE
***NAME OF STUDENT*:**

Description of activity	It ignores the activity	With a lot of help	With few help	Without help
1. It balances in the one leg momentary				
2. It balances in the one leg for 3"				
3. It balances so much in the one leg what in the other				
4. It walks without it falls				
5. It walks following a straight line				
6. It walks following a line in circle				
7. It walks in bench of balance of width 20cm				
8.It balances in board of balance				

SHEET OF EVALUATION 2

ACTIVITY: EXERCISES OF FORCE

NAME OF STUDENT:

Description of activity	It ignores the activity	With a lot of help	With few help	Without help
1.It executes stretching				
2.It executes abdominal with ball				
3.It executes abdominal with repetition				
4.It executes dorsal with ball				
5.It executes openings with dumbbells				
6.It executes the exercises for the shoulders without dumbbells				
7.It executes pull over with dumbbells				

Conclusions:

1. The child with Intellectual Delay presents difficulties in understanding on verbal orders. That's why orders must be suited by the execution of movements from the educator.
2. Long-standing repetition is necessary because these children have mechanical memory and they can't concentrate.
3. Exercises of physical education must be individualized and if it's possible educator to occupy with only one child.
4. Evaluation of results in a program of physical education is very important because sets the degree on which the program is suitable and it is corresponding to the needs of the persons that it is addressed.

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ALTITUDE – FAVORABLE MEDIUM FACTOR IN LONG DISTANCE RACES

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ABSTRACT. Training at altitude is made in order to increase the performance in competitions that take place in plain areas. So, the sportsmen trained at altitude will obtain in predominant aerobic tests better and improved results.

Training at altitude causes a series of physiological changes in the sportsmen, and has effects on their sportive performances and on their behavior. "The natural fortifying" at altitude produces a progress in the sportive performance up to 15% which is the equivalent for the medicine EPO, which is prohibited by the anti-doping commission.

Keywords: altitude, effort capacity, aerobic effort, training, aerobic-anaerobic limit.

By using this type of practice, the training stimulus, surpass and complete the possibilities which are offered by the common methods of practice. By the adaptation reactions and some homeostatic changes, the aerobic effort capacity of the sportsmen who participate in competitions at low altitudes or at sea level, improves considerably.

Altitude practice improves the effort capacity of those individuals, in which the practiced sport requires energetic consumptions which are at the anaerobic level or close to it. The improvement of the efficiency at the same time with the acclimatization might suggest an increasing of the released glycogen and the use of fat from the body textures and an improvement of the tolerance of the ph acid. Generally, it implies an adaptation of the body textures for a better utilization of the available oxygen.

The purpose of the research

The present work intends through a theoretical and practical approach to increase the performance capacity in long distance women runners by using in training, some stages of instruction at medium altitude on a representative sample.

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Research tasks

1. Information on the theme, by studying the literature, the theoretical material for long distance and long- long distance in women runners.
2. Establishing the sample from the research, measuring and evaluation of the main anthropometrical, physiological and biochemical indicators.
3. Establishing and analyzing the general and special level of the subjects included in the research.
4. The study, the analysis of the structure and the content of the sportive training in the period:
5. Establishing the main parameters and their weight in the stage of training at medium altitude.
6. Measuring and evaluating the main biological and motric indicators, after ending the training period at medium altitude.
7. The analysis of the participation at contests, after training.

The work hypothesis

1. The introduction of some considerable duration stages of training, at medium altitude, improves considerably the value of the sportive performances.
2. Including one or more stages of training at altitude, release in the body some physiological and biochemical effects, which are favorable for sustaining the effort capacity, regarding:
    a) the physiology of breathing
    b) the physiology of cardiac activity
    c) the biochemical composition of the blood (lactic acid, hemoglobin)
    d) the energetic content of the muscular system (lactic acid, ATP, glucose)

To verify the formulated truths we chose the incited and invoked type of experiment.

The incited and invoked experiment: the independent variable is active, without the intervention of the experimenter; the variable can be produced by the nature in particular conditions of a certain activity. Example: in the sportive activity, the installation of some important physiological changes at altitude were noticed, from which derives the idea of using altitude, as encouraging situation for the performance capacity, or the features of a certain age, sex, profession and which gives different answers in equal situational conditions.

The examined individuals

The experiment was applied on a number of 9 individuals, women between 25 and 30 years, performer athletes, components of the national

group of FRA in the 5.000 m, 10.000 m tests, semi-marathon (21km) and marathon and cross- county race. (table 4.1).

Table 1.

No criterion	**Name and surname**	**Year of birth**	**Test**	**Performance**	**The best classification**
1	BOTEZAN MIHAELA	21.06.1976	5.000 m	15:08.00	European Cup place III
			10.000 m	31:45.06	WC place V – individual
			Semi-marathon	1h:09.07	WC place I – team
			Cross-county race	-	WC place III – team
2	COSTESCU DENISA	26.01.1976	Cross-county race	-	WC place III – team
			5.000 m	15:33.40	BJ place I – individual
3	DIȚĂ CONSTANTINA	23.01.1971	Semi-marathon	1h:15.25	WC place I – team
			marathon	2h:30.10	WC place X – individual
			Cross-county race	-	WC place III – team
4	GROSU CRISTINA	11.11.1976	Cross-county race	-	WC place III – team
			5.000 m	15:41.25	BJ place I – individual
5	ILOC CRISTINA	10.11.1971	Cross-county race	-	WC place III – team
			3.000 obstacles	9:40.20	World Record
			5.000 m	15:22.64	EC place IV – individual
6	GOGÂRLEA LUMINIȚA	5.11.1971	3.000 m	9:06.47	BJ place I – individual
			5.000 m	15:37.69	EC place IV – individual
7	OLARU ANUȚA	28.06.1971	Semi-marathon	1h:10.55	WC place I – team
			marathon	2h:35.14	EC place III – team
8	POMACU CRISTINA	15.09.1973	Semi-marathon	1h:10.44	WC place I – team
			marathon	2h:36.54	European Cup loc III – team
9	TECUȚĂ ALINA	10.11.1971	10.000 m	31:48.28	BJ place I – individual
			Semi-marathon	1h:09.10	WC place I – team
			marathon	2h:28.12	EC place III – team

The experiment protocol

This approach consists of, on the one hand, the application of a set of tests which have investigated anthropometric, physiological, biochemical and motric indicators, and on the other hand, the yearly plans which were studied and analyzed, evaluating the ways and their dosage in training.

The **hemoglobin** concentration is an important factor in the sportive practice. The hemoglobin, a protein, which is specific for the erythrocytes, is involved in the transport of the oxygen in the lungs and body textures, and which intervenes directly through the equilibrium between the oxidized form and the one reduced as a buffer system; the total concentration of hemoglobin links with the maximum consume of oxygen and leads to the assessment of the effort capacity.

This indicator was analyzed in the lab of the Sportive Medicine Institute, using the Drabkin method, after taking the tests, and it came out the fact that, before the probation at altitude, the values of the hemoglobin were progressing from 12,8% to 13,7%, the medium being 13,14% (table1.2).

In the performed test after the probation in the mountain area, the hemoglobin concentration increased considerably, the medium being 14, 47 % (table 4.13)

Table 1.2.

The individual values of the hemoglobin concentration

Name and surname	B.M.	C.D.	D.C.	G.C.	I.C.	G.L.	O.A.	P.C.	T.A.
T_1	13,2	13,1	12,8	13,0	13,2	13,7	13,5	13,0	12,8
T_2	15,1	14,2	14,9	13,9	14,6	14,8	14,6	13,9	14,3

Table 1.3.

The statistic parameters of the hemoglobin concentration

Testing	$\overline{X}$	X_{max}	X_{min}	W
T_1	13,14	13,7	12,8	0,9
T_2	14,47	15,1	13,9	1,2
difference	1,33	1,4	1,1	0,3

Analyzing the scale on which, the individual values of this indicator unfolds, the fact that the values spread from 13,9 % to 15,1%, is noticed.

The evolution of the hemoglobin concentration in both tests proves the fact that, the probation of sportive training in medium altitude conditions has influenced favorably the effort capacity through this biochemical indicator.

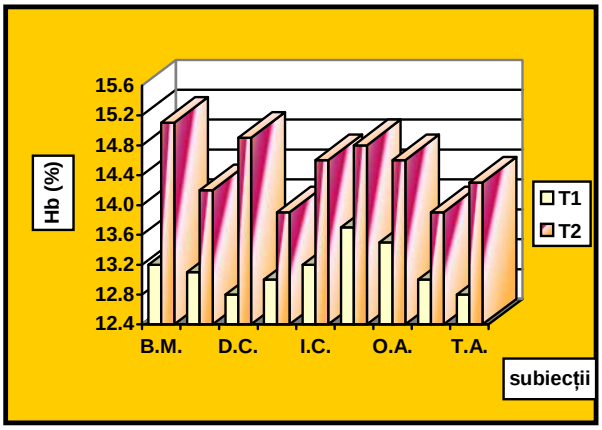


Diagram1. The evolution of the hemoglobin concentration.

THE AEROBIC- ANAEROBIC LIMIT is a very important indicator in planning and controlling the sportive training.

Investigations were made in the lab of the Sportive Medicine Institute, by analyzing the concentration of the lactic acid.

The individual values obtained in the initial and final testing for the researched women runners are presented in the table 1.4. The characteristic statistics are the following: the arithmetical average at the initial testing was 5,8 mmol/l and 4,41mmol/l in the final testing made after the probation at altitude. The interval values oscillated from 6,1 mmol/l to 5,7 mmol/l in the initial testing and from 4,9 to 4,0 mmol/l in the final testing.

The 1st diagram illustrates in the graphical representation the evolution of the aerobic- anaerobic limit, in women runners of long and long distance examined by the experiment.

Table 1.4.

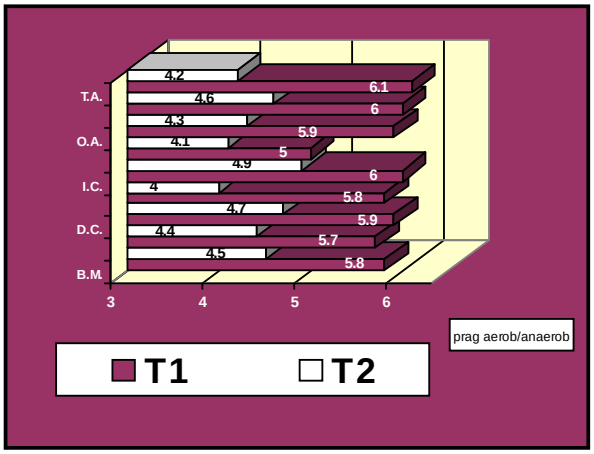
The individual values of the aerobic- anaerobic limit

Name and surname	B.M.	C.D.	D.C.	G.C.	I.C.	G.L.	O.A.	P.C.	T.A.
T_1	5,8	5,7	5,9	5,8	6,0	5,0	5,9	6,0	6,1
T_2	4,5	4,4	4,7	4,0	4,9	4,1	4,3	4,6	4,2

Table 1.5.
The statistic parameters of the aerobic- anaerobic limit

Testing	$\overline{X}$	X_{max}	X_{min}	W
T_1	5,8	6,1	5,7	0,4
T_2	4,41	4,9	4,0	0,9
Difference	1,39	1,2	0,3	0,5

Diagram 2.
The evolution of the aerobic- anaerobic limit



It must be said that these athletes are not only specialized in the 5000 m test, they also participate in most long- long distance races (10000, semi-marathon, marathon and cross- county race). The use of training with multiple valences, supported by a substantial recovery and by a good motivation, may be one of the reasons for participating at these races.

The dynamic of the individual values in both contests is rendered in the diagram 2.

The main biological and movable indicators were analyzed by the multi-factorial statistic method ANOVA, in order to establish the influence degree of the sportive performance in the 5000m contest test, after a training probation at altitude.

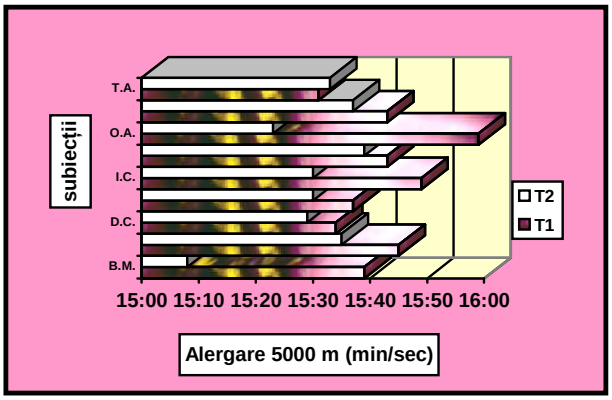


Diagram 2. Individual values at 5000m contest test running 5000m …

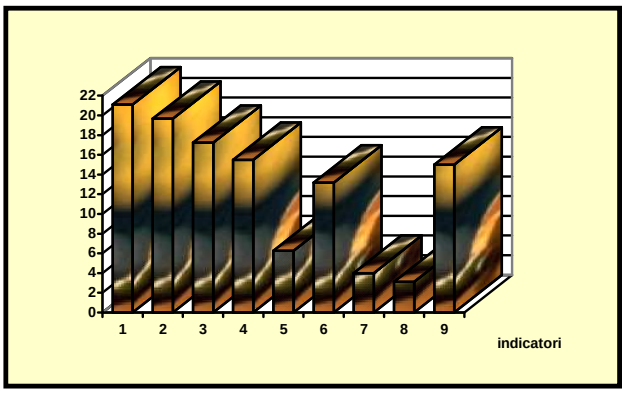


Diagram 1.2. The graphical representation of the biological and motric indicators influences

Conclusions

1. All the trainers in long distance, especially women runners consider very necessary the period of training at altitude and have considerably results after this probation.
2. The majority of the interviewed specialists chose training at medium altitude, with warm weather, for a period of 3-4 weeks, in which they made daily trainings, for 90-120 minutes.
3. The trainers of the long and long-long distance women runners consider that the right moment to return to plain areas is 2-3 weeks before any contest.

4. Most of the trainers understood the value of the control tests in this probation, in order to anticipate the following performance.
5. We notice the fact that, generally, most of the trainers follow the suggestions from the specialty literature regarding the sportive training at altitude, sometimes existing individual situations which adapt in concordance with the athletes peculiarities.

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STUDIA UNIVERSITATIS BABEŞ-BOLYAI, EDUCATIO ARTIS GYMNASTICAE, LII, 1, 2007

SPECIFIC ASPECTS REGARDING THE MAKING OF STRATEGY OF FLOOR FREE-STYLE EXERCISES WITH THE PHYSICAL EDUCATION AND SPORTS FACULTY STUDENTS

PAŞCAN IOAN[1], GROSU EMILIA FLORINA[1], PAŞCAN ADRIAN[1]

ABSTRACT. ***Specific aspects regarding the strategy making of floor free-style exercises, with the Physical Education and Sports Faculty (PESF) students.*** The gymnastics in general, and acrobatic gymnastics especially constitute a favourable domain for stimulation and developing the students' creativity potential from the profile faculties. This paper, using the follow-up research as investigation method for an sample composed of 94 subjects, presents the strategy approach on Physical Education and Sports students within te framework of the gymnastics classes, with the view of soil ree-style exercises creation.

Keywords: gymnastics, acrobatic gymnastics, creativity, free-style.

General aspects

The contemporary life requirements, as well as the increasing needs of resolving the complex issues noticed within the entire activity sectors have transformed the creativity education into a proprity, into an acute necessity for society.

According to Professor Ionescu M., Ph.D., " For the present, a prioritar concern of the sciences of education consists in valuation of the existing creativity germs in children of different ages, with the aim to reach the following general objectives" (2000, p. 129):

* Shaping a positive/ adequate attitude toward the newly introduced elements and progress, and toward their implementation into one's own activity;

- Students' and pupils' training to accept the new as an indicator of progress, of human creativity and of innovative ideas;
- Stimulate the students' and pupils' attitudes characterized by strength of character and original results;
- Shaping and development of creative aptitudes and abilities, of reconsidering the operating strategies and of their integration into dynamic, efficient and flexible systems;
- Formation and development of capacities of achieving something new: connections, theories, ideas, visionary or material patterns, material products, etc.

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In this context, the school represents the main factor that can and should ultimately contribute to the valuation of pupils' potential creativity, to the stimulation of their creative tendency, as well as to their creativity training.

In the realm of secondary and higher education physical education, within the framework of acrobatic gymnastics, there are concrete ways of stimulation and valuation of the creative potential, if it is taken into account the specific educational strategies existing in the sporting and psycho-pedagocical literature.

Within the framework of the gymnastics classes with the physical education and kinetic therapy students we evaluate not only the learning degree of some deeds and motor activities, but in the first place their ability to include them in complexes, to link and systematize them in as much as varied free-style physical exercices.

In our acceptation, the free-style exercice in gymnastics implies a creative and well-balanced link of specific technical procedures concieved by the gymnast himself, or in collaboration with the teacher, with the view to perform it in the contest.

Hypothesis

We think that the PESF students are able to create at the gymnastics classes soil free-style exercices on an optimum level, using a proper strategy.

Object of study

The goal of this paper was to present the strategy aproached by PESF students at the gymnastics classes dealing with acrobatic gymnastics in order to create the soil free-style exercices.

Subjects and methods

The study group comprized first- and the second year students from the Physical Education and Sports Faculty, 2005-2006 academic year, the first semester.

64 girl students and 30 boy students participated in this research study.

In Table 1 are presented the samples as per groups, study years and genders.

Table 1.
Number of samples per groups

Group	Study year	Girls	Boys
111	I	24	-
125	II	34	-
126	II	6	30
Total		64	30

Research development

The follow-up research was carried out under usual circumstances within the framework of gymnastics classes, having learning objectives from the acrobatic gymnastics.

The students' evaluation in acrobatic gymnastics consisted in a performance of a soil free-style exercice with known acrobatic elements (and artistic for girls).

To make the free-style exercice the fulfillement of the following requirements were established:

*The exercice must comprize three acrobatic lines, at least;

- The entire surface of the working surface should be used;
- The exercice should have a uniform distribution of the elements of difficulty throughout its development;
- The content should be sundry, and the acrobatic elements should be harmoniously linked with the artistic ones (for girl students);
- The elements can be repeated only one time, even then, by a link differing from the first one;
- The exercice making should be closely correlated with the music (for girl students).

Before the making of the soil free-style exercice, with the view to create an exercice as original as possible, the students were guided in the observance of the following strategic plan:

*finding out as much as possible solutions to an issue. For instance: how many different utilizations can be found for a roll-over or a somersault?;

*modifying the initial and/or final position of some known acrobatic (or gymnic?) procedures;

* linking of two or three as sundry as possible technical procedures;

* linking of four or five acrobatic procedures having a continuous changing of succession;

* adjusting the performing parameters depending on the place of the linking technical procedure (at the beginning, in the middle or at the end);

* making of a half-line by procedures linkage, together with the teacher, followed by the completion of the acrobatic line by the students, using other known procedures;

* making of acrobatic lines with as much as diverse finals;

* making of a soil exercice on the given shifting direction.

Following this approach, and taking into account the established requirements as well, students were asked to create an as much as original soil free-style exercice, representative of their personality.

Results

In soil exercice evaluation the following aspects were considered:

- The accuracy of the technical performance of acrobatic elements (and artistic) comprised in the exercice;
- The judicious displacement of linkage elements;
- Continuity and fluency between technical elements;
- Linkage functionality;
- Linkage originality;
- Number of acrobatic elements comprized in the free-style exercice;
- Direction of displacement (forward, backward, lateral);
- Execution tempo and pace;
- Obvious concern to create an as much as original exercice.

The concieved and performed free-style exercices presented above were evaluated by marks.

The arithmetical mean of the obtained results are given in Table 2 and in Fig. 1.

Table 2

Obtained results

Group	Boys	Girls
	x	x
125	-	8,75
126	8,10	8,63
11	-	8,70

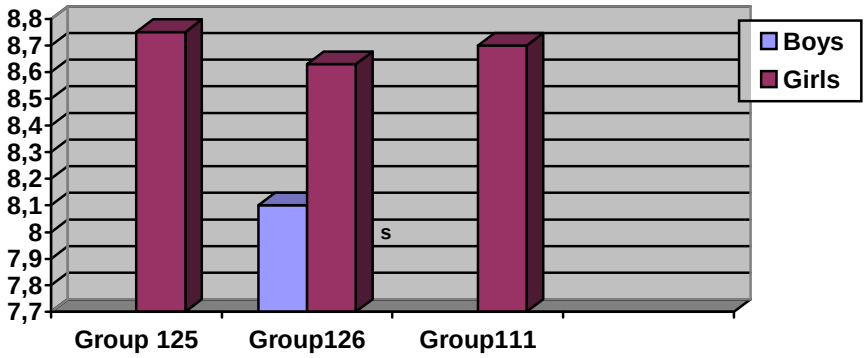

Fig.1 Arithmetical mean of results

Conclusion

1. The results registered by the survey subjects are considered to be optimal.
2. The strategy applied on exercice making, as well as the obtained results confirm the starting hypothesis.
3. Our approach, by the obtained results does contribute to the effectiveness of the educational process of gymnastic students.

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STUDIA UNIVERSITATIS BABEŞ-BOLYAI, EDUCATIO ARTIS GYMNASTICAE, LII, 1, 2007

THE INFLUENCE OF SUPPLEMENTING CREATINE PHOSPHATE ON THE PHYSICAL EFFORT CAPACITY AND ITS IMPLICATION IN THE OXIDATIVE STRESS

POP NICOLAE HORAȚIU[1]

ABSTRACT. ***The influence of supplementing creatine phosphate on the physical effort capacity and its implication in the oxidative stress.*** Creatine is an organic nitric acid which is naturally synthetized in the organism of vertebrates. The avarage blood values are 0,2-0,6 mg/100 ml.Creatine is present in the organism as creatine phosphate (PC).

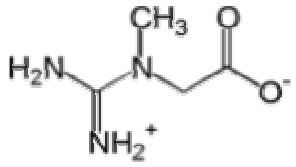
The numerous studies made with the purpose of proving the effects of creatine on the capacity of physical effort have gained contradictory results.

Theoretical framework

Creatine

Creatine is an organic nitric acid which is naturally synthetized in the organism of vertebrates. The avarage blood values are 0,2-0,6 mg/100 ml.

It was discovered in 1832 by the French scientist Michel Eugene Chevreul (1786-1889) in the skeletal muscle. The name derives from the Greek *Kreas* and its chemical formula is $C_4H_9N_3O_2$.



Functions

is present in the organism as creatine phosphate (PC). The phosphorylated creatine molecule is an important energy shuttle of the skeletal muscles.

From the three metabolic muscular systems: *phosphate*, *glycogen-lactic acid* and *aerobe* only the phosphate system is represented by ATP and PC. Muscular PC can decompose into creatine and a ion of phosphate, releasing the energy necessary for the resynthetization of the highly energetic bonds of the ATP.

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PHOSPHOCREATINE ----------→ CREATINE + PO_4

Creatine maintains the balance in the relation ATP/ADP and ensures a high level of free energy (ATP), reducing the losses of nuclear adenosine which could cause cellular disfunctions. The energy transfer from PC to ADP is accomplished within a fraction of a second and the whole energy stored in the muscular PC is instantly available for the muscular contraction. This system represents a true resting buffer energy system and can ensure a quite constant concentration of ATP for a short period of maximal effort (8-10s).[3]

Synthesis

Creatine is synthesized in important quantities in the liver from three aminoacids:

- *Arginine* - semi-essential aminoacid depending on the development level; with grown-ups it is not essential. L-arginine causes blood vessel delatation and is contraindicated in cardiac diseases
- *Glycine* - unessential aminoacid, makes up a third of the collagen. Glycine inhibits the postsynaptic potential at the level of the cns, especially in the spinal cord.
- *Methionine* - essential aminoacid 95% is stored in the skeletal muscles and the rest in the brain, hear and testes.

The normal concentration in the organism is 50-100mmols/kg, and a person of avarage weight (70kg) needs 2g of creatine/day, 1g comes from exogen intake (meat) and 1g from endogen synthesis.

In 1847 Lieberg emphasizes the relationship between creatine and the muscular performance. Then in 1993 the British company *Experimental and Applied Sciences* (EAS) promoted the first nutritional supplement named *Phosphagen.* After a series of researches at the University of Memphis based on the EAS product the following has been proved: eating carbohydrates with a high glycemic percentage in combination with creatine raises the shuttles of creatine at muscular level and thus the physical performance. As a result in 1998 carbohydrated creatine (alpha-lipoic-acid supplement) first appears on the market in a supplement called *Cell-Tech* produced by *Muscle Tech Research and Development,* culminating in the consumption of this supplement in the Olympic Games in Atlanta 1996, also called the *Creatine Games*.

The numerous studies made with the purpose of proving the effects of creatine on the capacity of physical effort have gained contradictory results.

L.E. Meyer and his collaborators prove that the activity of mitochondrial creatine kinase has a key role as a preventive antioxidant

against oxidative stress, reducing the generation of mitochondrial reactive oxygen species (ROS) by a recycling mechanism of the ADP.[10]

Performance

W. Anomasiri and his collaborators came to the conclusion that the supplementation of creatine in a small dosis (10g/day) raises the physical performance up to the maximum capacity with amateur swimmers.[1]

A.S. Theodorou and his colaborators emphasize the better performance of a lot of subjects which have been given creatine and carbohydrates in comparison to a lot of subjects which have been given only creatine.[14]

Treatment

J.P. Pearlman and R.A. Fielding emphasize the ability of creatine to reduce, by still unknown mechanisms, the concentration of Ca^{2+} from the cytoplasm and to raise the concentration of muscular Ca^{2+}. At the same time the creatine phosphate shuttles in the brain produce musculoskeletal potential and neuroprotective effects.[11]

Side-effects

R. Calfe and P. Fadale emphasize the risk at which athletes expose themselves by using substances such as anabolic steroids, creatine etc. They draw attention to the need of preventing this phenomenon, as these substances are regarded as drugs in many countries.

Oxygen is a gas which is vital to aerobe and which is present in the atmosphere to an extent of 21%.

From the point of view of the electronic configuration the oxygen atom is unstable. Two oxygen atoms each putting together two electrons form a stable octet structure; this way the two atoms form the oxygen molecule which is stable from the point of view of the electronic structure. The oxygen molecule is formed by two oxygen atoms which are bound with a covalent non-polar bond (the two electrons which are shared belong to the same extent to the atoms participating in the covalent bond).

Except for some anaerobe organisms, oxygen is needed by all plants, animals and bacterias in order to produce energy (ATP) as a result of the oxidative phosphorylation process, which is linked to the mitochondrial respiratory chain. Besides its beneficial effect which is vital to aerobe life in certain situations, oxygen can have noxious effects by participating in the formation of certain reactive oxygen species, which show a strong oxidative character. These noxious effects are obvious at the level of the cell and/or of the molecule and bring about the oxidative degradation of the main biological sturctures: lipids, proteins, nucleic acids.

Usually the cells are capable of protecting themselves against the action of the reactive oxygen species by enzymes such as superoxide dismutase and catalase. The ascorbic acid (vitamin C) and the uric acid also have an important antioxidant role.

The oxidative stress is defined as the production of oxidant agents which excede the capacity of neutralizing of the antioxidant systems, as the deficiency of the balance prooxidant – antioxidant.

Some researchers show that the ingestion of 50 gr. of proteins and 50 gr. of carbohydrates with a certain amount of creatine increases the amount of creatine in the muscles at the same extent as the ingestion of the same amount of creatine with 100 gr. of carbohydrates. It is also shown that creatine supplemented in with 1 gr. of glucose for each kilogram of weight two times a day increases the amount of creatine in the muscle with 9% in comparison to supplementing the same amount of creatine without glucose. These results suggest that the supplementation of creatine in combination with sugar stimulates the intake of insuline, which then favors the absorbtion of creatine in the muscles.

This paper aims at providing a frame to the research topic I intend to elaborate in my thesis. As this article has shown the research results up until now disagree regarding the effects of exogenous creatine supplementation in all forms in which it is presented to the consumer. The purpose of my study is to prove the negative aspect of creatine ingestion, taking into account the final outcome. This is therefore meant to be the beginning of a series of articles on this particular topic which I hope will be of interest and provide solid information to the ones interested.

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STUDIA UNIVERSITATIS BABEŞ-BOLYAI, EDUCATIO ARTIS GYMNASTICAE, LII, 1, 2007

SPORT AND EUROPEAN CULTURAL IDENTITY

FLAVIA RUSU[1], ROMAN GHEORGHE[1]

ABSTRACT. Sport has been one of the areas that were influenced by the EU policies. In the last decades the EU has tried to build a European identity and has used sport as a vehicle for shaping it up.

Keywords: sport, Europe, identity, policies.

Sport events manage to bring people together to support their favourite team. When the national team in any sport is involved in a match there is a certain feeling of togetherness and pride that people express through national symbols, music and folklore. They will be waving flags, painting their faces and celebrating their nationality.

We can say that sport could be used by nation-state to pool their citizens together and to create a sense of pride of belonging to a nation.

A lot of real facts show that sport can be used as a unifying force. We have the example of French, where the winning of the World Cup in 1998 and the celebrations that followed transformed the French national team in a symbol of multiculturalism and an example of integration.

In the same way it is open to question that the EU uses sport as a means of creating a European identity.

What is European identity? What does it mean? What are its characteristics?

European identity is perceived by the Council of Europe as being:"rooted in national diversity, and emerges at the point where countries realise that they share a common future… European identity will achieve its full potential through a freely accepted "community of values", and connect with national and regional identities to form a varied, multi-faceted concept". (Levermore R., Millward P., 2004)

There are authors that are more sceptical and argue that ''Europe" has been built, but Europeans still have to be created". (Shore, C., 2000)

However the authors might disagree, when we speak about the existence and the substance of a European identity it is clear that to some

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extent a European identity is being formed both with the help of formal EU actions but mostly with the help of informal steps taken by people in all parts of the continent.

The first formal attempts to create a European identity came in 1973 when EU came up with the 'Declaration on European Identity'. The declaration was aimed to project a single European voice on the international stage.

Delanty (2000) identified four areas where a European consciousness has been pursued:

- Introduction of the Euro currency;
- Development of a EU cultural policy:
- Increasing use of symbols of "Europeanness":
- Scientific and educational policies"

Sport has been used to a certain extent in the last three decades to promote a European identity.

In 1985 the Adonnino report suggested that sport be used in the creation of a European cultural identity. The European Commission has supported the use of certain sporting events to promote cultural integration across the nations of the Union:

"If the ultimate goal of a united, cohesive Europe is to be achieved, a European identity will have to be forged. As an integral part of our heritage; sport has always brought people together, transcending language differences and national stereotypes. In a changing Europe sport, with its ability to break down barriers, is a prime factor for integration. For this reasons alone it has earned its place in the New Europe."

Since then the EU institution showed a different approach towards using sport for its cultural strengths.

In September 1998 the Commission published a document in which it recognised that "sport is not only an economic activity but also part of European identity".

Another document coming from the Commission stated that "sport represents and strengthens national or regional identity by giving people a sense of belonging to a group" (European Commission, DGX, 1999).

Various European officials have made reference to the importance of sport in shaping a European identity.

One of the most clear and explicit comment was made in 2000 by Viviane Reding, the EU Commissioner for Education and Culture, who said that "sport is a great tool to construct a European identity".

The EU organises a series of conferences around significant international sporting events, such as the Olympics and Euro 2004 in order to promote diversity and tolerance.

On the opening day of the Euro 2004 the EU organised a conference in Porto under the slogan "football unites". This clearly fits in the line of activities that the EU undertakes in order to create a European identity.

The year 2004 was designed to be the "European Year of Education through sport'" (EYES). Sport is therefore seen as an important part of the education policy with the strength to help forming a certain identity for individuals. The main aims of EYES are derived from the Amsterdam Treaty Declaration. It put an emphasis on the unifying qualities of sport, particularly its ability to "promote the social inclusion of disadvantaged groups". (EYES, 2004)

Another formal attempt by the EU to develop a European identity through sport is the use of European symbols at sporting events. Evidence shows that the EU flag and the EU anthem are increasingly used throughout Europe.

The last Olympic Games in Athens provided the EU officials with the perfect circumstance to bring light on sport as a vehicle of creating a European identity.

The president of the European Commission at the time Romano Prodi said: "The Games were a huge success thanks to their unique spirit and smooth organisation but also because EU athletes did so well. Winning 82 gold medals and more than 280 medals in total, the European Union's sportsmen and sportswomen performed outstandingly at Athens".

Romano Prodi also laid down the direction where the EU should go from there by saying: "In 2008 I hope to see the EU Member State teams in Beijing carry the flag of the European Union alongside their own national flag as a symbol of our unity."

The UEFA Champions League is another sporting event that has its roots deep in the post war European history.

The biggest and in the same time the best clubs of Europe take part in this sporting event. The same symbols can be seen all over Europe whenever a Champions League game is being played. The symbols consist of an anthem and a star ball. The anthem is played on each stadium on every television broadcast before Champions League games. Among the new symbols of Europe, the political symbols of European football become visible.

Anthony King (2004) argues that these might be among the first European symbols to emerge at a time when the European Commission is trying to develop shared symbols that will serve to unify the European Union culturally.

The creation of the Single Market also meant transformations with respect to the sports industry in Europe. The EU institutions are involved in particular areas such as competition, employment and social affairs.
The most notable case where the EU interfered was the Bosman ruling where “in 1995 the European Court of Justice ruled that the transfer system in European club football contravened Article 48 of the European Treaty by prohibiting the free movement of football players of labour in the EU”.

Following that ruling the European football market was opened to free competition allowing players to move freely around the continent. From then on football clubs around Europe were competing for the best players on the continent, without taking care of nationality.

The large sums of money coming from the UEFA for qualifying in certain European Leagues help teams in their quest to buy better players and bring more good results to satisfy their fans. Therefore the fans get the feeling that they belong in Europe. The national leagues face a big challenge because the relationship between the UEFA and the major European clubs “is developing roots of a salient European identity, one that ultimately challenges national identity”. (Levermore R., Millward P., 2004)

Most European clubs have fans that travel with them whenever they have an “away” game. Therefore they have the opportunities to experience different cultures and different lifestyles.

One of EYES’ recent statements proclaimed: “If a competition is European, local challenge takes second place to national interests. European football offers the general public an opportunity to find out about clubs in other European countries and to gain a better understanding of sport in a European context. Print media coverage of European football is increasingly comprehensive and includes reports on both the national leagues and their significance in European competitions. In the same way as European professional footballers are able to work without restrictions in all member states, the incorporation of national clubs in supranational leagues with teams from other nations helps to promote the concept and realisation of a united Europe.” (EYES, 2004)

More European clubs own foreign players, the consequence was that fans of the leading European clubs do not see different nationalities as “the other” anymore. They created new identifications with the “others”. The best example is the European Football Championship (Euro 2004) when a significant number of Arsenal fans clearly identify with the French team when France played against England. The reason for that is because some of Arsenal’s key players and Arsenal’s coach are French. For similar reasons Liverpool fans supported the Czech Republic throughout the tournament.

Even though both the formal and the informal creation of a type of European identity have been to some extent successful, some people,

especially the Eurosceptics, have questioned the development of a European identity. Some authors argue that although the EU has paid considerably more attention to sport in the last ten years, the creation of a European identity through sport has been pursued very vaguely. Roche (2004) argued that: "Compared with the long-standing use of representative international sport to promote national identities, the multi-national and trans-national European Union has not really attempted to cultivate sport in any comparable way as a vehicle for the development and popularization of a "European" identity".

Conclusion

Sport contributes to European integration, and football is perhaps the most successful example of integration through sport. It brings Europe alive for millions of people at all levels of society. Besides, sport represents national and regional identity by giving people a sense of belonging to a group. "It unites players and spectators giving the later the possibility of identifying with their nation. Sport contributes to social stability and is an emblem for culture and identity." (European Commission, 2005)

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STUDIA UNIVERSITATIS BABEŞ-BOLYAI, EDUCATIO ARTIS GYMNASTICAE, LII, 1, 2007

THE POSTOPERATOR KINETIC TREATMENT AFTER TOTAL KNEE REPLACEMENT

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ABSTRACT. This paper has as objective the presentation of rehabilitation of the mobility of a patients knee joint. This patient has undergone through a total knee joint replacement surgery at his left foot.

The paper give us details about the treated patient, the exercises carried out during the treatment and the results. During the post surgery kinetic treatment there have been performed passive and active exercises.

In conclusion, the exercises used during the kinetic treatment of patient, served for the training of muscular groups, the recovery of local blood flow and the improvement of movement amplitude. The exercises employed have given good results considering the joint movement rehabilitation. Based on these results it is possible to underline the importance of kinetic treatment associated to the surgical treatment.

The kinetotherapy sessions were carried out at the Recovery Clinical Hospital in Cluj-Napoca.

Objectives

Our objectives were the improvement of movement amplitude of the operated knee, so to give a better life quality of the patient who had a total left knee replacement. An other objective was the active and passive exercises using during the post surgery kinetic treatment, when the knee flexion attained the 120º and it was observed a maxim extension.

The exercises were prescribed to do them periodical after a correct program then in the sessions period the evolution of operated knee mobility have to be satisfying.

The post operator kinetic treatment to a patient after total left knee replacement

It's necessary that the patient has to do the post operator exercises recommended and supervised by kinetic therapist. These exercises are important for rehability of muscular groups force, for obtain of maximal amplitudes of flexion and extension of operated knee, for the amelioration of pain and for decrease the post operator oedema.

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1. First 24 hours after operation

During the first 24 hours after patient's knee replacement our patient must to rest in bed. The patient has a large compression bandage and drain. During this period the kinetic therapist had to visit him and he had to go through some "bed exercises" for breathing and for blood circulation. These exercises was effectuated periodically throughout the day after the patient is a little more mobile.

2. The kinetic treatment after the first post operator day

The compression bandage was been reducing and the drain was removed. After this procedure the kinetic therapist or the nurse may apply an ice pack to help with swelling and pain. Ice is a natural anesthetic that helps relieve pain. Ice also controls swelling by slowing the circulation in the patient knee. We know that ice is never apply directly onto skin, or leave on for longer than 20 minutes.

The muscular groups of affected leg were submitted to exercises which were described by the kinetic therapist in every week so then these helped for the movement recovery. For the increase of range of motion of operated knee and for the muscular training that has an activity on the knee, were effectuated the next exercises:

-Knee flexion and extension exercises

-Knee flexion exercises in the chair

-Straight leg raise

-Getting in and out of bed

The exercises was made with help of kinetic therapist and he supervised every moves of patient, he explained, he demonstrated and he corrected the mistakes of movements.

3. Used exercises

Perform all the exercises, as shown, regularly throughout this period. (approximately 10 times each exercises at least 6 times per day)

Exercise 1. Circulation exercises: siting or lying with leg elevated, to allow the foot to be higher than the hip, and pedaling the feet up and down at regular intervals throughout the day.

Exercise 2. Buttock tucks: whilst lying down tighten the buttock muscles. Holding for 5 seconds and relax.

Exercise 3. Quadriceps exercise: lying on back with the knee straight pushing the knee firmly down against the bed to tense the quadriceps muscles. Holding for 5 seconds and relax.

The leg muscles on the affected side are often weak and tight so exercises will aid for recovery.

Exercise 4. Knee flexion and extension exercises: lying on back, placing a sliding board on the bed under heel. Bending the knee by sliding the foot up and down the board or plastic sheet.

Exercise 5. Knee flexion exercises in a chair: sitting in a chair and bending the knee to allow the foot to rest on the floor. Practice bending knee sliding the foot on the floor pulling the foot underneath the patient. Repeat 15-20 times. At least 3 times a day.

Exercise 6. Straight leg raise (SLR): with the knee straight, pushing it down to tense the quadriceps, as above, pulling the toes up and slowly raise the straight leg 5 cm off the bed. Holding for 5 seconds and lower. Repeat 10 times at least 3 times a day.

Exercise 7. Extension: to make sure the knee is straightening fully, trying lying or sitting on the bed with the heel only supported on a pillow or rolled up towel, to allow the knee to relax into a straight position.

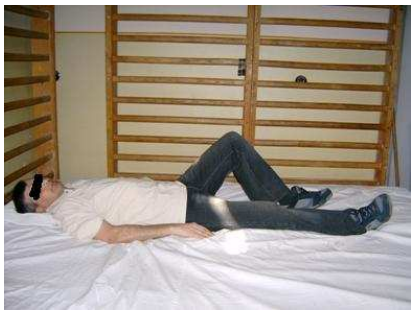
Exercise 8: Getting in and out of bed: the kinetic therapist help the patient to get out of bed. The patient will be shown how to use a metal frame to help him mobilize.

4. The kinetic treatment after discharge

The kinetic treatment after discharge was effectuated in ambulatory way. The T. R. patient came daily in recovery room for treatment where he made the exercises which were supervised by the kinetic therapist. The exercises were effectuated with different objects. For the increase of range of motion of operated knee and for the muscular training that has an activity on the knee, were effectuated the next exercises:

Exercise A: Lying on back coxo-femural flexion, extended knee, the foot is on the inclined plain. Knee flexion with slide down and up of foot on the inclined plain. Repeat 10 times in 5 series a day.

Exercise B: Lying on back coxo-femural and knee flexion, the shin on cylinder. Coxo-femural and knee flexion and extension, with roll of the cylinder to thigh. 10 times in 5 series a day.

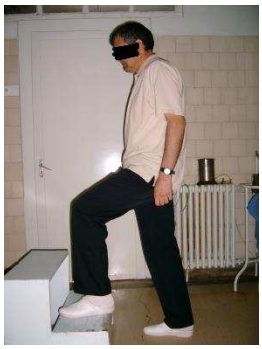


Exercise C: Lying on back, extended legs, . coxo-femural and knee flexion and extension with slide of foot on the plain of bed. 10 times in 5 series a day.

Exercise D: Lying on back, the healthy knee in flexion, the operated knee in extension. Lift the operated leg with extended knee, maintain 5 seconds and put down. 5 time in 5 series a day.

Exercise E: Lying on side, the legs in extension. Thigh abduction, with extended knee maintain 5 seconds and after adduction. 5 time in 5 series a day.

Exercise F: Sitting in a chair with the knee in flexion. The right knee in biggest flexion as the left knee. Standing up, and step with right foot. Same exercise, with other leg. 10 times in 5 series a day.



Exercise G: Stand. Step up leading with the operated leg followed by the other leg. Step down with the good leg first. Repeat 10-15 times.

The exercises always must supervised, every moves and positions must be explained, demonstrated and must be corrected the mistakes .

Attaint results after the kinetic therapy

After the postoperative kinetic therapy the range of motion was increased progressively. In first day after surgery the flexion and the extension was limited by the postoperative knee oedema. The flexion of the knee after three days postoperative was 35°. After kinetic therapy the flexion was increased 2° - 3°. The knee extension a fter three days was 17°. After 15 days postoperative the flexion was 75° and the extension was 0°. After two mounts postoperative was attained 120° kn ee flexion, and 0° extension. The patient had a normal activity, without pain, without limitation of range of motionin knee joint. This values demonstrate the importance of kinetic therapy after operation of knee replacement.

After the obtained finally results it's observeable, that the utilized kinetic therapy was successful and was obtained a good range of motion in knee joint.

Conclusions

All obtained dates conclude that:

- During the treatment, the used exercises served for the training of muscular groups, for the recovery of local sanguine flow, for the improvement of range of motion, for a better function of muscles, for reeducation of walk and for reeducation of standing up from sitting position.
- The kinetic therapy it's important to associated for the surgical treatment.
- The postoperative kinetic treatment contribute to reducing the hospital stay length for the patients who suffered a total knee replacement, reducing the costs for hospitals.

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STUDIA UNIVERSITATIS BABEŞ-BOLYAI, EDUCATIO ARTIS GYMNASTICAE, LII, 1, 2007

FENCING: HOW TO DESIGN SUCCESS — COMPETITION TRAINING AND COMPETITIVE PREPARATION AT TOP LEVEL*

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Quantitative factors of the competitive and training work applied in the preparation of 29 French elite swordsmen were analysed. In addition to the training log the study made use of the official records of the seven World Cup contests of selection and further eight competitions of preparation in the years 1982 through 1992.

ABSTRACT. Preparation of the best French sabre fencers for the world championships and Olympic Games was found unsatisfactory with respect to both competitive practice and training work, and therefore needed fundamental reshaping. To gauge the effect of the changes introduced the number of the lessons, bouts, touches, and intraseason victories were carefully observed and recorded through ten years.

1. Introduction

In outlining the work to be accomplished, in designing the details of training for the session, for the week, respectively for the season, some quantification of the training work is indispensable in elite sports. This is particularly true for such Olympic events in which there are European or world championships in each year of the quadrennial cycle. Fencing is one of these events, thus –at least for the time being– the world championship of the year preceding the Games keeps being a competition of selective nature.

A clear-cut definition of the purpose, in particular, of the goal to be reached in performance, is a prime condition for planning. Training work has to conform to this goal, the methods have to be chosen accordingly (Szepesi 1988, 1997). Another indispensable precondition for planning the training work is to have records of the work done previously. This only allows analytical considerations and may give hints on the necessary changes. A third and equally important part of planning is based on the records of previous contests. The respective periods of preparation depend on the competition calendar. The plans for the training work may refer not only to one whole year or season but to various other periods of time:

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*Szepesi L.: Competition training and competitive preparation of national team level fencers. PhD thesis, 2004. Semmelweis University, Budapest, Hungary

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- long range plans may span 4 to 8 years;
- medium range ones do the same for 2 to 4 years;
- certain tasks need considerations involving periods of 10 to 15 weeks;
- shorter cycles may last 3 to 6 weeks only;
- but elite sports require plans for the week and for the day as well.

The longer the period to be planned, the better one is able to define the objectives of the training load (Beke and Polgár 1963; Thirioux 1970). Conversely, the contents of one or two daily training sessions are much more variable (Ozoray 1961) depending on a number of conditions (e.g., injury, fatigue, level of motivation, etc.).

2. The period under study and the details of athletic preparation

The lack of the international success of the 29 fencers before 1982 could be attributed to the insufficient training and competition charge of the team. The training season began around the 20th of September and usually ended with either the world championship or the Games in the middle of July. Note the exceptions: the Los Angeles Games were in early August in 1984 as were the Barcelona Games in 1992, while the 1988 Games in Seoul took place at the end of September. It was almost as a last resort before dissolving the French national team of sabre because of their long record of failure at the world championships and Olympic games that I was invited to become their coach. I considered the lack of success being due to an insufficient amount of competitive practice and training work so I reshaped their competitive and training regimen as follows.

I divided the season into three periods of 14 weeks, each of which had a specific objective.

- In the first half of the first period of 14 weeks the fencers had to perform "classical" conditioning exercise: developing strength, runs, playing exercises and ball games. Then the share of fencing work was gradually increased (leg exercises (Szepesi 1983): rope skipping, conventional individual and paired training (Gerevich and Szepesi 1979, etc.). Fencing work in the strict sense only began in the 7th or 8th week by individual lessons, practice bouts, systematic and free fencing. The first World Cup of the season in Nancy was the closing event of the first period of basic conditioning.
- The second period of 14 weeks (from January until April) was subdivided by the World Cups in Moscow, Budapest (Hungaria Cup), Hannover and New York. This period of preparation served the gauging of potential adversaries and the development of new tactical exercises and tasks. During this time tactical and technical elements were practised in individual lessons and thematic bout exercises. This sort of work was complemented by special fencing tasks performed 3 meters under water in the swimming pool

(Szepesi 1997). These represented a quite particular physiological stress of training in addition to their role in stabilizing specific movements.

- The third and last period of 14 weeks was devoted to finalizing (Kogler 1994, Roi et al. 2000) and imprinting the recently developed tactical skills (Szepesi 1988). This period was subdivided by only two World Cup competitions, one in Warsaw and one in Padova. Preparation for the world championship or Olympic Games was completed by 2 or 3 weeks spent in a training camp.

During the studied 10 years the dates of the World Cup contests of selection changed very little (sometimes the locale of the event did change) so these were well comparable. Their time table, with the respective number of preparatory weeks counted from the middle of September was:

1. Nancy 10-12 wks (venue replaced by Vienna between 1982 and 1985, and by Athens in 1992);
2. Moscow 16-18 wks;
3. Budapest 18-21 wks;
4. Hannover 22-24 wks;
5. New York 24-26 wks (venue replaced by Washington between 1990 and 1992);
6. Warsaw 28-31 wks;
7. Padova 32-34 wks.

The Padova Cup contests were followed by the two-day competitions of the French championship and – after a break of one week – by the training camp preceding the season's main event, the world championship or Olympic games. This means that preparation for the first World Cup of Nancy took, on the average, 11 weeks (mostly of basic conditioning). Then the respective World Cups followed every third week. The (French) national competitions and international team competitions occurred in the intervening weeks. Of the latter competitions the one called "Seven Nations" was the most important, yet I never regarded these as means for selecting prospective members of the national team. They, as well as the weekly two training contests of the preparative regimen ("home competitions"), merely served athletic preparation and acquisition of combat routine.

3. Subject material

The present study comprises the competitive and training measures of altogether 29 elite French sabre fencers. During the studied period of ten years 8 of the 29 competitors became members of the national team. Their training work and performance was recorded and analyzed individually as well as in a group. Thus there were three spheres of elite sabreurs:

a) a broader selection frame of 29. In the analysis 21 of them are designated as "not members of the national team";

b) a narrower selection frame of 8 competitors, subsets of which were

c) the 5 members of the Olympic or world championship team, respectively the 3 sabreurs for the individual events of the Games. Note that in the analysis the 8 of the "b" frame were treated as "members of the national team".

Of the team members three were adult competitors in 1982: Jean-François Lamour (born in 1956), Hervé Granger-Veyron (1958), and Philippe Delrieu (1959). They all had a competitive and training history of more than 10 years, but they had no international rank. The remaining 5 competitors' training history was of the same duration, but their combat experience was incomparably less. In 1982 they were still "juniors", and though of an age of 19 or 20, they had got few if any individual lessons (a surprising fact considering that lessons are the most important part of a fencer's athletic preparation). They were: Franck Leclerc (1962), Franck Ducheix (1962), Pierre Guichot (1963), and Jean-Philippe Daurelle (1963). The eighth one, Laurent Couderc (1969), became a member of the team several years later, at the age of 20.

Lamour and Guichot were members of the team along the whole period of 10 years. Delrieu belonged to the team eight times, Ducheix seven times, Granger-Veyron six times. It was 1989 when Daurelle became a team member for the first time; he and Leclerc were team members three times until 1992. The last one to get in was Couderc; after his junior years he was a member of the team of 5 twice: in 1990 and in 1991. The training stress and competitive activity of the remaining 21 elite sabre fencers was recorded and analyzed in a manner similar to those of the team members, though the 21 are not referred to by name here.

4. The weekly schedule of training work

The 14 weeks of basic conditioning were quite similar for all the 29 fencers. The amount of training work and competitive practice of the team members only became markedly different in the second and third period of preparation. The sessions of the training week were as follows.

Monday	1 session
Tuesday	2 sessions plus the swimming pool exercise
Wednesday	2 sessions
Thursday	1 session
Friday	2 sessions
Saturday and Sunday	contests.

Each session lasted two or two and a half hours. The afternoon of Tuesday and Friday was the time for our training contests. On Tuesday the swimming pool exercise followed the training contest. This sort of exercise represented a repetition of the tactical skills that were developed against potential adversaries (Szentgyörgyi 1973), learned in the individual lessons, and practised in the swimming pool and during the training contests until they

were ripe to be used first at the national competitions, then at the World Cup competitions (Boichenko and Tischler 1983, Szepesi 1997).

In addition to the weekly two practice contests the sessions of the other days consisted of conventional exercises, systematic bouts and free fencing, and taking lessons. In what are termed systematic bouts the two swordsmen alternately carried out previously assigned technical or tactical tasks. In free fencing no restrictions had to be observed. In 1982 and 1983 when we had to leave Friday afternoon, the morning session took place as usual. When we had to leave on Saturday or when the program was a French contest on Sunday, the afternoon session on Friday was normally completed by the training contest.

5. The objectives of the study, questions and hypotheses

By reviewing the work the French sabre fencers had done in 10 years I wanted to answer the following questions:

- Was there a difference in the competitive preparation and training work between the members of the national team and the elite swordsmen that had the opportunity to become members but failed to reach this goal?
- Which of the quantitative factors had the strongest impact on the performance at the main contests of the year (world championships and Olympic games): individual lessons with the coach, the number of contest bouts, the number of touches awarded in a bout; the number of victories scored, or the percentage of victories?
- To what extent and how well could performance at the respective World Cup competitions predict success (placing) at the world championships or Olympic games?
- Were all World Cup competitions of the same potential use in respect to the main contests of the year?

The a priori null hypotheses were:

H_0-1: more similarities than dissimilarities.

H_0-2: all factors positive and of the same weight.

H_0-3: importance growing with progress of season.

H_0-4: potential usefulness growing with progress of season.

6. Measurement of the recorded quantitative variables

As outlined above, during the 10 years between 1982 and 1992 there were 8 training sessions per week for 42 weeks. The log (training diary) contained five items in addition to the description of the event (number of the week, number of the three periods of 14 weeks each, training session/day or name and venue of the contest. Table 1):

- Number of lessons taken (L)
- Number of bouts fought (B)
- Number of touches awarded (T)
- Number of victories (V)
- Success rate expressed as the percentage ratio of victories over bouts (S).

All the variables except S were regarded as measures of the training stress. S was regarded as the measure of performance. In the form of a protocol the log recorded these items for all the swordsmen so the great majority of the data can be retraced.

Table 1.

Names and labels of the studied variables.

Number of time slice	1	2	3	4	5	6	7	8	1–7	1–8
Competitions	Nancy	Moscow	Budapest	Hannover	New York	Warsaw	Padova	WCH/O	total	total
# of lessons	L1	L2	L3	L4	L5	L6	L7	L8	L_{1-7}	L
# of bouts	B1	B2	B3	B4	B5	B6	B7	B8	B_{1-7}	B
# of touches awarded	T1	T2	T3	T4	T5	T6	T7	T8	T_{1-7}	T
# of victories	V1	V2	V3	V4	V5	V6	V7	V8	V_{1-7}	V
Success rate	S1	S2	S3	S4	S5	S6	S7	S8	S_{1-7}	S
Placing score	P1	P2	P3	P4	P5	P6	P7	P8		

Abbreviation: WCH/O = world championships or Olympic games.

The numbered columns of the time slice were assigned to the seven World Cups. Column 8 refers to the year's main contest (world championship or Olympic games). The last two columns are summary measures (e.g., B_{1-7} = B1 + B2 + ... + B6 + B7, respectively B = B1 + B2 + ... + B7 + B8 = B_{1-7} + B8, but note that S_{1-7} = (S1· B1 + ... + S7· B7)/B_{1-7}. For the 8 members of the team an additional variable could be analyzed, namely placings at the main competion of the year.

Of the quantifiable measures of training stress the lessons were best suited to the development of qualitative features. Along with technical training, the lessons involved a rehearsal of patterns and tactical skills carefully adjusted to the fencer's personality, his style of fencing, and his physical and mental characteristics. The tactical routines practised in the lessons as well as in the swimming pool were often of crucial importance in scoring a touch that essentially settled the outcome of a bout (Szepesi 1997).

7. Statistical analyses

7.1 General considerations

The Statistica for Windows v. 6.0 software (Statsoft 2001) was used for all analyses.

The level of random error to reject a null hypothesis was set at 5%. All the measures of the training stress could be regarded as being of the interval type (Garson 2001). Members of the national team were compared to non-members. Since for some measures the homogeneity of variances assumption could not be met, group comparisons made use of the Welch test for independent samples (Statsoft 2001) rather than the traditional t-test.

7.2 Considerations for data handling in multiple linear regression

The present analysis only deals with the quantitative factors of competitive and training work. It does not allow for qualitative aspects which otherwise can never be neglected. Most of these become unavoidably confounded under quantitative treatment despite that they are critical contributors to real-life bouts, touches, victories, and lessons with an importance much beyond numerical relationships. However, we are still far from theoretical constructs that could give account of them in the form of causal models of the respective sport events. For the time being we have to satisfy ourselves by scrutinizing what already can be analyzed. In doing so, however, one should do one's best to extract the greatest possible amount of information from the available data.

Quantitative aspects can be dealt with by regression techniques where the intention is to reveal the individual contribution of certain factors to the behaviour of the variable to be explained (in the present case, of the percentage rate of success at the main contests of the season).

Now an important objective of the analysis was the identification of variables that could explain, or had the strongest impact on, the performance at the last contest, respectively the victories scored during the last period of competitions. To come near this end, several types of multiple linear regression were used.

- The essence of the first technique was that I removed those predictors from the model the regression coefficient of which was found significant in the stepwise procedure, then a new stepwise procedure was applied to the remaining variables. This was repeated until any of the variables had a significant coefficient.
- The second technique to reduce multicollinearity was to replace collinear independents by the residuals from which variance common with the confounding other variable was removed.
- The third technique was the estimation of the logit transform of the variable S8. One of the issues of using logit transformation was considerable reduction of the collinearity problem. Another was the avoidance of a potential bias.

The disadvantage of the transformation is that the interpretation of the regression coefficient is no longer as direct as in the linear case, where it

numerically expresses the change in the dependent when the independent changes one unit.

8. Results and Discussion

8.1 Sample homogeneity

The first question to be answered was whether team members and non-team members constituted a homogeneous sample. In the descriptive statistics for the studied variables merely variable B1 failed to give a significant difference in favour of the 29 team members. The null hypothesis that all the studied sabreurs belonged to the same population had to be rejected, so further analyses had to be done separately for the two groups.

The same fact gave rise to further points worth considering:

- None of the 21 non-team members displayed a level of performance which would have justified their inclusion in the team frame (the burden of selection is never light for a national coach). That is, the group of 8 did perform at a higher level not merely qualitatively, but also by the quantitative measures of work.
- The analysis provided numerical evidence for the fact that the stress of preparation was the same for the 29 fencers in the 14 weeks of basic conditioning only. This was also supported by the non-significant difference in B1. In the World Cup competitions, which were used for selection, there were only 3 to 4 potential candidates for team membership whose previous performance promised success.
- The 6 to 8 national contests of France and the weekly two practice competitions of the training regimen gave ample opportunity for the non-team members to acquire combat experience and to improve their indicators. Note the rather consistent and relatively small difference in the number of bouts when compared to other indicators.
- With progress of the season the difference between team and non-team members showed a gradual rise in the number of lessons while the same difference in the number of touches awarded, as well as in the success rate, was fairly large and nearly constant. Naturally the largest differences referred to end of the season when only one or another of the non-member group could participate in the final phase of preparation.

Table 2.
Summary results of estimating S8 by regression

Team membership	Yes	No
R	0.878	0.903
R^2	0.772	0.815
adj. R^2	0.572	0.168
F-reg(df1;df2)	3.86	1.26
(df1;df2)	(28, 32)	(28, 8)
F-reg P<	0.000	0.388
SEregr.	0.069	0.108

Abbreviations: R = multiple correlation coefficient; R^2 and adj. R^2 = raw and adjusted multiple determination coefficient (R-square);
F(df1;df2) = omnibus F-test of the regression model; (df1;df2) = degrees of freedom for the F-test;
P< = significance level of the F-test; SEregr. = standard error of the regression.

8.2 Regression analysis of the first (direct approach) model

Regression results of the model in which S8 (the performance indicator of the last phase of the season) was the dependent, and the lessons, bouts, touches awarded, and success rates of all the previous time slices (L1 through L7, B1 through B7, T1 through T7, and S1 through S7) were the predictors, are summarized in Table 2 for both groups. The R-square of model fit demonstrated that, for the team members, 77.2% (and for the non-team members 81,5%) of the variance in S8 was accounted for by these explanatory variables. Expressed in the units of the dependent, the standard errors were 6.94% and 10.8%, respectively. However, neither the omnibus F-test, nor the F-test for the model was significant for the non-members.

8.3 Regression analysis of the indirect approach models for the team members

When S8 was chosen as the dependent variable to be explained, three possible models were found by the iterative procedure (Table 3). The first one (top block) could be interpreted relatively easily: each of the four indicator variables exerted a positive effect on S8 and explained 68.9% of S8 variance. It is noted here that trials to replace S1, S2, S4, and B5 by the S or B variables of another time slice gave consistently much poorer fit.

The coefficients of the second and third models gave a more complex pattern, while their explanatory power necessarily decreased (the R-squares of 57.4% and 54.4% lag by more than 10% behind the first model). The B and T variables of the corresponding time slices had an opposite effect on S8. (This would not be surprising within a time slice

since the performance of a fencer who scores more touches in a given number of bouts is better.)

Table 3.

Models of multiple regression estimating S8 for the team members.

Var	b	SEb	beta	SEbeta	t(56)	P<	Toler.	Regression	Value
Constant	0.027	0.055			0.50	0.622		R	0.830
S2	0.365	0.098	0.363	0.098	3.71	4.8E-4	0.581	R^2	0.689
S1	0.237	0.107	0.249	0.112	2.22	0.031	0.441	adj. R^2	0.666
S4	0.217	0.055	0.247	0.115	2.14	0.036	0.418	F-reg(4;56)	30.95
B5	0.001	4.9E-4	0.177	0.084	2.12	0.038	0.796	F-reg P<	1.3E-13
								SEregr.	0.061

Var	b	SEb	beta	SEbeta	t(54)	P<	Toler.	Regression	Value
Constant	0.426	0.081			5.26	0.001		R	0.758
B2	–0.003	0.001	–1.267	0.584	–2.17	0.035	0.023	R^2	0.574
T2	0.001	2.9E-4	1.171	0.576	2.03	0.047	0.024	adj. R^2	0.527
B1	–0.004	0.001	–1.147	0.392	–2.93	0.005	0.051	F-reg(6;54)	12.15
T2	0.001	2.9E-4	1.171	0.576	2.03	0.047	0.024	F-reg P<	1.4E-8
T1	0.001	2.4E-4	0.943	0.386	2.44	0.018	0.053	SEregr.	0.073
S6	0.347	0.088	0.381	0.097	3.92	2.5E-4	0.833		
T5	2.9E-4	1.2E-4	0.252	0.100	2.52	0.015	0.786		

Var	b	SEb	beta	SEbeta	t(62)	P<	Toler.	Regression	Value
Constant	0.184	0.064			2.87	0.006		R	0.738
T4	0.001	2.7E-4	0.661	0.313	2.11	0.039	0.082	R^2	0.544
B4	–0.002	0.001	–0.596	0.307	–1.94	0.057	0.087	adj. R^2	0.515
S7	0.393	0.090	0.440	0.100	4.39	4.4E-5	0.750	F-reg(4;62)	18.49
S3	0.257	0.092	0.285	0.102	2.79	0.007	0.705	F-reg P<	4.8E-10
								SEregr.	0.074

Symbols: b = value of the intercept (constant) and regression coefficients; beta = standardized regression coefficients; SEb and SEbeta = standard errors of the unstandardized and standardized regression coefficients;
t (df) = t-test of coefficient significance; P< = significance level of the regression coefficients; Toler. = tolerance; R = multiple correlation coefficient; R^2 and adj.R^2 = raw and adjusted multiple determination coefficient;
F-reg(df1;df2) = F-test of the model; F-reg P< = significance level of the model F-test; SEregr. = standard error of regression. Variables are ordered by beta weight. Variable labels in column 1 as in Table 1.

For the coach planning training work, the effect size of the success rates in the early part of the season (S1, S2, and S4) may be of particular interest: model 1 had to do with the World Cups of Nancy, Moscow and Hannover (end of December, the 2 to 3 weeks of preparation in January and February, respectively), and could explain more than two-thirds of the variance

of the success rate at the Games or world championships. This observation deserves more thought, even when one must be aware of the fact that regression analyses cannot be used to evidence causal relationships.

Again, for the coach analyzing ways to attain top performance, models 2 and 3 also have a message. When we regard the 29 French sabreurs as a sample rather than as a population, the observation that B1, B2, and B4 were all negatively related to S8 may be interpreted as follows. If feasible, it is preferable to attend only those competitions of importance at which there is a high probability of winning. Too many full-risk competitions are likely to exert a saturating effect and adversely influence performance at the main events of the season.

Anticipating the interpretation of the models coming later, I am ready to admit that several of the regression results were surprising to me. One of these was that S5, i.e. the success rate in the World Cup period of New York, failed to reach significance for S8 in any of the studied models. I believe that preparation for this contest was important, but our participation at it had more to do with sports diplomacy (jury work) and psychic factors. Without an accurate recording and a thorough analysis of data, it is much more difficult to discover which occasions of competitive preparation are really important and which are less so for the end-of-season performance.

8.4 Regression analysis of the indirect approach models for the non-team members

Here too the number of the obtained models for predicting S8 was three, but their goodness of fit was rather poor: none of them could account for even 50% of variance. Fewer of the indicator variables of the respective contest periods were found to relate significantly to S8, so I decided to include summary variables as well ($L_{1–7}$, $B_{1–7}$, $T_{1–7}$

To parallel the estimates for the team members, regression models using the logistic transform of S8 were run also for the non-team members. Finally we arrived to similar results as for S8.

8.5 Summary conclusions

Preparation of the best French sabre fencers for the world championships and Olympic Games was found unsatisfactory with respect to both competitive practice and training work, and therefore needed fundamental reshaping. To gauge the effect of the changes introduced the number of the lessons, bouts, touches, and intraseason victories were carefully observed and recorded through ten years.

The marked differences in almost all the studied quantitative measures of competitive preparation and training work disallowed a common treatment of these elite sabreurs, the 8 who performed well

enough to become members of the national team had to be discriminated from the second ranks of swordsmen.

In order to extract the greatest possible amount of information latent in the data iterative techniques of regression were applied in addition to the conventional direct approach. In search of the best predictor for the end-of-season success rate, specific techniques were required to handle the problems associated with the complex relationships between the observed data. Multicollinearity was strongest between bouts and touches, but even the number of lessons happened to relate too closely to the success rates of certain periods. The really efficient technique to deal with the multicollinearity problem was the use of residuals of which the collinear contaminant variance was partialled out. The question of whether autocorrelation did or did not bias the estimated regression could not be settled to satisfaction: first-order differences were associated with information loss, and the results were largely similar but not directly comparable to those with the original data.

By applying iterative regression techniques several models were developed to account for various aspects of the complex relationship between the studied quantitative measures of preparatory work and the success rate at the main contests of the season. These models drew attention to unexpected, sometime surprising effects: reciprocal influences, effects developing after considerable time lag (e.g. suggesting that certain lesson effects may become manifest in the next season only), and – last but not least – the variable importance of the respective World Cup competitions for the eventual success rate.

As shown by the descriptive and regression statistics,

- the members of the national team differed from the second ranks of elite sabre fencers in all but one measure;
- as for the performance at the Olympic games or world championships, neither the usefulness, nor the predictive power of the contests of selection grew as the season approached its end; the four first competitions foretell the final result in 66,6 %.
- though being apparently merely quantitative, the training stress indicators exerted a great deal of indirect influence, some of which developed after a considerable time lag and/or were conflicting.

For these reasons a multiple and complex approach to the factors of performance is not merely justifiable, but may reveal relationships that formerly have gone unnoticed. In designing the competitive and training work one has to be aware of all these possibilities.

The best fitting model for the team members was:

$$S8 = 0.027 + 0.237 \cdot S1 + 0.365 \cdot S2 + 0.217 \cdot S4 + 0.001 \cdot B5 \pm 0.061;\ adj.R^2 = 0.666;$$

For the non-team members it was:

$S8 = 0.188 + 0.488 \cdot S1 + 0.325 \cdot S7 - 0.014 \cdot L6 \pm 0.084$; adj.$R^2 = 0.432$;

where

B: number of bouts,

L: number of lessons taken during both the training sessions and competitions,

S: success rate = the number of victories divided by the number of bouts,

T: number of touches given,

while the numbers following the variables denote the periods of the season of which the eighth referred to the period of the world championships or Olympic Games.

The standard error and adjusted R-square of the model is shown on the right of the equations.

The quantitative analysis of the competitive and training stress contributed a lot to the understanding of the improving international performance of the French sabreurs in the studied period and, to some extent, in the times following it. Jean-François Lamour became Olympic champion twice: in Los Angeles in 1984 and in Seoul in 1988, and became individual champion of the Lausanne world championship in 1987. The team of the Raçing Club (Lamour, Guichot, Delrieu, Ducheix and Bolle) won the European Cup of the Champion Teams in 1990. Every member of the French national team (Lamour, Guichot, Delrieu, Ducheix, Daurelle and Granger-Veyron) was either a medalist or a participant of the individual finals at the recent world championships or Olympic Games. These are unique and unparalleled events in the one hundred year history of French sabre fencing.

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PERSONALITY FEATURES AND ATHLETIC PERFORMANCE IN A JUNIOR I (17-18 YEARS OLD BOYS) BASKETBALL TEAM

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ABSTRACT. The study proposes to investigate the influence of personality features on athletic performance regarding 17-18 years old basketball players. In the research we have utilized the Junior Temperament and Character Inventory test with 55 items and 5 scales, as well as the Behavioral Anchor in order to evaluate our athletes' performances. Furthermore we have applied our test to athletes at "Probaschet Junior" basketball team from Cluj-Napoca. Consequently, according to the descriptive and inferential statistical results we have concluded that some personality features are influencing in a moderately negative way our subjects' athletic performance.

Keywords*:* Junior TCI, basketball, depression, behavioral anchor, athletic performance.

1. Introduction

In our study we have referred to the following main psychological factors that are conditioning athletic performance:

1. **Cognitive** psychological processes (voluntary-attention and involuntary - attention, perception, thought, memory, intelligence). The memory of what was lived or learned is a processing system of information that records, modifies, stocks and reproduces informational stimulus. There are 3 stages in any informational process: codifying, stocking and reproducing. We can also distinguish different types of memory: affective memory, short term memory, long term memory, senile memory, selective memory, subconscious memory, etc.

2. **Affective** processes - emotions, feelings as: angriness, anxiety, guiltiness, embarrassment, jealousy, hope, sadness, melancholy, happiness, pride, love, gratitude, compassion, delight, disappointment, etc.

3. **Conative** processes - volition and the action with the willingness that includes a volition-aptitude of a person to actualize and accomplish his/her intentions. It is a psychological function described as a conscious orientation of human being in order to realize goals and achieve them through the effort consumed. As a feature volition is defined as: firmness and perseverance with the purpose to overcome obstacles. Under perseverance we understand insistence in work, in belief, in attitudes.

4. **Temperamental** traits/types - power, balance, mobility; choleric, sanguine, melancholic, phlegmatic, or; introverted, extraverted, ambiverted; visceroton, somatoton, celebroton as Sheldon's types.

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5. **Character** traits – modesty, sincerity, concern, diligence, also: caprice, lie, stubbornness, vanity, etc.

6. **Aptitudes** – physical traits or psychological traits that assure success in activities like: fluency in ideas, originality, selectivity of attention, flexible thinking; or in sports: static power, explosive power, dynamic power, physical stamina, corporal flexibility).

7. **Attitudes** – psychological dispositions to react in a characteristic way to three-dimensional reality data: affective constituent (emotional conditions and valuable preferences), cognitive constituent (opinions and beliefs), behavioral constituent is reflected under the behavioral intention. Attitude is a relative stabile and durable predisposition of human being to act or react in a certain way in front of persons, problems, objects or institutions.

8. **Personality** – the ensemble of specific and durable features of thought, affectivity and behavior that characterizes the way of how a person adjusts to life environment (including A, B, C, D, E, H, T behavioral types).

9. **Motivation –** the ensemble of dynamical factors that determines a person's conduct, based on reasons- intellectual causes of our acts, and mobiles- affective causes of human behavior (intrinsic, extrinsic, intellectual, Maslow's human needs pyramid that includes the following needs: physiological, security, social, love, appreciation, cognitive, esthetical, self-accomplishment). Motivation is the psychological process that stimulates, orientates and maintains human behavior. The main motivational factors are: heredity, pulsions and stimulants.

There were numerous studies regarding the influence of personality features in relation to athletic performances.

Subjects and methods

The article presents a study regarding the "Pro Baschet Junior" Cluj-Napoca basketball team. The junior I (17-18 years old players) team is composed of 13 boys, out of which 7 are playing on a forward position, 3 are playing on a guard position and 3 are playing on a center position. In our study regarding the above mentioned boys basketball team, we have applied the following evaluation instruments:

a) Temperamental and Character Inventory (TCI) Junior – composed of 55 items on following scales:

- NS- Novelty Seeking
- HA- Harm Avoidance
- RD- Reward Dependence
- PS- Persistence
- SD- Self Directedness

b) The behavioral anchors evaluating our athletes' performances are presented in the subsequent 5 dimensions:

- Individual particularities of the position played (IPP)
- Level of technical and tactical knowledge in offense (LTTKO)
- Level of technical and tactical knowledge in defense (LTTKD)
- Integration into a collective (group) (IC)
- Respect of work regulations (discipline) (RWR)

A statistically significant correlation had been obtained between the two variables: personality features and athletic performance. More exactly:

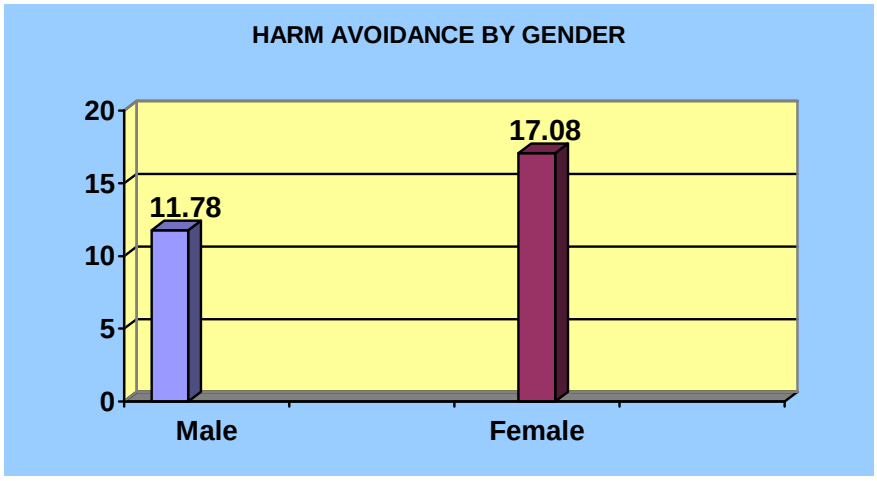
- NS and LTTKO
- RD and IPP
- RD and RWR
- IPP and LTTKD

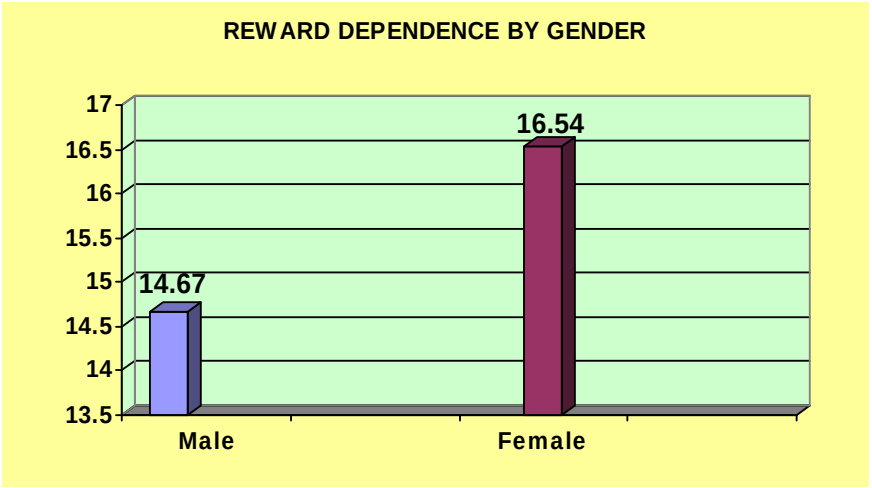
Table 2.

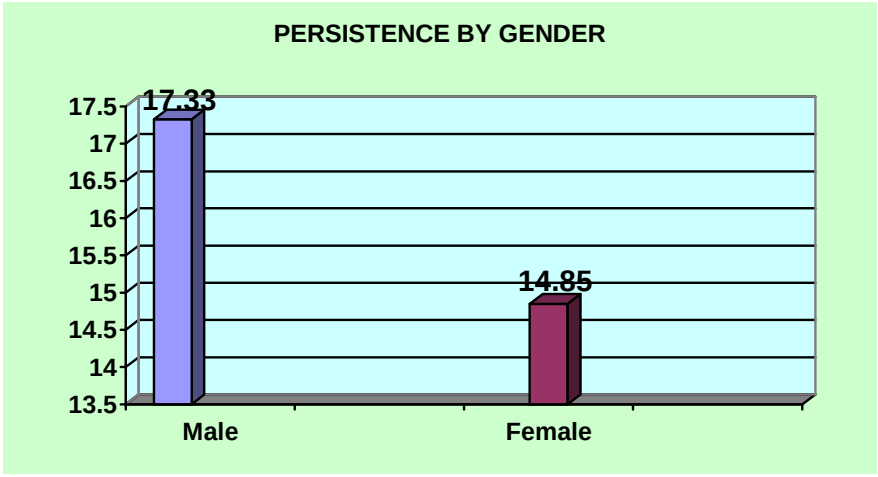
Descriptive statistical data regarding all quantitative variables of study

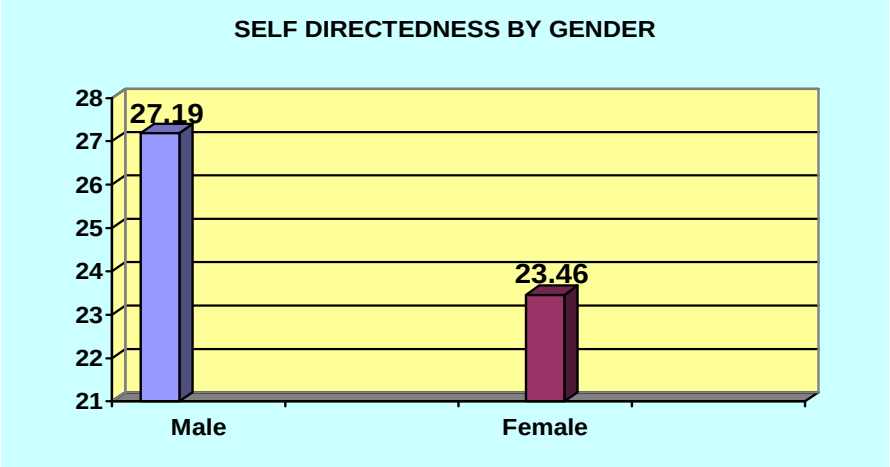
Variables	Mean	Median	Mode	Standard deviation	Mean per item	Normality test q
1. Novelty seeking -JTCI	16,53	17	18	5,03	1,50	3,98N
2. Harm avoidance-JTCI	13,5	13,5	15	6,26	1,13	4,15N
3. Reward dependence- JTCI	15,28	14,5	14	3,16	1,53	5, 70?
4. Persistence-JTCI	16,53	17	18	3,05	2,07	4,26N
5. Self-directedness-JTCI	25,98	26	29	5,23	1,99	4,78N
6. Age	16,13	16	16	0,65	-	3, 08?
7. School performance	8,71	8,78	8,11	0,66	-	4,24N
8. Individual peculiarities of the position played	4,92	5	3	1,85	-	2, 73?
9. Level of technical-tactical knowledge in offence	5,46	6	6	1,27	-	3,15N
10. Level of technical-tactical knowledge in defense	5,54	6	7	2,15	-	3,26N
11. Team integration	5,85	7	7	1,63	-	3,07N
12. Respect of work discipline	6,69	7	6	2,21	-	3,17N

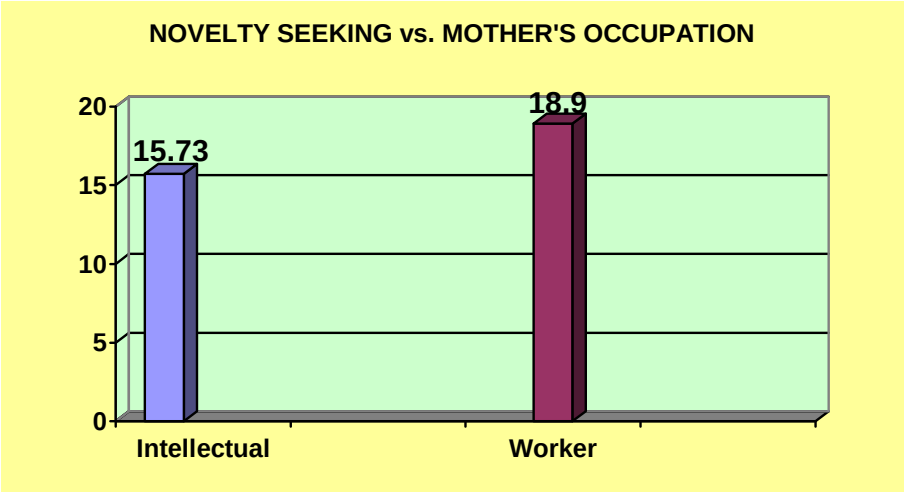
$q = \frac{W}{S}$, where: W = range, and S = standard deviation.

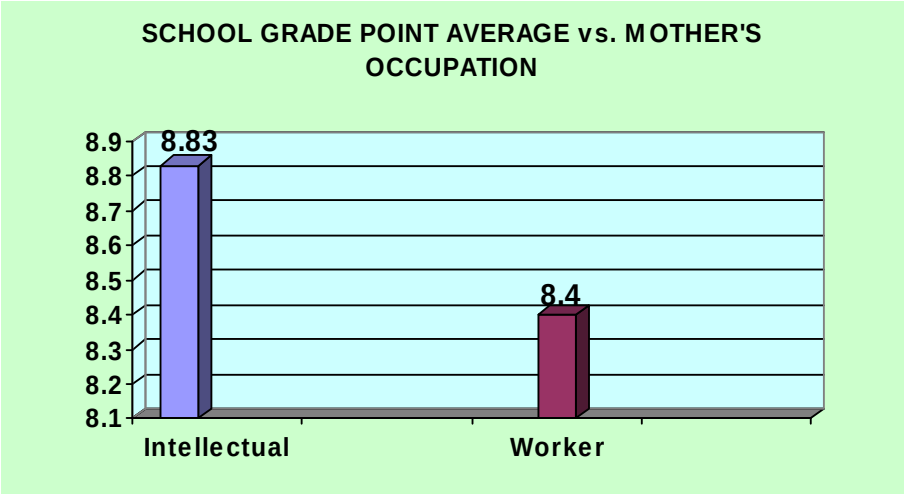

HARM AVOIDANCE BY GENDER
20
15
10
5
0
11.78
17.08
Male
Female

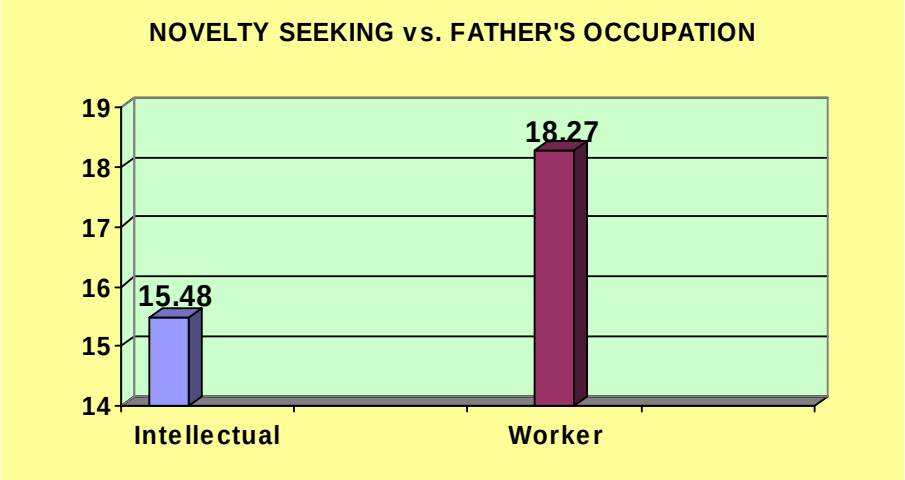

REWARD DEPENDENCE BY GENDER
17
16.5
16
15.5
15
14.5
14
13.5
14.67
16.54
Male
Female

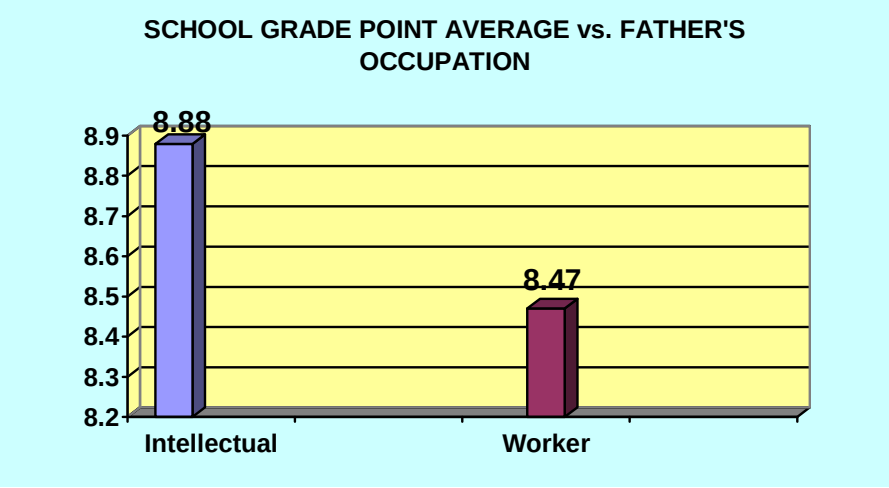

PERSISTENCE BY GENDER
17.5
17
16.5
16
15.5
15
14.5
14
13.5
17.33
14.85
Male
Female

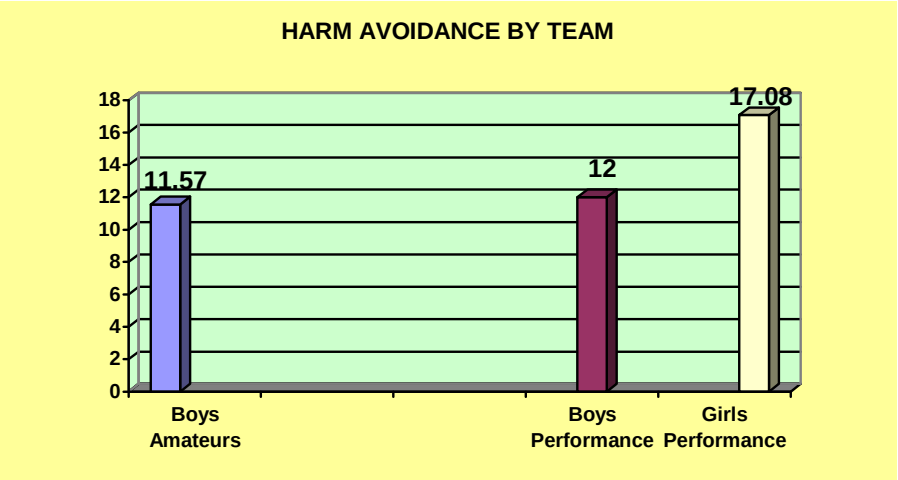

SELF DIRECTEDNESS BY GENDER
28
27
26
25
24
23
22
21
27.19
23.46
Male
Female

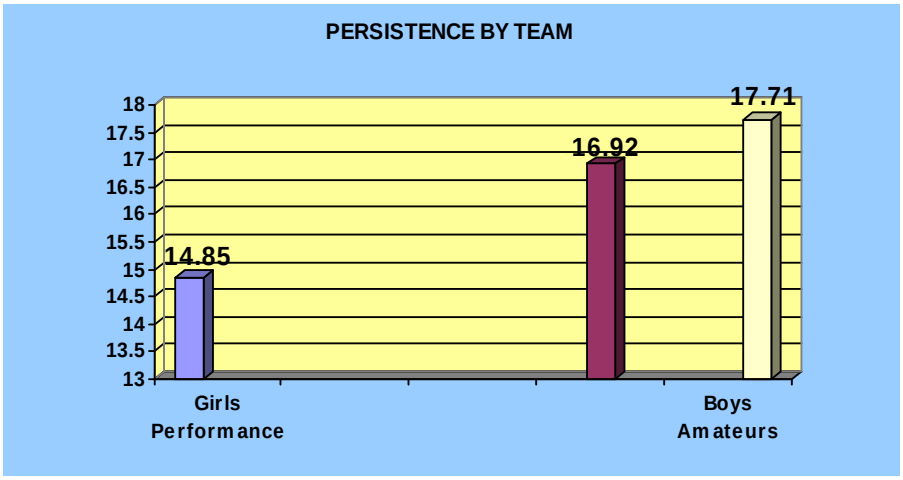

NOVELTY SEEKING vs. MOTHER'S OCCUPATION
20
15
10
5
0
15.73
18.9
Intellectual
Worker

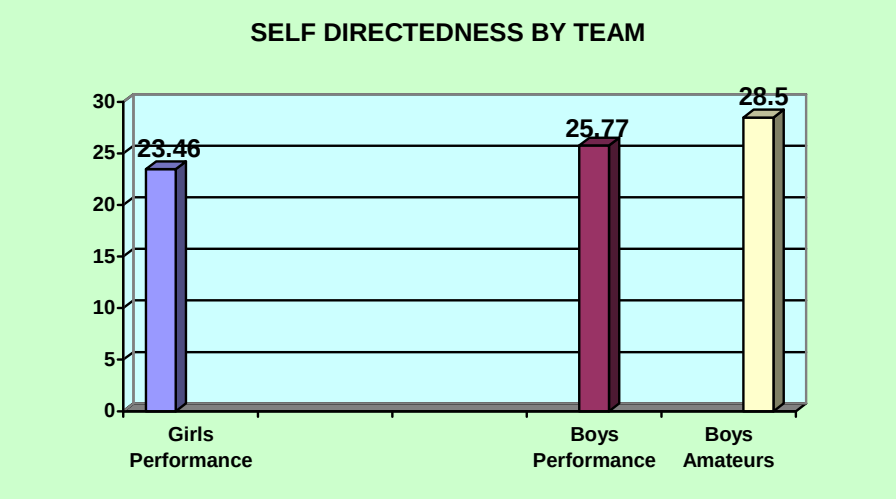

SCHOOL GRADE POINT AVERAGE vs. MOTHER'S OCCUPATION
8.9
8.8
8.7
8.6
8.5
8.4
8.3
8.2
8.1
8.83
8.4
Intellectual
Worker

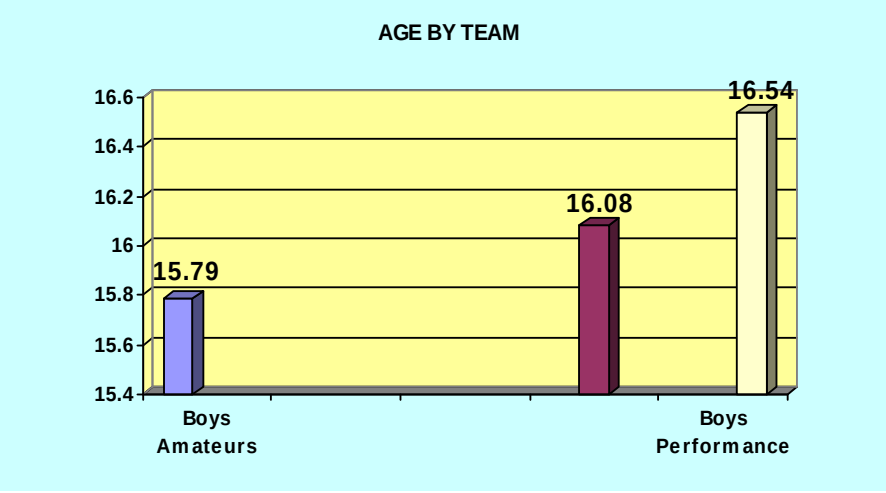

NOVELTY SEEKING vs. FATHER'S OCCUPATION
19
18
17
16
15
14
15.48
18.27
Intellectual
Worker

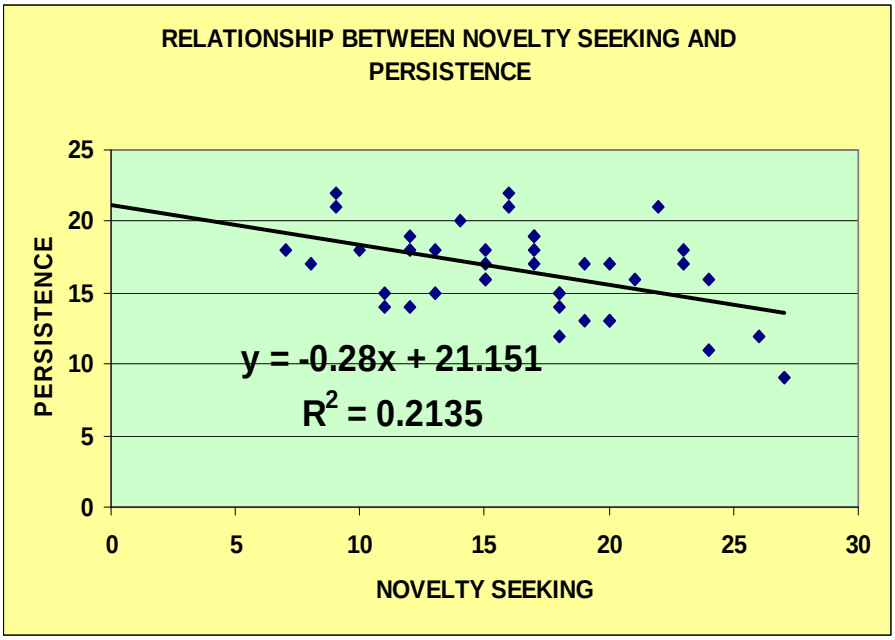

SCHOOL GRADE POINT AVERAGE vs. FATHER'S OCCUPATION
8.9
8.8
8.7
8.6
8.5
8.4
8.3
8.2
8.88
8.47
Intellectual
Worker

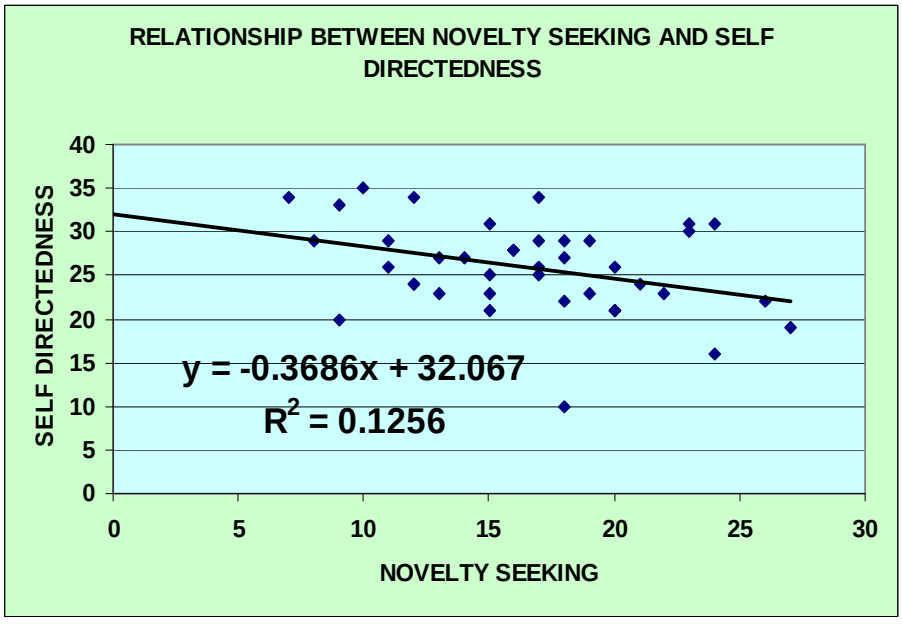

HARM AVOIDANCE BY TEAM
18
16
14
12
10
8
6
4
2
0
11.57
12
17.08
Boys Amateurs
Boys Performance
Girls Performance

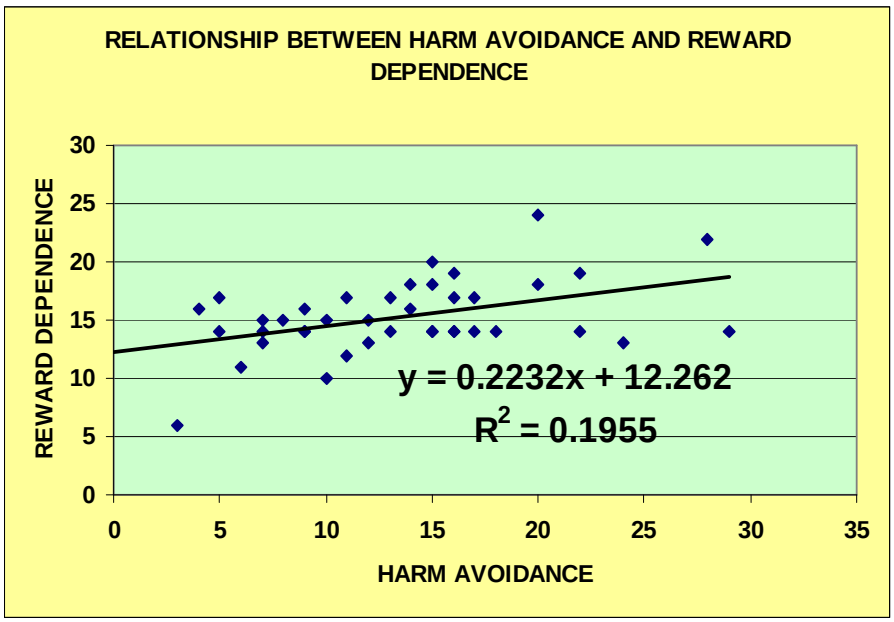

PERSISTENCE BY TEAM
18
17.5
17
16.5
16
15.5
15
14.5
14
13.5
13
14.85
16.92
17.71
Girls Performance
Boys Amateurs

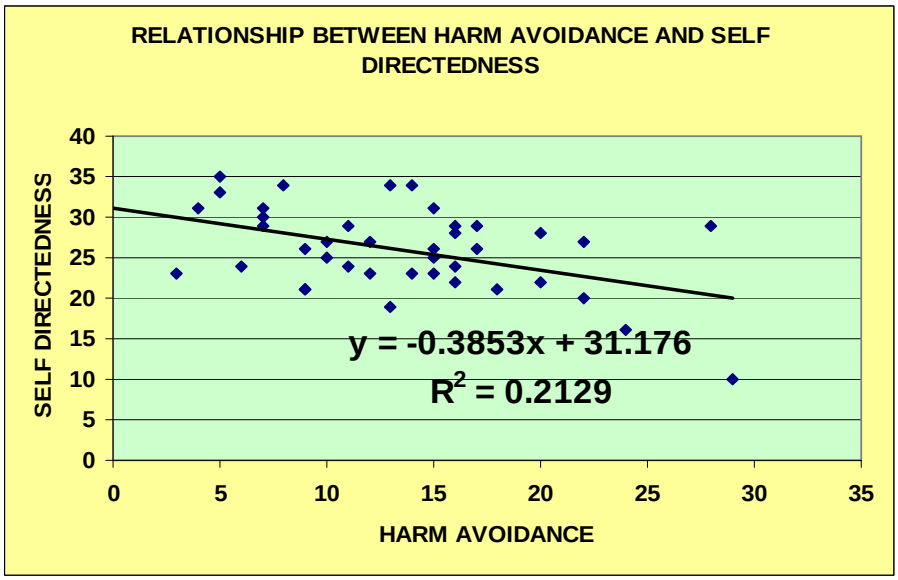

SELF DIRECTEDNESS BY TEAM
30
25
20
15
10
5
0
23.46
25.77
28.5
Girls Performance
Boys Performance
Boys Amateurs

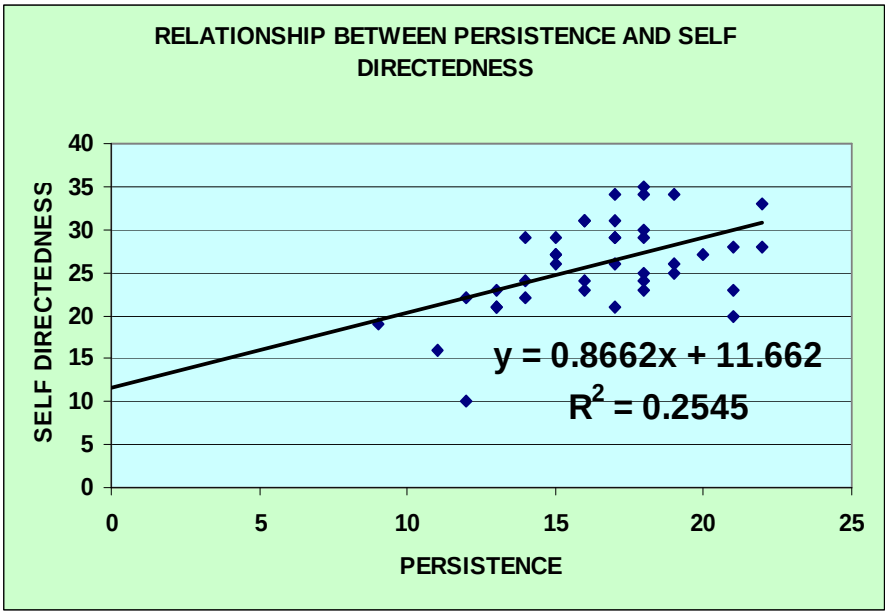

AGE BY TEAM
16.6
16.4
16.2
16
15.8
15.6
15.4
15.79
16.08
16.54
Boys Amateurs
Boys Performance


RELATIONSHIP BETWEEN NOVELTY SEEKING AND PERSISTENCE
PERSISTENCE
NOVELTY SEEKING
y = -0.28x + 21.151
R2 = 0.2135
0
5
10
15
20
25
30


RELATIONSHIP BETWEEN NOVELTY SEEKING AND SELF DIRECTEDNESS
SELF DIRECTEDNESS
NOVELTY SEEKING
y = -0.3686x + 32.067
R2 = 0.1256
0
5
10
15
20
25
30
35
40


RELATIONSHIP BETWEEN HARM AVOIDANCE AND REWARD DEPENDENCE
REWARD DEPENDENCE
HARM AVOIDANCE
y = 0.2232x + 12.262
R2 = 0.1955
0
5
10
15
20
25
30
35


RELATIONSHIP BETWEEN HARM AVOIDANCE AND SELF DIRECTEDNESS
SELF DIRECTEDNESS
HARM AVOIDANCE
y = -0.3853x + 31.176
R2 = 0.2129
0
5
10
15
20
25
30
35
40



Conclusions

The most emphasized personality features of athletes investigated are referring to persistence and self directedness, while the lowest scores we have noticed were at harm avoidance, novelty seeking and reward dependence categories. Therefore, the most valuable psychological qualities are having the highest values among the investigated subjects.

Harm avoidance and reward dependence are more emphasized at female gender subjects compared to male subjects. On the other hand persistence and self directedness are more significant at male athletes.

Persistence and independence are more accentuated at the performance, boys team than the performance, girls team. Conversely, harm avoidance is more emphasized at the performance, girls team.

We have obtained a statistically significant negative relationship between novelty seeking and persistence, denoting that to a high level persistence is corresponding a low level novelty seeking. There is a same situation regarding the relationship between self directedness and novelty seeking.

We have also noticed a direct relationship between harm avoidance and reward dependence; and the correlation between independence and persistence.

All differences and correlations presented are statistically significant. The Junior TCI scales are having a Cronbach α fidelity coefficient close to a 0.7 marginal value, denoting acceptable psychomotrical qualities regarding the instrument that was utilized in our research.

In the future, upcoming stage we are also proposing to compare young athletes' personality features with the same age youngsters' personality features from the general population.

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