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THE BEGINING OF FENCING IN CLUJ

KILYÉNI ANDRÁS

ABSTRACT. The Cluj of the beginning of the nineteenth century was characterized by the upswing of cultural life: the first acting company was founded (in 1792), soon the first theatre was erected, music bands were formed, magazines, newspapers appeared, fellowships, casinos, societies were founded. These upswings created a need for physical culture, as well: with the strengthening of the bourgeoisie the need for such a type of sports life appeared which could be more widespread, and could be practiced elsewhere, as well, not only in the courts of the aristocracy. The history of fencing in Cluj had had a past of 190 years since the foundation of the first fencing school. At the beginning of the nineteenth century the cultural and sports history of Cluj were interlocking, because the fast development of the town's cultural life demanded the growth of physical culture, and the sports life of the town reached the point where the need for organized sport activities, which could be practiced by anyone, appeared.

Keywords: the history of fencing, Gaetano Biasini, baron Miklós Wesselényi, Farkas Sándor Bölöni, count Ádám Kendeffy, The Gymnastics and Fencing Club, The Athletic Club from Cluj

REZUMAT. Apariția școlii de scrimă la Cluj. La începutul secolului al XIX-lea viața culturală clujeană a cunoscut o dezvoltare importantă: s-a înființat primul teatru, academia de muzică, au apărut primele ziare, reviste și au luat naștere mai multe societăți culturale. Tot în această perioadă s-au înființat și primele cazinouri. Această dezvoltare a dus la apariția vieții sportive moderne, susținută de aristocrația locală, iar în scurt timp sportul s-a răspândit între locuitorii orașului. Apariția primei școlii de scrimă din Cluj, datată din 1818, reprezintă și începutul vieți sportive moderne. Dezvoltarea vieții culturală a dus la dezvoltarea vieții sportive, în această perioadă educația fizică trece peste limita pasiuni individuale și se înființează primul club sportiv din Cluj.

Cuvinte cheie: istoria scrimei, Gaetano Biasini, baronul Miklós Wesselényi, Sándor Farkas Bölöni, contele Ádám Kendeffy, Clubul de Gimnastică și Scrimă din Cluj, Clubul Atletic din Cluj

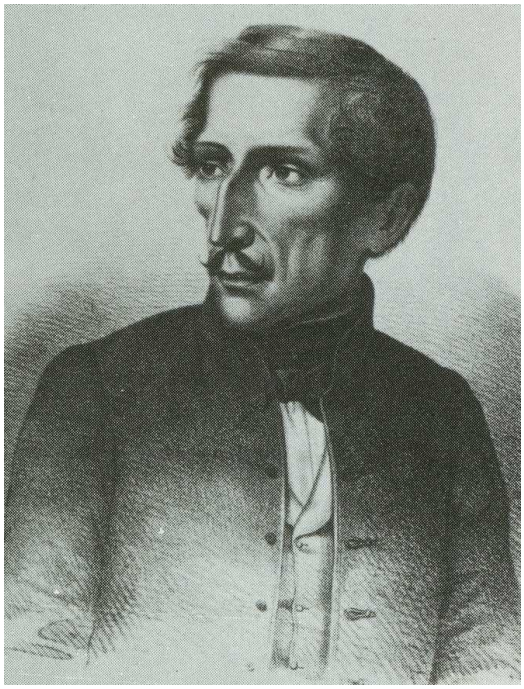
The first Fencing School

Gaetano Biasini

During the course of centuries, people from Cluj had been used to riding horses or hunting, but the first organized sports institution was the Fencing School founded in the 19th century. *During the course of centuries people from Transylvania have been aware of the fact that the perfection of the body brings about the loftiness of the soul, and through generations the inclination to sports has been handed over as a tradition, as a national heritage… They knew that the stronger arm makes the heart braver, that only a brave man can truly be a valiant warrior, that during the tumultuous ages it was valour that saved the country. Among the clear-hearted, clever Transylvanian community always looking back on the past and always wisely far-sighted, these thoughts gave birth to the fencing school. (Dr. Mező Ferenc)*[1]

After Napoleon's campaign in Russia a young soldier, from the nearabouts of Milan, was taken prisoner. After he had been released he wanted to open a fencing school in Vienna but meanwhile he met count Ferenc Béldy, a young magnate from Transylvania, who convinced him to come to Cluj, and due to the count's urgings in 1818 he opened his fencing-school in one of the Redout's rooms (today's Museum of Ethnography). Gaetano Biasini succeeded in making fencing attractive for the young elite of the town; important personalities, such as count Adám Kendeffy, the important personality of the reform movement in Transylvania, count Lajos Jósika, the president of the Roman Catholic Status, or count Ferenc Béldy, were fencing at his school, and count Miklós Wesselényi, a rich and famous sportsman from Zsibó was a frequent visitor as well.

[1] Mező Ferenc, The Fencing School, Testnevelés, 1937, Budapest, 287.



Sándor Bölöni Farkas

Wesselényi's good friend, the young gentry, Farkas Sándor Bölöni, realized how much success the institution could have, and due to his pleadings form 1824 the fencing-school became a public institution. The inauguration of the fencing-school had been a great achievement for the citizens of Cluj, preceding with one year the inauguration of the National Fencing School from Budapest, founded by Széchenyi. And who else could have been the fencing-master than Kajetán Biasini himself?

Farkas Bölöni realized that the fencing-school should open its doors to the poorer but talented young men as well. It was his achievement that in 1938, following the model of Budapest, the institution became a joint-stock company: the public offering of shares being worth of 400 'rénes' forints (0,8 forint = 1 'rénes forint'), which was bought by 26 gentry. The acquired amount of money – 10,400 forints – was deposited in a bank, and from the money interest they could pay the fencing-master and regularly renew their equipment. Besides this, each of the founders could recommend a young, poor student, who had the chance to learn the art of fencing for free, so beginning with 1834, 20 talented young men had received the so called 'scholarship'.

In the statutes drafted by Farkas Bölöni it was stated that *for the establishment of the National Fencing School, functioning in Cluj, I promise and I owe to pay 400, that means four hundred forints in silver, with this hinting to the fact, that the fencing – school in Cluj should be founded for ever and from its gain should profit also those people who cannot afford to join the institution as founders or shareholders. Due to the fact that more founders have subscribed for at least 10,000 forints and from the annual interest of this the functioning of the institution will be supported, the board of trustees will have the power to name 20 young men each year, who can learn for*

free, with the condition that they can speak Hungarian and their lifestyle does not lack the virtuous facts.[2]

In the list of founders besides count Ádám Kendeffy, count Lajos Jósika and Miklós Wesselényi we can find important persons as count Domokos Bethlen, one of Transylvania's richest nobles, the last of the Bethlens from Iktar, or count János Mikes, the leader of Transylvania's cultural life. *The school, at least for the students, was at twelve o'clock in the noon, with the presence of the nobles. As they heard the 'en garde' from Biasini, they all acted according to the seriousness of the situation. Everything went on very fast. And only when they had heard the 'pour la dame', did they gain back their previous expressions.*[3]

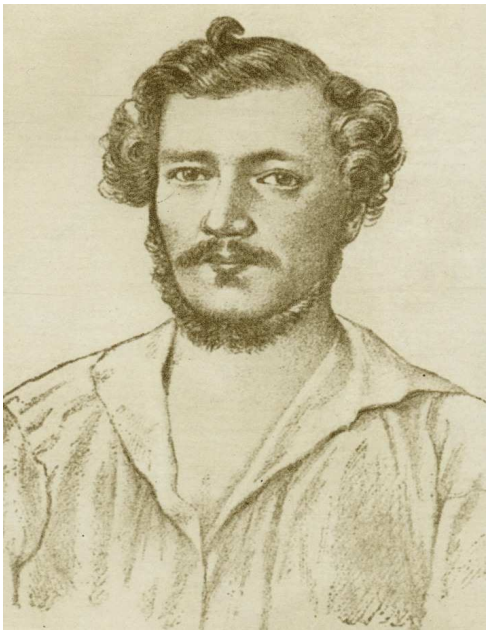
Count Ádám Kendeffy

The title 'first founder' was given to Ádám Kendeffy, the eager administrator of the school. Unfortunately he could enjoy the fruits of his work only for a very short time, the former student of the Reformed High School from Cluj, also known as an 'all round' sportsman suffered a heart attack on the 3rd of February, and soon his noble soul slipped away. On the 4th of February, The Transylvanian Herald wrote about the last male member of the Kendeffy family that the clear-hearted, strong, uncompromising count Ádám Kendeffy, the ardent supporter of the commonweal, is no longer among us, to the sadness of all good people. The death of the young nobleman was mourned by the entire town, and a sepulcher was erected at his grave from public offertory with four crying lions to guard his memory sleep.

In 1835, Biasini retired, he undertook the Biasini hotel and founded his travel agency. For his great public achievements he was proposed for the title of nobleman. The vacant fencing-master post was given to Biasini's

[2] Mező Ferenc, The Fencing School, Testnevelés, 1937, Budapest, 291-292.
[3] 3rd Annual of the Athletic Club of Cluj, Cluj, 1890, 44.

son, but his father's successful businesses soon convinced him to give up his career, so at the beginning of the 40s the fencing-masters were Antal Uzoni, and later Jakab Helmreich.[4]



Antal Uzoni

At the beginning of the 40s, because of his personal problems, Wesselényi also diverged from the institution. Besides this, on the 2nd of February 1842, one day before the eighth anniversary of his friend's death, Sándor Farkas Bölöni passed away, too. Very important people and high officials were present at his funera, such as Members of the Parliament, ambassadors, and students of the fencing-school, *many of many ranks*. The speech at the funeral was delivered by János Kriza (the later Unitarian Archbishop). In his testimony Bölöni left his library of 961 volumes, his maps, and his collection of manuscripts to his former school, the Unitarian High School.

In the 40s the location of the school was changed several times: first from the Redout they had moved it to the Tivoli (the corner building of the Szentegyház Street, on the side of the Bánffy palace), later it functioned in Domokos Bethlen's house, and finally they moved it back to the Tivoli.

Boloni's place was taken by János Bornemissza, and the institution was growing; before the outbreak of the Revolution of 1848 the shares were worth of 15,500 forints. The revolution brought hard times: with the revolution the institution was deserted. The older members joined the army as soldiers, and now they could prove in the sacred battle that they could pull through in the battlefield as well, and they could wield the sword not only in the school but on the battle field as well.[5] The current president of the institution, count János Mikes was elected commandant of the home guard from Cluj. According to a report from that period this place couldn't have been filled better.

[4] Siklóssy L., One Thousand Years of Hungarian Sport, Budapest, 1928, II. 377-378.
[5] Kőváry László, The History of Sports Institutions in Cluj, 1897, Cluj, 7.

Jakab Helmreich

It is very likely that the school offered its funds to support the revolution, because after the armistice it had no financial means whatsoever. The Habsburgs didn't allow the reopening of the school until 1856, when thanks to Sándor Páll's efforts the Tivoli opened its doors for the public on the 7th of November. Jakab Helmreich was invited again to be the school's fencing-master, and he accepted to teach fencing at the institution. They succeeded in gathering 21 patriots who were ready to donate a few forints for the noble education of the young. They had gathered 1700 forints, which was enough to cover the costs of the school for the next three years, and they had restarted their action to support the poor, so they could learn for free again. The local papers reported about the event as well: with supreme permission, on the sixth day of the current month fencing school was open for those willing to learn fencing, in the great room next to the so-called Tivoli, under the outstanding leadership of the brave fencing-master Jakab Helmreich. The beginner students were paying two 'pengő' forints and the advanced students one forint a month.[6]

The 1700 forints were enough for three years and because in 1859 the shareholders were unwilling to pay for the fencing-school any longer, the leadership was obliged to close it. But this was a short break, because soon after, in 1861, when the Reformed High School from Cluj started its law courses again, the students enrolled asked for learning the art of fencing, so on the 2nd of January 1862 with more than one hundred students the fencing-school started to function again. Helmreich accepted to be the

[6] Killyéni András, Killyéni Péter, Phisical Education in the Reformed High School from Cluj, 2004, Cluj, 11-12.

fencing-master for a short period, and from 1865 lawyer Mihály Kövári, one of Transylvania's best fencers became the fencing-master.

The new president of the institution was Count Lajos Jósika, who was truly convinced that a Hungarian becomes a nobleman not because he is borne one, but because he learns to be one. Count Lajos Jósika was one of the most important characters of the 19th century. Being the president of the Roman Catholic Status he supported financially not only the Church but the Catholic High School, as well.[7]

The history of the Fencing-school represents the beginning of fencing in Cluj. Beginning with 1870, for the next 139 years fencing continued to raise champions for the city: Mihály Losonczy, Adrian Deheleanu, Olga Orbán, Zoltán Uray, Béla Guráth Sr. and Jr., János Pap etc. were all well-known sportsman of Cluj. These outstanding fencers carried on a great tradition began by their forerunners who really understood that a healthy society is based on healthy people. Yet, fencing was more than simply a sport: beyond physical exercise, it also built character and social status. Those who practiced fencing in the 19th century Cluj were or later became well-known people not only for their social position but because of the virtues they possessed.

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THE IMAGE OF MEN'S BASKETBALL SPORTS CLUB U-MOBITELCO

MUŞAT SIMONA[1], MANASSES ILDIKO[1], TODERAŞ ALEXANDRA

ABSTRACT. Throughout our paper we will try to accomplish an image analysis of the men's basketball Sports Club U-Mobitelco. The hypothesis that we launched was the fallowing: "Men's basketball team U-Mobitelco has a positive image, harmoniously coinciding with the club's expectations and demands". In this case we focused on a direct investigation, appealing to a questionnaire as instrument of our chosen method. What we considered to be relevant in the achieved analysis was the investigation of the opinions of a certain segment of this club's target, and more precisely of its supporters. We wanted to see, through this target, the way that U-Mobitelco's effort in creating its image was perceived.

Key words: men's basketball, U-Mobitelco, the supporters' perception of image, tradition, performance

REZUMAT. ***Imaginea Clubului Sportiv de baschet U-Mobitelco.*** Clubul Sportiv de baschet masculin U-Mobitelco este un club cu tradiție, care de-a lungul anilor a adus spectacol în Sala Sporturilor „Horia Demian", a avut rezultate în creştere de la an la an, a încântat publicul iubitor de baschet, făcându-l să vibreze la fiecare coş marcat şi să fie alături de echipa favorită, şi la bine şi la greu. Pe parcursul lucrării noastre încercăm să realizăm o analiză a imaginii Clubului Sportiv U-Mobitelco. Ipoteza pe care noi am lansat-o a fost următoarea: echipa de baschet masculin U-Mobitelco are o imagine pozitivă, aflându-se în concordanță cu aşteptările şi cerințele clubului. Pentru aceasta am recurs la realizarea unei anchete directe, apelând la un chestionar ca instrument al metodei alese. Ceea ce ni s-a părut nouă relevant în analiza efectuată a fost investigarea părerilor unui segment al publicului țintă al acestui club, şi anume cel al suporterilor. Am dorit să cunoaştem modul în care este perceput, în viziunea acestui target, efortul depus de U-Mobitelco pentru crearea imaginii sale.

Cuvinte cheie: baschet masculin, U-Mobitelco, imagine percepută de spectatori, tradiție, performanță

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I. Men's basketball Sports Club U-Mobitelco is a club with a great line of tradition, that has created along the years a spectacular show in the "Horia Demian" Hall, has had ascending results year by year, has charmed the basketball loving public, making it vibrate at every scored lay-up and determining it to be there, along side its favorite team, for better or for worse.

II. Throughout our paper we will try to accomplish an image analysis of the men's basketball Sports Club U-Mobitelco. The hypothesis that we launched was the fallowing: "Men's basketball team U-Mobitelco has a positive image, harmoniously coinciding with the club's expectations and demands". In this case we focused on a direct investigation, appealing to a questionnaire as instrument of our chosen method.

What we considered to be relevant in the achieved analysis was the investigation of the opinions of a certain segment of this club's target, and more precisely of its supporters. We wanted to see, through this target, the way that U-Mobitelco's effort in creating its image was perceived.

III. The questionnaire was applied to a number of 75 people, only 60 of them completing it fully, thus representing 80% of the aimed target.

Our questionnaires were applied for the duration of approximately two weeks, between the 13th and the 28th of March 2009, at various times and places from Cluj-Napoca (the "Horia Demian" Hall, at work, at home, using the internet etc.). From the people we questioned 48,33% were women and 51,66% were men, with ages between 12 and 42 years old, most of them being youth (adolescents and students). Their education level varies from gymnasium, to high school and college.

The public that answered our questions included: basketball lovers (43,3%), basketball players (36,6%), fans (15%), sports lovers in general (3,3%) and coaches (1,6%). The majority (91,6%) generally has good, even great opinions regarding U-Mobitelco, attributing to this club qualities like professionalism (25,9%), seriousness (18,5%), good organization (18,5%), tradition (14,8%), performance (11,1%), some of them even mentioning that the club's image is a positive one (11,1%). There also are people whose opinions aren't as good (8,3%), stating that the club's performances are weak and that its expectations are way to high.

IV. A point that we consider to be important is represented by *the level of influence that the team's failures have upon the supporters' opinions*. Some of the people we questioned think that their opinions aren't at all influenced by this matter (21,6%). There are also subjects that consider themselves "very little" influenced by the team's failures (25%), while the

majority of those in question (35%) feel this influence at a relatively "small" level. The percentage of the people whose opinions are "a lot" or "very much" influenced by the team's failures is a pretty small one (16,6% and 1,6%).

Another point of view that interested us in achieving our analysis is represented by *the public's game attendance and the reasons for which they attend or not*. The majority of our subjects frequent or fallow the team's games "often" (38,3%), even „very often" (36,6%), while only a small percentage of them "rarely" attends the games (21,6%). There isn't a single questioned person that has never fallowed a U-Mobitelco game, existing only an insignificant percentage that admitted that they "very rarely" go or fallow this team's games (3,3%). The main reasons for which our subjects state that they attend the games are the pleasure of watching a basketball game (42,18%), and also the show (25%) or atmosphere (21,87%) created in the game's duration. On the other hand, the lack of attendance is generally justified by our subjects' lack of time (63,07%) or the fact that they are out of town (15,38%). There are also people who don't attend the games due to subjective reasons like: the game quality (4,61%) or the quality of the opposite team (4,61%).

We also investigated *the means through which the supporters find out about the date, place and time of every game*. Therefore we could see that the majority uses as an informational source the internet (30,68%) and even the club's official website (21,59%). Another major source is considered to be the entourage, 23,86% of our subjects stating that their friends are the ones who update them about these aspects. Other sources are: the press (11,36%), posters (5,68%), television (4,54%) and radio (2,27%). Regarding the team's results, we can say that the hierarchy is almost the same, starting with the internet in general (39,13%) and continuing with the club's official website (18,47%), the entourage (18,47%), press (7,60%) and television (7,60%).

Because we already mentioned electronic sources, another point that we wanted to investigate was *the users opinions concerning U-Mobitelco's website*. Thus we can say that 90% of our subjects accessed the site at least once, while 10% has never done such a thing. The users in question generally have "good" and "great" (94,5%) opinions about this website, considering it to be a professional one, well structured and organized, with a modern and accessible design, thus being easy to navigate. Also, our subjects think that the club's official website contains useful information that is always updated and which, from this point of view, is quite efficient.

On the other hand, there are people whose opinions about the site are "less good" (5,5%), stating that it should be brought up to date, because its information is too crowded and the site in general has a reduced accessibility for children.

A rather important point in our analysis is represented by *the level of awareness that the supporters have about the events organized by U-Mobitelco or the events in which the club participated*. From our questioned subjects 41,6% are aware of such events, while the majority (58,3%) isn't familiar with them. The most known events were: the organization of demonstrative games in general (32%), the basketball promoting games in schools (28%), the charity events (20%) and the donation of gifts due to special occasions (12%).

A certain aspect that benefits U-Mobitelco, as well as its supporters is represented by the *team's live games or reruns shown on TV*. Our subjects' opinions about this transmission are divided between good and very good, stating that this matter is a necessary and useful one, as well as convenient. The only objections that people had were the ones regarding the transmission quality, the number of reruns etc. aspects that aren't at all related to the men's basketball Sports Club U-Mobitelco. Being asked to name those channels where they could watch the team's games, the majority of our subjects proved that they knew them exactly. On the other hand, others had no idea which were these channels or they just mentioned the channels on which the games were transmitted in the past.

Another aspect that we approached was the one concerning *the relationship between the club and its fans*. Our subjects generally have good opinions about this relationship, considering it to be healthy and quite close, existing only few questioned people to oppose these general opinions. Regarding their opinions about the attraction that the "U" name has to the basketball team's fans, we can say that 10,1% of them state that this name doesn't contribute to the attraction of fans. They consider that the people who go to see the games do so out of pleasure and out of the desire of viewing a great show. However, 89,8% of our subjects state that the "U" name actually contributes to the attraction of various fans due to the tradition that it carries, being considered a city symbol. Another reason for which this name attracts a lot of fan is directly related to the football team that benefits from a higher level of awareness.

An important project that U-Mobitelco initiated is the one involving *the foundation of a basketball school (academy)*. From this point of view,

most of our subjects stated that the club's initiative is a good one due to various reasons: it stimulates competition and as such it creates performance, it contributes to the growth of players and the discovery of new talents, as well as the development of basketball in general.

The *words* that the supporters associate with U-Mobitelco represented, from our point of view, a significant element in the club's image analysis. And so, we present a top 10 of these words, in the order of their frequency:

1. Performance (13,88%)
2. Professionalism (11,11%)
3. Passion (11,11%)
4. Tradition (9,72%)
5. Spectacle (6,94%)
6. Desire (6,94%)
7. Atmosphere (6,94%)
8. Strength (6,94%)
9. Respect (4,16%)
10. Fight (4,16%)

People can access the team's games in the "Horia Demian" Hall by possessing a regular ticket, a season ticket or an invitation. Being asked about their means of access in the game hall, we can observe that the questioned people use regular tickets (58,3%) or season tickets (31,6%), as well as invitations (10%).

Most of our subjects have no discontents regarding U-Mobitelco, while 21,66% consider themselves discontent due to different reasons: the high cost of tickets for the less important games, the transfers made by the executive staff, the game quality, the lack of deductions for tickets sold to pupils or students and the delay in applying the "no smoking" rule in the "Horia Demian" Hall.

V. Basketball is a dynamic, spectacular sport that implies a lot of intelligence, being considered a sort of "chess on the court". It is normal that the segment of the club's target that we talked about is so varied exactly because of these reasons. We can notice a high degree of basketball's attraction, and implicitly of this club's attraction to children, adolescents, students and mature people. People that have a varied level of education are attracted, in this case, in a single place through one common interest, a passion that is the game of basketball and, more exactly, the U-Mobitelco team.

We can observe that after the analysis of our subjects' answers at the end of this pilot study *our hypothesis was confirmed. The club's image is a positive one, and U-Mobitelco's effort in creating its image is truly perceived by its supporters. Their opinions regarding this club are rather good, being very little influenced by the team's failures. Most of our subjects frequent the games played by U-Mobitelco especially because of the show and atmosphere, but also thanks to the love they have for basketball.*

We can notice that the most important means of information concerning this team is the internet and implicitly the club's official website. The televised transmission of U-Mobitelco's games represents for the questioned people an aspect of great importance, even necessity. Even though there are discontents regarding the transmission quality, this is not the club's fault, the guilt belonging to the transmitting channel's representatives.

We can see that there isn't a very high degree of people that are aware of the events organized by U-Mobitelco or the events in which the club was involved, and this determines us to point out that something must be done to improve this situation.

Even thought there are certain discontents between the questioned people, discontents that the club is working on, its image isn't badly affected, still being a positive one.

The club's initiative in creating a basketball school (academy) is highly appreciated by our subjects, thus contributing to the reinforcement of its positive image, and also, the words associated with U-Mobitelco can only strengthen the hypothesis that we launched at the beginning of this paper.

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MEN'S BASKETBALL, THE WAY TO GLORY

MANASSES ILDIKO[1], MUŞAT SIMONA[1], ADINA OŞAN[2], MIRCEA CRISTESCU[3]

ABSTRACT. Since the 90's and up to the present the male basketball team has become a force in Romanian basketball. Every year the team U-Mobitelco engages itself in the combat for the national championship title. The show the players perform brings the public to peaks of enthusiasm. This can be observed in the increasing number of fans, for whom the Sports Center "Horia Demian" has become a narrow place.

Key words: great basketball show, "U"-the eternal love, European Cups

REZUMAT. Echipa masculină de baschet a devenit, din anii 1990 şi până în prezent, o forţă care doreşte să câştige titlul în fiecare an. Jucătorii echipei U-Mobitelco oferă un spectacol plăcut pe care fanii îl urmăresc în număr din ce în ce mai mare, şi pentru care sala sporturilor „Horia Demian" a devenit neîncăpătoare.

Cuvinte cheie: spectacol baschetbalistic, "U" eterna iubire, cupe europene

The climax

The beginning of the 90's was full of achievements. For two years in a row the team won the internal championship (in 1992 and 1993). To these awards it added the two vice-champion titles in 1991 and 1994. In 1995 the team won a bronze medal. By then, the team had the financial support of SM Invest. This collaboration was to bring only good things, one of them being the great final of the season of 1995-1996, a final which brought the third and last national title for the team. It was an amazing game, won in the decisive round on Steaua's field in Bucharest.

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[3] Presedinte executiv - U-Mobitelco

Beginning with the second half of that season Dragan Petricevici, a Bosnian coach, joined Gheorghe Roman on the technical bench. Aged only 27 when he came to Cluj Petricevici managed to inspire the players and give them the forced they lacked in order to fight for the gold medal. The players who brought victory to the team were: Mircea Cristescu, Dorin Pintea, Horia Rotaru, Atilla Vereş, Tiberiu Sebestyen, Cornel Săftescu, Codruț Bob, Zoltan Szilagy, Ciprian Kolloş, Cosmin Morna and the dear departed center player Cătălin Rusu who has unfairly died before time, in December 2008.

The autumn that followed was rich in events for "U" SM Invest, the team participating for the first time in the greatest European competition, what we call today the Euro-league. Even though it didn't obtain any victory, its rivals being much too stronger - Apollon Patras, Sunair Oostende, and USK Brno – our student team brought with itself a sense of real basketball, professionally played. Those were moments which remained in the memory of all basketball fans. The indoor Sports Center "Horia Demian" was crowded with people, fans came to be there for their favorite players. The way they manifested their support wrote history.

That season also brought Mihai Sinevici on the technical bench of "Universitatea", his staying didn't last though. He left the team the following summer, when he moved to Canada. Dragan Petricevici did the same thing. After just one year spent coaching "U" he decided to quit, signing a contract with Politehnica Iasi (in January 1997). At the end of the season Horia Rotaru took charge of the team, being appointed main coach. He worked side by side with Gheorghe Roman, the latter as technical executive.

The late Gheorghe Roman was in turns assistant basketball coach, main coach during the years 1993-1994 and most of all an important technician who played a decisive role in the consolidation of Cluj basketball school. Under his guidance Universitatea Cluj had its best results. When Universitatea celebrated its 75th year of existence, Gheorghe Roman wrote in the Year Book:

"This year's championship (1993-1994) gave us once more he chance to preserve our title. Although some of our key players such as Sinevici, Cristescu, or Olpretean were injured and they had to stay off field for as long as their medical condition required, we pulled our way into the play-off with Dinamo, but on an inferior position, and thus we lost, the final result being 2-3".

Searching, Changing …

After this period of glory, the team went through times of unrest and concern. Beginning with the season of 1997-1998 the city had two teams: Carbochim and UT Sanex. The University team, UT Sanex, ended that year's championship on the 6th position, while Carbochim ended it on the 3rd position. The two teams merged under the name of "U"Carbochim.

In the summer of 1998, the ex-player Gabriel Olpretean took the lead of the team. The same tireless coach Gheorghe Roman stood by his side. The following players managed to win one last bronze medal for "U" in 1999: Cornel Săftescu, Tiberiu Sebestyen, Tudor Dumitrescu, Flavius Lăpuşte, Cristian Marin, Rares Morar, Rares Boian, Cornel Geomolean, Mihai Silvăşan, Mihai Popa, Dorin Şciopu, Cătălin Rusu, Marius Crăciun.

After that, for a couple of years,the team found itself in search of its unity and of its results. In January 2000 Dorin Pintea and Mircea Cristescu returned to Cluj, after playing for Tg. Mureş. Marcel Ţenter also returned to Cluj from Germany. The same summer Pintea and Cristescu retreated as players, but remained in the technical staff of Universitatea. Bobo Pintea became assistant coach and Mircea Cristescu became manager of the new team.

Flavius Lăpuşte was brought back from Austria, but he left again at the end of the season, together with Marcel Ţenter, to Israel and then to Germany. The fullback player returned to Cluj where he ended his successful career in 2007.

The exodus of foreign players

The year 2000 marked an opening of the team towards foreign players. For a few seasons the transfers mainly involved ex-Yugoslavian players. The basketball schools they came from were superior in value to ours and so they helped improve the quality of Romanian basketball competitions. Keeping up with its rival teams from the internal championship "U" Cluj performed a few transfers which concluded with the coming of Dejan Dukovcic, Miljan Medvedj, Zoran Krstanovic, Branko Cuic (all of them Yugoslavian) to the team and with the coming of Saşa Vukas and Damir Milacic, both of them Croatian.

The Serbian school of basketball provided not only players but also coaches for "U" Cluj, Miodrag Perisic taking the team to the finals in 2005-2006, and bringing the national title back home after ten years.

At the same time, an American player, LeVar Seals, signed a contract with the Romanian team. His arrival brought a new dimension to

the quality of the show. Seals were one of the most loved players during the three seasons that he played for "U". Fans loved him for his talent and for the atmosphere he created on the field.

Following Seals's example Stan Blackmon, Cory Jenkins, Ramel Allen, Bambale Osby, Matt Gibson and Terrence Roberts also came to Cluj. In 2007-2008 Brad Buckman, one of the best center players transferred in the last decade, came to play for Universitatea. He confirmed his superior skills playing for our team and after that for Hapoel Holon (Israel), taking the team to the semifinals where they met Maccabi Tel Aviv.

Another player worth mentioning is Coach Thomas Anthony Baldwin, who has been at the charge of the team for one season and a half. Under his guidance the team made it to game 7 of the finals in 2007-2008. The game is remembered to be **"the most spectacular final ever seen in modern Romanian basketball".**

EUROPEAN CUPS
FIBA EuroCup Challenge
Season 2005-2006

The season 2005-2006 meant the comeback of Cluj male basketball team. After ten years of absence they participated again in FIBA EuroCup Challenge, finishing the competition with one victory (home, against the Israeli team Ironi Elitzur) and three defeats.

Results:
26.10.2005 - Apoel – B.U. Poli Mobitelco 76-90
2.11.2005 - B.U. Poli Mobitelco – Ironi Elitzur 78-74
7.11.2005 - B.U. Poli Mobitelco – Apoel 75-82
23.11.2005 - Ironi Elitzur – B.U. Poli Mobitelco 87-97.

Season 2006-2007

After their participating again in the European Cups, the basketball players from Cluj continued their line of successes the next season. Nevertheless Miodrag Perisic's team suffered a few modifications. In the recent history of basketball that season was the most prolific in what concerns their European participation. The team made its way to the quarters of the finals in FIBA EuroCup Challenge, after having finished first in the main group, winning against Keravnos (Cypriot team) , who later played the final.

Group Results

8.11.2006 - U-Mobitelco Cluj – BC Boncourt (Switzerland) 83-74
16.11.2006 - Keravnos (Cyprus) – U-Mobitelco 95-100
23.11.2006 - BC Brno (Czech Republic) – U-Mobitelco 64-96
29.11.2006 - BC Boncourt – U-Mobitelco 86-65
7.12.2006 - U-Mobitelco – Keravnos 86-81
14.12.2006 - U-Mobitelco – BC Brno 79-62

Quarterfinals

The double eliminatory round was played against Pizzaexpress Apollon Limassol, team who won both games, 82-71 in Cyprus and 86-75 in Cluj. LeVar Seals finished the European campaign as the most dynamic scorer (an average of 22.9 points/game, 4.5 rebounds and 2.1 decisive passes.

Season 2007-2008

The next year, U-Mobitelco played in the same competition, which had changed its name to FIBA Eurochallenge. Our players did not make it past the preliminary rounds, being defeated by the Greek team PAOK Salonic. They lost both games: in Greece the score was 74-79 and home 65-71. The Greeks coach was Tab Baldwin, who would later (in December 2007) sign a contract with U-Mobitelco.

Season 2008-2009

The next year U-Mobitelco continued its series of games in FIBA Eurochallenge. Nevertheless the new season didn't bring more luck this time. The team was eliminated in the preliminary rounds, this time by the Germans from EWE Baskets Oldenburg. The team lost both home – 80-86 – and in Germany – 77-72. EWE Baskets Oldenburg showed its value at the end of the championship, when it won the title in Germany, and assured its participation straight into the Euroleague.

U-Mobitelco suffered a moral blow, this premature elimination made them lose confidence. They were also eliminated in the first round of the Romanian Cup, and they finished the championship on the 5^{th} position.

Zoran Krstanovic (from Kapitals, Netherlands) and the American Terrence Roberts (Israel) joined the team in the second half of the championship. Also, three players from the second team, Andrei Bercean, Sabin Faur and Florin Muntean, came to play in Division A.

After four years of playing in the European Cups, U-Mobitelco makes a confident start in the opening season of 2009-2010. The team's goal is to play in the Central Europe's Cup. Two formal players of the team, both assistant coaches in the past, have taken charge of U-Mobitelco: Marcel Țenter, who is now the main coach, and Dorin Pintea, as his assistant.

Marcel Țenter, head coach: "It is an honor and at the same times a great responsibility for me to be the main coach of the team. I gladly took the job, especially given the fact that I was a formal player and that the team has brought me many professional satisfactions. I am aware of my difficult mission, but I trust my players and the fans. I believe they will help us, as always. Also, the Division B team is as important to us as the first team, because the young players we have there can grow experienced enough to play for the Division A team. We have to train them, give them the chance to play on the field and thus they can advance from juniors to seniors. I have a message for the fans, who have always been very devoted to the team: "Only those who have been in the public and seen one of our games can fully understand the "U" spirit. Only those who have played for "U" can understand why the whole town loves this team more than anything. "U" is something incredible. We all believe in it and it is our honors to continue the activity for the University Club".

Reuniting with the mother-club

In the summer of 2001, University's male basketball team left the mother-club, after a season dominated by Horia Rotaru's coaching, going under the care of a private investiture. Its names were in turns: B.U Poli Carbochim, B.U. Poli Mobitelco and U-Mobitelco. The team played two finals in 2006 and 2008, and won a bronze medal in 2007. 2007 was the very year Marcel Țenter, the last component of the golden team, ended his career as a player.

The end of July 2009 was a very significant moment for the team. The players got together in order to prepare for the championship, but it also marked the reunion with CS Universitatea. U-Mobitelco has once again become "U"-Mobitelco. According to the protocol, the results of the team will bring points to the club (CS "U"). The club can now be proud to be represented in Romanian men's basketball.

In what follows, we give to you the declarations of those present when the official announcement was made:

Valentin Nica, President of "U"-Mobitelco: "I am extremely happy to witness the team's return to CS Universitatea in the club's 90th anniversary year. Cluj basketball has a 62 years tradition, the section being established in 1947. We will form a strong team that will represent the club in the internal championships and in the European Cups. We hope it will bring results that will make us proud. A national championship title would be fantastic, given the fact that the last one was won in 1996, also by our basketball male team. We, the executive staff, will do our best to help the team. I am convinced that the line of successes will continue, and from now on the glory will be the teams as well as the club's. For a few years the team has been separated from CS Universitatea, but now they are brought together, and "U"-Mobitelco has full rights inside the club."

Mircea Cristescu, executive president: "You are rarely given the opportunity to celebrate both an anniversary moment ("U"-90 years old) and the reunion of the team with its mother club. We are honored by this moment. Last year would have also been a good moment, but this year is more special. Our team will represent CS "U" in the basketball competitions, we have signed a protocol and the points we gain will be of the university club's as well. We will fight for the championship title, for the Romanian Cup and for the Central European Cup.

"U", our eternal love

Men's basketball team owes its results over the years to the hard work the players put out and also to the fans. No matter the chances the team had to win, the fans were fully devoted to the sport they loved and stood by the players for good or for worse. Often the show they created in the public was as impressive as the show on the field. The University hymn "Glory, glory to the student days" was sang with such emotion that it gave wings to the players. The players always declared that the fans in Cluj were unique. The supporters knew no obstacles, no distances, they never abandoned the team. They stood by the players to the end, crying with joy or with sadness. They defended their eternal love – "U"! The players took their example, not only the Romanian ones but also the foreigners, who have discovered the spirit of Universitatea. The players and the fans brought to life the expression:"U"- the eternal love" and they made Universitatea a respectable symbol of the city.

21 Medals

When the club celebrates its 90th year of existence, we are proud to look over the years and sum up the results of the basketball team: Three times national champion (in 1992 and 1993 under the name of "U" Fimaro Cluj and in 1996 under the name of "U" SM Invest), six titles of vice-champion (in 1959 and 1962 under the name of Stiinta IMF Cluj, in 1991 under the name of Universitatea Metalul Rosu Cluj, in 1994 – Universitatea Fimaro Cluj, in 2006 and 2008 – U-Mobitelco Cluj). Also the twelve bronze medals are worth mentioning: in 1960 and 1963 under the name of Stiinta IMF Cluj, in 1966,1967,1970,1973,1976,1977,1978 – Universitatea Cluj, in 1995 – "U"SM Invest, in 1999 – "U" Carbochim Cluj, in 2007- U-Mobitelco.

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IMPORTANCE OF SENSING BALANCE IN THROWING EVENTS EXECUTED WITH ROTATION

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ABSTRACT. The acquiring of the perfect technique and the success of throwing events are significantly influenced by the sense of balance. Several viewpoints are taken into consideration by the experts when selecting throwers (physique, conditioning abilities, psychic factors, etc.), but not enough stress is put on investigating sensing of balance. Sense of balance has an influencing role on the performance in case of throws with rotation, thus its analysis can aid the selection and preparation of throwing athletes. The constantly changing equilibrium has a special role in the throws executed with rotation. Sensing of balance is such a coordination ability, which is an important condition of solving the movement exercises fast and aim, when the base of support is small, or when the conditions of equilibrium is very uncertain. It has a basic role in equalizing the disturbing factors as well. To accelerate / speed up motor learning, to shorten the time of learning, and to prevent the 'harmful side effects', it seems to be, that sensing of balance and maintaining balance safely must be learnt with special exercises several weeks or months before teaching the basic movements of the throwing events requiring a higher level of balance.

Key words: throwing events, sense of balance

The acquiring of the perfect technique and the success of throwing events are significantly influenced by the sense of balance. Several viewpoints are taken into consideration by the experts when selecting throwers (physique, conditioning abilities, psychic factors, etc.), but not enough stress is put on investigating sensing of balance. According to the latest researches sense of balance has an influencing role on the performance in

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case of throws with rotation, thus its analysis can aid the selection and preparation of throwing athletes. The quality of balancing system is genetically determined, but the level of perception can be formed and developed. As the execution of advancing-rotational movements in throwing events are characterized by dynamic equilibrium and dynamic sense of position, it seemed to be important to prepare a summarizing essay based on the special literature and on an own research both from theoretical and practical point of view.

General aspects of maintaining balance

Maintaining balance is an essential part of our everyday movement activity. We would not be able to sit, stand or do different movements and activities without it. Sensing of balance, maintaining balance has a relatively greater importance in sport and physical education activities. Its greater, more emphasized importance is explained by the fact that sport and PE movements are more complex and complicated, and is realized among more difficult conditions than everyday activity. It is known from the practice of sport and PE that the learning and executing of certain movement activities require a higher-level function of the balancing system. This higher activity level is in relation to the absolute and differentiating (perception) threshold, and to the mechanisms regulating balancing, plays an important role in balancing. The high level of adaptation of the balancing system makes the complicatedly structured movement possible to learn and execute and maintain different static situations. The adaptation level of balancing system should be planned systematically to make students able to learn the more complicated good sense of balance and maintaining of balance, necessary to obtaining movement patterns and body positions required.

Experience supported with concrete facts ensure, that the selection of athletes for throwing events requires a longer than average process and its completion regularly exceeds the youth age (Koltai-Szécsényi 1998). A huge part of the movements for track and field is formed by throws. In relation to the types of gaining impetus, throws are divided into linear and rotational throws. Based on the experience the linear throws executed forward (e.g. two-hand throw forward or the one-hand throw forward) can be learnt the easiest way. The linear throws executed backward (e.g. two-hand backward overhead throw) can be learnt with more difficulties. The most difficult ones are those executed with spin and rotation (e.g. two-hand sling from the side to the front executed from a rotational jump / jump turn).

The degree of difficulty of the above-mentioned throwing methods is not given by the structural complicatedness of the movements, but by the difficulties of maintaining balance. The two-hand forward throw differs only in the direction of the throw from the two-hand backward overhead throw. Anyhow the one executed with two hands forward is learnt by an instant, while weeks are needed to learn the correct technical execution of the two-hand backward overhead throw. The reason of this is that the latter one requires an unusual backward direction balancing, which demands a new, higher level of adaptation in the balancing organ. Even more it is a situation in the throws executed with spin and rotation (Eckschmiedt, 1988).

Physiological factors of balancing

Receptors/receivers of balancing (equilibrium) are in the labyrinth of the auris interna, namely in the utriculus and sacculus, and in the half-moon arc path. Those parts of the utriculus and sacculus wall, which are thickened by the cells of the sensing epitholium, are called macula. The macula in the utricles is called the receptor of the static equilibrium. Its sensing cells are the hair cells, above which a gelatinous layer containing calcium carbonate crystals, called otholites. The otholite crystals mean a mechanic stimulus on the hair cells as a result of spatial change of the head. The receptors of the dynamic equilibrium are located in the half-moon arc path. These sensory cells are located in the so called ampulla ectasia (widening of the half-moon arc path), in a crista shape. These are basic hair cells, covered with gelatinous material. The adequate stimulus for the receptors of the half-moon arc path is the flow (flumen) of the endolympha convoked by the moving of the head. The three pairs of arc path are in the three planes of the space, and all are sensible to the rotation around the axis in the right angle to the plane. As the stimulus always means a change, the receptors of the equilibrium get into reaction (Frenkl, 1982) at the beginning or stopping of the rotational movements, or in case of a serious change in the velocity of movement.

The endolympha flow in the equilibrium evoked by the shifting of the head is followed by the movement of the eyes through its relation to the oculamotorius nuclei. Movement of the eyes can be provoked through the stimulating of the balancing organ. With the repeating of different stimuli (as in case of other organ senses), the response of the nervous system are gradually decreasing. It is called habitation of the vestibular system, which is a more difficult process than the adaptation of senses and fatigue. Habituation is in comparison to the age of the athlete and the time spent

with doing sports. It can be deducted from all these that sports movement - should it be built up of the simplest exercises -, might mean a complicated stimulus for the labyrinth.

The vestibular „set of receptors" – to receive the stimuli of the body position and body movement – plays an important role in their forwarding. The crista located in the half-moon arc path senses the angular speed of the accelerated movements of the head. The responding adequate stimulus is originated as a fast change of movement speed, at the beginning or ending of such direction movements. The otholit organ senses the spatial location / position of the head. So while the half-moon arc paths take part in the dynamic, then the otholit organ takes part in the static sense of balancing.

Practical aspects of equilibrium

During the preliminary swings of discus throw, the athlete tries to hold his head in a natural position. With finishing these preliminary swings, when the implement is in deadlock position, the vertical axis of the head should not show a divergence, its sideward horizontal turn should have such a rate that makes the "torsion" starting position possible. So to say, the athlete should make efforts to look into the opposite direction of the throw, and the head should rotate around the vertical axis, as much as it was caused by the shifting of the shoulder axis.

During the preliminary swings of the hammer throw, depending on the position of the implement, small-scale weight-transfers aid the formation of stabile equilibrium before the rotation. The turning (rotation) of the body around the vertical axis, and the moving of the whole trunk towards the left leg is the first shifting of the weight. During this time the hammer passes the lowest point of the preliminary swing, and continues its path leftwards, already on an ascending curved path. Swinging of the left arm to the level of the shoulder, the whole body turns to the right, the trunk moves towards the right leg (second shifting of the weight), the implement passes the highest point of its curved path, further on towards the direction of the deepest point.

The carriage of the head – similar to discus throw – is also very important here. The keeping of the head should be natural, sight directed forward, and a bit to the right. It should be avoided at all costs that the head directs the movement, as it causes the shortening of the radius, thus decreasing the success of the throw. With novice athletes, the starting with the head mostly results in the rightward leaning of the vertical axis, and the loss of balance, as well.

Based on experiences, a greater stress should be laid on those moments, which are the pre-requisites of a successful throw, the perfect technique. Moving into the rotation starts with the opening movement of the left arm, which is followed by the movement directed by the head. The head moves towards the direction of rotation, until it reaches the right angle position to the rotational movement. In the further parts of the pre accelerating phases it moves together with the upper part of the body. From the point of view of muscle tone the reflex effects deriving from it, are of extreme importance. As a result of the intentional rotational moving /directing of the head, this angular velocity reflex of labyrinth origin brings about the constantly changing momentary rotational axis of the thrower, thus creating the pre-tension of the muscles taking part in the rotation, in a reflex way. The divergence of the head from the vertical line in the pre-accelerating phases of the throw (e.g. the flinging of the head backward), is very harmful, because the extension of the legs are evoked by the static reflex, thus – as a result of it –, the rotational jump will be high e.g. in case of rotational shot put or discus style shot putting.

The kinetic energy gained in the pre-acceleration phase will significantly decrease, which means that less kinetic energy can be used in the main acceleration phase. In the final acceleration phase, at the moment of release, the intentional rotating of the head towards the direction of the throw and fling (fling backwards) happens. That is why both the dynamic and the static equilibrium are formed here. As a result of the head's turning towards the direction of the throw, the "invisible "release axis" is created by the angular acceleration reflex. In case of discus throw it is the straight line crossing the left shoulder and the left supporting leg with a right-handed thrower. Thus the pre-tension of the muscles and the joining forces of the left side are produced in forming the release axis. The intentional moving of the head is not harmful in this phase; the static reflex appears here, aids the extension of the legs in the finishing part of the release.

During the release phase in the hammer throw the same flinging back of the head is also characteristic. The gained kinetic energy of the body-implement system being in equilibrium during the rotation, must be increased by the fast breaking and the stopping of the body and by the transmitting of force imposed onto the implement and having an effect into the direction of the throw during the release. Stopping of the body starts with the forceful full extension of the left leg, to which later and gradually are attached the forward shifting of the hips to the front, the raising and the

backward tensing of the trunk and the backward fling of the head (the so called arch position).

As soon as the implement leaves the hand, the most important thing is the taking up of the stabile equilibrium position, in favour of which the centre of gravity must be lowered. Most of the exchange of the legs is also necessary, similar to the discus throwers releasing the implement from the change, as the body continues the rotation, sometimes overcoming even the direction of the throw, based on the inertia. At the hammer throw the difference in the size of the change is reverse. Deriving from the end position the hammer throwers require only a small leap to execute the exchange of legs, as at the moment of the release the legs are near to each other (in less than shoulder width apart).

In case of novice competitors it can be observed, that it is difficult for them to stop the rotation of their body in the final phase of the release. That is why sometimes in spite of their well-executed triple or quadruples rotational technique, their attempt will be a no throw, as they often "dizzy out" of the circle. In favour of avoiding this situation, throws executed with one turn and with heavier than the regular hammer, must be practiced during the training sessions, if their competition technique is executed with several turns.

The head as a mass has a decisive importance on the rotation. The impulses created by the moving of the head aid and influence the speed and acceleration of the rotation. One of the most important duties is to create the harmony of the changes – static-dynamic-static – in the equilibrium. Deliberate, perfect knowledge of the technique, and the thing: what, why and how should be taught, have decisive role in it. The constantly changing equilibrium has a special role in the throws executed with rotation, which is influenced by the position and movement of the head. That is why a greater stress must be put onto its teaching. Have a look at any types of throws: there is nothing else happening in the process of perfect technique, then the finding the optimal equilibrium in response to the inner dynamics of the movements, and the main aim of which is to create the best release position.

The following factors influence the role of sensing balance in throws executed with advancing rotation:

a. role of static-dynamic balance in certain phases of throws
b. role of head position in successful execution
c. correct head position in each phase of the throw
d. role and importance of developing/improving sense of balance
e. genetic determination – observation of children

f. developing of vestibular and circulatory system should have an important role in school PE

g. greater stress must / should be put on the general and specific training of sensing balance

The experience of Gyula Simon, a coach in Szombathely is that huge differences can be observed when assessing the sensing of balance among students of both secondary and higher level education. That is why the role and moving of head position must be stressed from the first minute of learning, and the harmony between the activities of groups of muscles each by each and together must be created.

Sensing of balance is such a coordination ability, which is an important condition of solving the movement exercises fast and aim, when the base of support is small, or when the conditions of equilibrium is very uncertain. Sense of balance plays a basic role in maintaining the balance and in equalizing the disturbing factors. The followings should be considered:

- the complicatedness in coordination of the given exercise
- adaptation to the duties or situation and the time of changeover (switching to the task)
- time of learning the exercises required for a high-level of balance (Szécsényiné, 1984).

Balancing is the ability of the human being with which the body can be carried in the necessary position during the changing of the body position and movement. The better the balancing function of a person is, the faster he regains the lost balance, and the less the amplitude of the fluctuation is. Correlation can be observed between the sport performance and the balancing ability. There are two methods for developing balance: 1. Balancing exercises. They are such movements and body positions, in which balance must be maintained among conditions made more difficult. The person should not strive for assuming the most difficult movements. It is better if the balance is lost intentionally, then one tries to get back to the safe balance position. The person, who can get fast back to the balancing position, has good balancing ability. The most important role of these exercises is to perfect the ability with which it is the easiest and fastest to gain balance back. 2. The perfecting of the analyzators each by each is also a method, which have decisive role in determining the balance position. (These are the sense of balance and the movement perception.) The linear exercises and those in relation to angular velocity are used for perfecting the sensing of balance. Both exercise types are important, because the otholyts of the vestibulum

play a role in rotational moves. As these linear and rotational exercises act relatively independent from each other, they represent two basic stimuli. The versatile adaptation of the vestibular apparatus can be reached only if both linear and rotational change of position into different directions is applied. The second type of method is more effective with those who have extremely bad sense of balance (Nádori, 1981).

It is easier to maintain balance if the exercises are executed in a technically proper way. In e.g. standing balance can be maintained easily, if look forward to an object. Maintaining of the balance can be reached the easiest way, if movements/motions are done in the joints near the base of support.

The concept determination of notion 'coordinating abilities' is very general and abstract. The interpretation of this notion through practical exercises makes us able to understand the essence of it. Let's examine the sense of balance. Throw from a circle, running along a beam, landing in gymnastics exercises, the regaining of balance in any body position, even standing require a precisely determined coordination of the movement. Exercises and positions differing from each other can be found in the listed examples, but as far as the special coordination of the movement is concerned, the same phenomenon can be met: basically they require the same as far as coordination is concerned (Nádori, 1981). In the above mentioned cases the coordination of the movement activity is over in a precisely determined way, and this process represent a determined feature at the same time: the sense of balance. Accomplishing similar/identical or different tasks the coordination processes are confirmed (in this case the process of manifested in the sense of balance), and specific coordination abilities are expressed. The vision (image, picture) formed this way – the image of balance – does not mean the condition of executing one single exercise, but all activities in which balance has of great importance. Body carriage forms an important essential part of skills that is why it is very important to control it. The first condition is the balance, the sense organ of which is located in the inner part of the ear, in the vestibular apparatus. In controlling the balance the different receptors related to the joint and muscle have great role. When the body starts losing its balance, this moving out from the stabile balancing situation is signed by the tension of the joints receptors or the muscle bundles. The sense of touching can show sign the loss of balance from head to toes. These receptors each by each or together in combination can give an input about the loss of balance, and as a result of that the correction can be started (Bálint, 1968). Acceleration executed with the proper responsive

body part at the right time has of decisive importance in executing the correct/proper movement technique. This is the essence of movement dynamics. Acceleration is related to muscle strength / power. Speed force is the result of the useful work in the muscles.

Muscle biological investigations of József Szécsényi proves, that the preliminary eccentric contraction of the muscle has an effect on the concentric contraction of the muscle, this way the muscle contracting faster, is able to exert a bigger force (Szécsényi, 1979). So, in case the physiological conditions of balancing are formed, the competitor / student are able to execute the necessary correct movement pattern of throws. That method of teaching when the adaptation level of balancing necessary for executing the movement is formed during the teaching of the special move is not correct, because one can progress very slowly in obtaining motor learning. It might also happen that the student builds false moves into his/her movement, and these are fixed for a long time, or which are very difficult to be corrected later.

Summary

To accelerate / speed up motor learning, to shorten the time of learning, and to prevent the 'harmful side effects', it seems to be, that sensing of balance and maintaining balance safely must be learnt with special exercises several weeks or months before teaching the basic movements of the throwing events requiring a higher level of balance.

Based on previous research it is supposed that the vestibular system necessary for the execution of throws with rotation might be influenced by the following factors:

1. Role of genetic abilities is important in the functioning of the balancing system.
2. The practising and training of athletic throws (objective, preparatory and special movements) aids the more effective activity of the vestibular system, thus increasing the security of balancing position.
3. The special rotational exercises around the horizontal and vertical axis of the body influence the adequate sensing/perception of the balance position as a result of the strong stimulation of the vestibular system, thus the mistake in the loss of balance might be easier eliminated.

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RESEARCH ON THE LEGISLATION CONCERNING THE USE OF FOOD SUPPLEMENTS IN SPORT

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ABSTRACT. The paper aims at analyzing and comparing the international and European legislation and the Romanian legislation concerning the use of food supplements in sport, in order to identify the correspondence between Romanian norms and the international and European legal framework. The research has been performed on the texts of the European Union, of World Anti-Doping Agency and the Romanian regulations. The methods employed are interpretation and comparison. At European level in the legislation involving food supplements there are no particular specifications as to the use of such supplements by athletes, although this is a current issue on the agenda of the World Anti-Doping Agency, because of supplements' contamination with doping substances and precursors. Romania is one of the countries which have adopted legal norms regarding the use of supplements in sports. The Romanian law states the producer's obligation to specify on the product's label the fact that it is forbidden to athletes whenever the product contains any prohibited substances or precursors of androgen hormones. The law also establishes that athletes must use any food supplements only based on medical prescription, a stipulation which is in accordance with the recommendations of the World Anti-Doping Agency. The Romanian norms are important in what concerns the indiscriminate use of food supplements by athletes, with serious repercussions on their health and career. These norms are very modern, having a role of prevention and education, but actually hardly applied.

Key words: food supplements, legislation, use in sports

REZUMAT. Cercetări asupra legislației privind utilizarea în sport a suplimentelor alimentare. Lucrarea are ca obiective analizarea şi compararea legislației de la nivelul Uniunii Europene, internațional şi din România privind utilizarea în sport a suplimentelor alimentare, în scopul identificării corespondenței dintre normele româneşti şi cadrul legal european şi internațional. Cercetarea s-a efectuat asupra documentelor oficiale ale Uniunii

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Europene, ale Agenției Mondiale Anti-Doping şi asupra normelor din România. Se utilizează metodele interpretării şi metoda comparativă. În legislația privind suplimentele alimentare la nivel european nu există prevederi speciale privind folosirea de către sportivi a suplimentelor alimentare, deşi această problemă este pe ordinea de zi a Agenției Mondiale Anti-Doping, din cauza contaminării unora dintre suplimente cu substanțe dopate sau precursori. România este una din țările care au adoptat prevederi legale privind utilizarea în sport a suplimentelor alimentare. Legislația românească stabileşte obligația producătorului de a menționa pe eticheta produsului faptul că acesta este interzis sportivilor atunci când conține substanțe interzise sau precursori ai hormonilor androgeni. Legea stabileşte și faptul că sportivii trebuie să utilizeze suplimente alimentare numai pe bază de prescripție medicală, prevedere care este în acord cu recomandările Agenției Mondiale Anti-Doping. Prevederile româneşti sunt importante pentru prevenirea unei utilizări fără discernământ de către sportivi a suplimentelor alimentare, cu repercusiuni grave asupra sănătății şi carierei lor. Aceste prevederi sunt foarte moderne, având rol preventiv şi educativ, dar aplicabilitate redusă în practică.

Cuvinte cheie: suplimente alimentare, legislație, utilizare în sport.

Introduction

Food supplements are the subject of special legislation, not only at national level, but also at international level, due to the existence of a wide market for them, alongside a widespread use. The present paperwork is part of an ampler research project, whose objective is the study of food supplements legislation, starting from the comparison of the legal norms existent in the domain in Romania and at European and international level respectively. The research starts form the assumption that Romania, as member state of the European Union, is supposed to align to the rhythm of evolution of the European legislation and practices in the domain of food supplements, from where results the necessity of their evaluation and the impact they have on the population's health, especially that of athletes, along with having them in view when establishing any regulating norms. The elements of legislation under research are the legal norms which refer to defining food supplements, marketing authorization, manufacture, distribution, publicity, surveillance of activities, and the use of dietary supplements by sportsmen and sportswomen. The objectives of the present work are to analyze and compare the European and the Romanian legislation concerning the use

of food supplements in sport, with a review to identifying the measure in which the Romanian norms correspond to the legal European and international set of laws in the domain. The importance of setting laws regarding the use of food supplements in sport creates the possibility of avoiding their abusive consumption and the use of supplements contaminated with doping substances.

Material and methods

The legislation studied comprises the following normative acts:

- Guidelines for vitamin and mineral food supplements, CAC/GL 55 – 2005, Food and Agriculture Organisation – World Health Organisation (FAO-WHO);
- Directive 2002/46/EC of the European Parliament and of the Council on the approximation of the laws of the Member States relating to food supplements, modified through Commission Directive 2006/37/EC amending Annex II to Directive 2002/46/EC of the European Parliament and of the Council as regards the inclusion of certain substances;
- Athlete's Guide, World Anti-Doping Agency (WADA), edition 4, 2006;
- White Paper on Sports, Commission of the European Communities, 2007;
- White Paper entitled "A Strategy for Europe on Nutrition, Overweight and Obesity related health issues", Commission of the European Communities, 2007;
- Ordinance of the Romanian Government no. 59/2006 on the use of food supplements by athletes, approved by the Law no. 511/2006.

A research in the domain of legislation requires the use of juridical methodology, that is of the methods employed by scientific research in the field of law. [1,2] The present research required as methodology the use of methods of juridical interpretation and the comparative method. The interpretation of the norms included in the regulations is the logical-rational procedure, realized with specific rules and methods, for establishing the real meaning and purpose of the norms. The methods employed for interpreting the analyzed norms are: the grammar method, the teleological method, the systemic method, the historical method, the logical method [1,3]. The comparative method involves all the approaches and procedures applied in rational succession to the regulations existent in Romania and at European and international level, with a view to discovering and understanding their similitudes, differences and causes, that is, ultimately, in order to determine

the relations between the structures and functions of the compared terms, in this very case the legislation regarding the use of food supplements in sport. The stages of the methodological process imply a good knowledge and understanding of the aspects under comparison, their individual analogies and the comparison proper, which can result in some progress in the system of regulations [1,2,4]. The structure of the chapter presenting the results and discussions follows the stages of the methodological process: the legislation and official documents existent at international, European and Romanian level are successively analyzed, the findings resulted from approaching the texts being followed by the comparative synthesis and the conclusions to the research study.

Results and discussions

1. Legislation at European and international level

The study enterprised led, in its first part, to identification and analysis of the legal norms applicable in the European Union with regard to food supplements. The first category of norms is FAO-WHO Guidelines for vitamin and mineral food supplements, which are valid for the European countries too. The second category of norms is formed of the ones adopted by the European Union, directives which are compulsory for the member states. Directives FAO-WHO and the European ones do not contain specifications referring to the use of food supplements in sport.

However, there is a great deal of debate among the authorities from various states concerning the use of such products by athletes and the impact they have on their health and performance. Food supplements are a category of products which are not strictly regulated at national scale in every state, meaning there are no guarantees as to their quality and safety of use, the aspects being of even greater importance once the products come to be used by athletes. Moreover, a lot of food supplements can contain substances that are on the forbidden list of World Anti-Doping Agency, or precursors of such substances. To use them is a matter of high risk for sportspersons, even if they were unaware of their composition at the moment of consumption, them being made responsible in case proven positive at an eventual anti-doping test [5-8]. Some countries have adopted regulations concerning the use of food supplements.

In order to educate athletes in this respect, the Canadian Centre for Ethics in Sport (CCES) has issued a functional document entitled “Supplements

and sport". This document analyses the problems regarding the use of food supplements by athletes and proposes a series of possible solutions.

Thus, CCES classifies supplements in the following categories:

- food supplements which are used by athletes to satisfy their nutritional needs when their training or competition schedule, or the travels from one place to another are exhausting;
- ergogenic support, used by athletes to enhance performance [9]

Irrespective of category, dietary supplements are an object of controversy among athletes, because subsequent to their consumption, sometimes anti-doping tests resulted positive. The problems identified by CCES in this domain are related to the following:

- athletes' education;
- the role and responsibility of the organisations exercising control in sports;
- the absence, or insufficiency of regulating measures at national level regarding food supplements;
- the insufficient research studies regarding the processes of transformation undergone in the human body by the substances which are contained in food supplements and their effects, especially on athletes;
- the mercantile practices of some food supplement producers without guaranteeing their quality.

CCES proposes a series of possible solutions for solving the above-mentioned problems, among which:

- increasing exigency in what concerns the quality of products, through issuing a set of regulations at national level, with reference to approving certain food supplements, ensuring their quality and adequate labelling;
- the reformation of food supplements industry, by issuing internal rules of ensuring quality by the producers, collaboration of the specialist industry with the athletes and the decision makers in sport;
- optimization of the ways of informing and educating all those engaged in sport through informative campaigns (adverts, leaflets, fliers displaying information about substances etc.), warning the trainers and medical staff, creating a medical basis regarding and food supplements, involving pharmacists by establishing their legal attributions in the matter;
- increased research into the problem of food supplements through universities' scientific studies along with research on legislation and practices. [9]

CCES gives the example of the nutrition department of the Australian Institute of Sport (AIS) which has classified food supplements according to their efficiency and their probable innocuous nature as doping substances, paying attention to their labelling, wrapping and the scientific researches on the ingredients contained. Thus, food supplements have been classified in four groups:

- Group A: food supplements whose use by athletes is approved or recommended by AIS as, for example: energizing bars and drinks, creatine and polivitamins;
- Group B: food supplements which can be used by athletes only within a research protocol, for example probiotics, supplements with colostrum and Echinaceea;
- Group C: food supplements whose beneficial effects have not been established, which are not furnished through AIS programmes, such as aminoacids, Ginkgo and Ginseng;
- Group D: food supplements which are especially forbidden according to the anti-doping stipulations of the International Olympic Committee, or which involve a high risk of leading to a positive anti-doping test, as for instance, androstadienone, dehidroepiandrosterom (DHEA), or the plant called Tribulus terrestris L. (Malta cross). [9]

A European example of measures for athletes' protection against using supplements contaminated with doping substances is Netherland, where since the year 2001, the Association of Natural Product Producers has had a special program of testing food supplements according to WADA standards, in an accredited laboratory in Köln. The supplements found to have no doping contamination are on a "Positive List" of the Netherlands Security System Nutritional Supplements Elite Sports. Since this program was implemented there has not been any case of Dutch athletes proven positive because of contaminated food supplement consumption. [10]

In what concerns the scientific research regarding food supplements, there are a few published results, especially referring to the accidental doping with hormones coming from the use of such products.

Consequently, chemical research on some food supplements which contained 4-norandrostedione and 4-norandrostendiole, potential precursors of nandrolone, a doping substance, showed that the use of those food supplements leads to pharmacologically relevant concentrations of indirect nandrolone in the plasma. The authors consider, on grounds of these studies, that the distribution of prohormones under the form of food supplements is

an irresponsible act and that these precursors must be included on the prohibitions list of WADA [11]. There are research projects on food supplements with a view to identifying the new anabolic steroids introduced on supplements market, mainly distributed via Internet, which are not to be found on the list of internationally prohibited substances. It is about the so-called "designer steroids" (madol, THG), which are specially created so as not to be detected by the anti-doping laboratories and which are not sold on the legal steroid market, that is – in pharmacies. At the same time there is also the problem of steroids' structural analogues which enter the composition of certain medicines (superdrol, as analogue of drostanolone) and which fall into the same pattern. Not being medicines, there is no need of chemical studies for any of these in order to be marketed, therefore it is imperative that a detection method is found so that it could be used by the anti-doping control laboratories. [12,13]

a. The position of World Anti-Doping Agency

The main international authority in the domain of anti-doping regulations and athletes' surveillance is, from this point of view, World Anti-Doping Agency. According to Athlete's Guide issued by this authority, every athlete must check with the respective international federation which are the substances and methods prohibited in their sport. At the same time, athletes must inform their personal physician that they have to obey the rules specific to the sport they practice. WADA recommends great prudence in the use of any kind of product by athletes and, in case they are not sure of the content of a product, they should not use it. This warning is especially true for food supplements. WADA's position is that athletes should be recommended a proper diet and should be cautioned against the abusive use of food supplements, including the existence of incomplete labelling, which the athletes cannot use as argument in their favour. [14,15]

In fact, in the anti-doping control form there is a specification in which athletes must declare, when they are being tested, what are the medicines or food supplements, including vitamins and minerals, along with the concrete amount, that they have used in the past seven days. [16]

Given these problems, the question arises on whether a company which produces food supplements can request their being tested by WADA. According to the Ethical Code of anti-doping testing laboratories, which is included in the international standard for laboratories, the laboratories accredited by WADA are not supposed to perform the analysis of these

products unless there is a special request in this respect from an anti-doping organisation, within an analysis made in a concrete case of doping. [15,17]

Donati Report, published on WADA's site, which comprises a study of doping at world level, mentions the involvement of certain pharmaceutical companies in releasing certain pharmaceutical substances on the market, as food supplements, but which have a doping effect, under inoffensive presentation cover. The report qualifies such practices as being an improper use of pharmaceutical substances by the companies, the latter being fully aware of their serious side effects. [18]

The risk of indiscriminate use of food supplements by athletes refers to:

- excessive use, which can lead to intoxications with certain substances contained in the supplements, with undesirable effects on the health;
- a possible positive outcome of the doping tests due to the contamination of the supplements with doping substances, which leads to the penalising of athletes and, possibly, of some of the staff [15, 19]

These risks are mentioned by WADA in campaigns and conferences organized together with various international sporting organisations, with a view to specially prevent an uncontrolled consumption of food supplements by athletes. [20,21]

In fact, certain committees of WADA (the Executive Committee, the Committee of Ethics, etc.) debate, in their meetings, on the potential dangers resulting from the uncontrolled use of food supplements and the necessity of creating sets of specific rules in this respect in sports. [22-26]

b. The position of the European Commission

At European level there are two documents which contain action principles in the field of sport. "White Paper on Sports" and White Paper entitled "A Strategy for Europe on Nutrition, Overweight and Obesity related Health Issues", both issued by the European Commission.

In "White Paper on Sports" there is no official position of the European Union referring to the food supplements' use in sports but there is mentioning of an intent of developing partnerships at the level of WADA laboratories, Interpol and other structures (frontier police, the local and national one), in order that there is an information exchange about the doping substances and practices. At the same time, the European Commission requires that the European sports organisations establishes rules to be put into practice for better informing and educating the sportspersons about the doping substances,

the medical prescriptions that could contain such substances and the implications of their erroneous use on their health. [27]

Although it does not comprise references to the use of food supplements by sportspersons, White Paper entitled "A Strategy for Europe on Nutrition, Overweight and Obesity related Health Issues" lays a special accent on education for health purposes, by way of stimulating the realization of projects between various local and national structures and institutions, in cooperation with sport associations and clubs. [28]

2. Romanian legislation

The Ordinance no. 59/2006 of the Romanian Government regarding the use of food supplements by athletes, approved by the Law no. 511/2006, establishes the legal ground for the use of supplements in sport, also their being supplied and marketed, as well as certain responsibilities that refer to the producers, importers and deliverers of these products.

The law stipulations have a certain impact on pharmaceutical activity too, especially because food supplements are available not only in food stores and malls but also in pharmacies which, in their turn, get their supplies from the pharmaceutical network, through suppliers who bring them from medicine producers who sometimes make food supplements too.

For them, the Law has special stipulations at article 4 which states that the producers and the ones who sell food supplements are obliged to label them properly. Thus, the label is supposed to include:

a) the names of the categories of nutrients or substances which enter the product's composition or an indication of the nature of these nutrients or substances;

b) the amount of product which is recommended for daily use;

c) a warning reading that food supplements must not replace an adequate diet;

d) a warning including the specification "PROHIBITED TO ATHLETES" in case the respective food supplement contains prohibited substances and/or precursors of androgen hormones. [29]

There are authors who have analysed these stipulations and who sustain that the measures imposed in article 4 are correct and can prevent the unconscious use of certain contaminated food supplements. More interesting are considered the stipulations in article 3, especially those in indented line (1), which state that the athlete can use food supplements only on grounds of existent medical prescription, otherwise the stipulations in article 39,

indented line (1) from Law no. 227/2006 regarding the prevention and fighting of doping in sport will apply correspondingly. [2, 29] An analysis of the first part of the mentioned indented line (1) shows that this is impossible to put into practice, because, in the first place, they can be purchased from many types of stores where requesting a medical prescription is out of the question, there nor being qualified staff for the purpose and, on the other hand, even if they were exclusively pharmaceutical stuff, food supplements are not medicines and least of all ethical medicines, the only ones which require medical prescription.

The second part of the sentence in the mentioned indented line (1), which makes reference to Law no. 227/2006 regarding the prevention and fighting of doping, comes to clarify things to a certain extent because, in article 31, indented line (1), it says that the athlete is made responsible of the presence, in the biological test, of any prohibited substance, there not being necessary a proof of his intended guilt in order to conclude that there was a break of rules. [2,30] In other words, the statement in article 3, indented line (1), regarding the requirement of medical prescription, is specially meant for sportspersons, that is – they must know that a prescription is compulsory and, in case it is found that they have used food supplements not having a prescription they will be sanctioned according to article 6, indented line (1), which makes reference to athletes being sanctioned in conformity with Law no. 227/2006.

In literature it is shown that the stipulation in indented line (1) from article 3 should not be overlooked by pharmacists either. That is because indented line (2) from article 3, stipulates the interdiction of giving any athlete a prescription, or recommendation, or offer of a food supplement which contains precursors of androgen hormones or prohibited substances. Consequently, although food supplements are generally sold without a medical prescription, especially because they can be obtained in all kind of stores, the pharmacist, as professional, ought to have a discussion with the person who requests them and find out if they are athletes or not, and only afterwards decide. If the buyer recognizes that the consumer is a athlete, things are simpler, the pharmacist's role being that of refusing to recommend and offer such products, except for the case that there is a medical prescription. What is then left for them to do is check its validity, as well as whether the prescription is or is not to be kept by the pharmacy. If the person who requests the supplements maintains that the user is not a athlete, then the pharmacist cannot be suspicious even if, eventually, it might be

proven that what the person had declared was untrue. The pharmacist will release the respective supplements with a special warning and advice as to their use, him being caught in a factual error. [2,29]

According to article 6 from the Law, not obeying the stipulations of article 3, indented line (2), that is – recommendation and offer to athletes of food supplements which contain precursors of androgen hormones and/or other prohibited substances is considered infringement and is penalized with a fine ranging between 2500 lei and 10000 lei. The ones to unveil and put the sanction into practice are the state sanitary inspectors on behalf of the Ministry of Health and by the special delegated staff of the Anti-Doping Agency. [29]

It is to be noted that the existence of a law regarding the use of food supplements by athletes is important, despite having a number of shortcomings in terms of the ways in which the restrictions it sustains are put into practice, but the law itself proves the preoccupation and willfulness of the national authorities to introduce order in this domain.

From some practical experience in sports, particularly in water polo, we can conclude that there are deficiencies in the way the law is applied by the specific national federation, which reside in the poor information that reaches clubs, the insufficient collaboration in applying the law, the absence of collaborative actions in what concerns the education against uncontrolled use of food supplements. It is possible that the situation is identical in other sports as well and one of the solutions would be that of making the specific federations responsible, so that the law is known and applied and the results obtained are monitored.

3. Comparative study

In the legislation of the European Union regarding food supplements there are no special stipulations concerning their use by athletes, although this issue is on the agenda of the international sports authorities, because of some supplements being contaminated with doping substances or precursors. An example among the European states with an innovating attitude in this domain is Holland, where the Association of Natural Product Producers has a program of testing dietary supplements according to WADA standards in an authorized laboratory in Köln. The supplements found to have no doping contamination are on the “Positive List” of the Netherlands Security System Nutritional Supplements Elite Sports, which contributed to the elimination

of the cases of doping with food supplements by the Dutch athletes, since this program was implemented.

In the world there are but few examples of states which have adopted official positions in the domain, among which are Australia and Canada. The national authorities in these countries have classified food supplements according to the rate of use by athletes, have identified the problems implied by the regulations and the practice in the domain and have proposed solutions to these problems, which include educational aspects, control, scientific research, and the issuing of strict legal stipulations regarding the regime of food supplements.

Romania is one of the countries which have adopted legal rules regarding the use of food supplements in sports, through Governmental Ordinance no. 59/2006, approved by the Law no. 511/2006. Although it does not contain a classification of supplements according to the possibility of them being used by athletes, the law still stipulates the producer's obligation of mentioning on the product's label the fact that it is prohibited to athletes when it contains prohibited substances or precursors of androgen hormones. The law also stipulates that athletes must use food supplements only on grounds of medical prescription, a stipulation which is in accordance with the recommendations from the Athlete's Guide issued by WADA, which condemns this lack of regulations in most of the countries.

Disobedience of the law's stipulations has repercussions on the athletes and the technical and medical team, who are to be sanctioned to affecting their career in sport, as well as on the persons who recommended or offered the respective food supplements, them being sanctioned for contravention. The law's stipulations are important for preventing indiscriminate use of food supplements by athletes with serious repercussions on their health and career.

Conclusions

The present study makes an analysis of the official documents at European and international level, as well as of the Romanian legislation regarding the use of food supplements in sports.

In the legislation referring to food supplements of the European Union and the FAO-WHO there are no special stipulations regarding the use of food supplements by athletes, although this issue is on the World Anti-Doping Agency agenda, because of contamination of certain supplements with doping substances and precursors. There are only few examples of

states which have regulations and have adopted official positions in this domain, amongst which Australia, Canada and Holland.

Romania is one of the countries which have adopted legal stipulations regarding the use of food supplements in sport, through Governmental Ordinance no. 59/2006, approved by the Law no. 511/2006. The law establishes the producer's obligation to mention on the products label the fact that it is prohibited to athletes when it contains prohibited substances or precursors of androgen hormones. The law also establishes the fact that athletes must use food supplements only on grounds of medical prescription. The most modern stipulations of the Romanian legislation regarding food supplements are those which refer to their use in restrictive conditions by athletes, stipulations which are in accordance with the Athlete's Guide, issued by World Anti-Doping Agency, which condemns the lack of strict regulations in most of the countries. These recommendations are important due to their preventive and educational role, but have little practical applicability, a domain which definitely requires further efforts from the authorities.

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LIPID RESTRUCTURING IN PHYSICAL EFFORT

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ABSTRACT. Lipids represent heterogeneous cellular constituents that are found in the body in the form of simple or complex chemical combinations. The structural, functional and metabolic functions they take part in enlarge their contribution to the maintenance of cellular integrity. Lipids are a part of the biomembranes structure, playing an important role in energy storage. Therefore, the catabolism of lipid compounds will emit large amounts of energy: 1 g fat issue 9.3 kcal/g. The balance between the processes of lipogenesis and lipolysis is controlled by nerve and hormonal pathways .However, accelerate fat burning during exercise is due to the action of ferments, hormones and increasing the oxidative capacity of muscle. Training enhances the capacity of muscle fibers to take over and oxidize fatty acids from plasmatic triglycerides. The physical aerobic effort increases the body dependence for the lipid constituents as energy suppliers at the expense of using carbohydrates. Restructuring fat by exercise can be noticed in a few hours and lasts 2-3 days. If people train in a regular basis, lipid values regularize and remain so.

Keywords: fat, energy, effort, catabolism

REZUMAT. **Restructurări lipidice în efortul fizic.** Lipidele reprezintă o clasă heterogenă de constituenți celulari, ce se găsesc în organism sub forma unor combinații chimice simple sau complexe.Rolurile structurale, funcționale şi metabolice pe care acestea le îndeplinesc măresc importanța contribuției la menținerea integrității celulare. Lipidele intră în structura biomembranelor şi reprezintă forma cea mai condensată de păstrare a energiei.Ca urmare, catabolismul compuşilor lipidici va degaja cantități însemnate de energie: 1 g lipide eliberează 9,3 kcal/g. Echilibrul dintre procesele de lipogeneză şi lipoliză este controlat pe căi nervoase şi hormonale.Totuși, accelerarea arderii grăsimilor în timpul efortului este urmarea acțiunii fermenților,

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hormonilor şi măririi capacității de oxidare a muşchilor. Antrenamentul măreşte capacitatea fibrelor musculare de a prelua şi a oxida acizii graşi care provin din trigliceridele plasmatice.Efortul fizic aerob măreşte dependența organismului față de constituenții lipidici ca furnizori de energie, în detrimentul utilizării glucidelor .Restructurarea lipidică prin exerciții fizice se instalează în câteva ore şi durează 2-3 zile. Dacă persoanele efectuează antrenamente regulate, valorile lipidelor se normalizează şi rămân aşa.

Cuvinte cheie: lipide, energie, efort, catabolism

Lipid Restructuring in Physical Effort

Lipids, important components of the human diet, represent a heterogeneous class of substances; their supply in the body can be of exogenous and endogenous nature. In a balanced diet, the lipids must bring to the body 25-30% of the calories amount. The fats of animal origin must represent 70% because they are easier to assimilate, and the vegetal fats must represent 30% of the amount of lipids consumed.

From structural point of view we distinguish between simple lipids in which the triglycerid is a major component, and complex lipids-glycerophospholipids and sfingolipids.

The tryglycerids (TG) are synthesized especially in the liver and fat tissue, and from biochemical point of view they are esters of glycerol with fat acids. They represent a valuable energetic substrate, securing, under normal circumstances, approximately 40% of the body energy needs, the main role fall on the fat acids. By oxidation of the fat acids, depending on the number of consumed macroergic connections, an important amount of ATP may be obtained. Many tissues have the ability to oxidize long catena fat acids, but the process is more active in the muscle, myocardium, liver, kidney, spleen, brain, lungs and fat tissue. In order to be oxidized, fat acids are activated in cytosol and then they run the transport route in the mitochondria, where the beta-oxydation in four stages within Lynen's helix takes place.

The de novo synthesis of fat acids on the account of glucose represents a metabolic pathway of great physiologic importance, due to the body's limited capacity to store sugars. Glucose integrated in excess compared to the immediate energy needs is converted into fat acids at the level of fat tissue. Another synthesis pathway of fat acids is represented by their elongation, involving a microsomial system and a mitochondria system of elongation.

The source of tryglycerids (tri, di or mono) is either exogenous from the absorption of food lipids (neutral food fats are broken down by the

digestive lipases to the extent of 50% up to fat acids and glycerol, and the rest to monoglycerids), or endogenous, with starting point from glycerol 3-phosphate and activated fat acids.

The tryglicerids stored in the fat tissue may be mobilized and sent to the tissues in the form of free fat acids (AGL), used as a source of energy and of circulating lipids. Under circumstances of increased strain, of physical strain, exposure to cold, inanition, this process is extremely intense and under the control of superior regulation mechanisms. The free fat acids are subsequently extracted from the plasma by various cells and broken down oxidative up to CO2, H2O and energy, under the influence of mitochondria enzymes.

Recent specialty studies have shown the presence at the level of muscle TG of a triglyceridic adipose lipase /ATGL/ which, in circumstances of prolonged effort intensifies the action of the hormone-sensitive lipase – HSL, thus the two increase the muscle lipolytic activity of TG breaking down. (Alsted TJ, Nybo L, et al. 2009 Mar;**)**

The transport of lipids through the plasma is made in the form of hydrophilic complexes with proteins, named lipoproteins. These are:

- chilomicrones are synthesized in the intestinal mucous on account of the lipids brought through food, from here they pass to the lymph vessels, and then they get in the blood;
- VLDL – very low density lipoproteins - are synthesized in the liver and have a role in the transport of trialylglycerols from the liver to the extra-hepatic tissues;
- LDL – low density lipoproteins, also named beta-lipoproteins – are synthesized in the liver from VLDL;
- LDL – high density lipoproteins, also called alfa-lipoproteins are involved in the metabolism of VLDL, of chilomicrones and cholesterol;

The decrease of the plasmatic lipids in healthy individuals who practice sports takes place to the same extent, irrespective of the fact that the physical exercise is made in accesses or continuous (Miyashita M, Bums SF et al. 2006 Jan;)

The values of plasmatic lipids are influenced by the sports branch. Thus, the persons practicing extremely physically challenging activities (volley and football) have a less favorable lipid profile and therefore increased chances to develop lipid anomalies compared to the ones practicing swimming, in which the lipid values as LDL values are much smaller (Ruiz JR, Mesa JL et al. 2004 Jun.)

In the sporting activity alimentation must be brought depending on the peculiarities of the metabolic processes in various sports trials and is determined by the extent to which the exchange of substances is made and the different intensity of physical effort. Thus, criteria shall be minded like: age, weight, sporting area, health condition.

The ingestion of food containing triacilglyceroles with medium carbon chain for a short duration of time may suppress the use of carbohydrates as source of energy due to the increase of the level of use of fat acids and allows the decrease of the amount of blood lactic acid at the same time with the increase of the effort capacity. (Nosaka N, Suzuki Y, et al.2009 Apr;). Other studies point out the fact that the performance in duathlon is not affected by short term changes in the diet containing mostly fats or carbohydrates. (Moncada-Jimenez J, Plaisance EP et al. 2009 Feb;). In conclusion, in effort, the glucidic and lipid metabolism are tightly connected and are controlled by nervous and umoral mechanisms. They can be influenced by the exogenous bringing in of carbon, fats of substances stimulating the metabolism of one of them.

There are proofs that point out the fact that when TG is in excess in the cells, the fat acids interfere with the glucose-attracting action of insulin in the muscle. This was noticed to a smaller extent in sedentary individuals compared to athletes, where it seems like the effort made in excess releases certain metabolites that block the glucose-attracting role of insulin. It was found that only physical activity performed gradually and constantly increases the oxidation of fat acids and thus the signal function of insulin is not altered. (Bonen A, Dohm G et al. 2006;)

Referring to the sports discipline, the individuals practicing skiing, swimming, skating, ice hockey etc.require a greater amount of lipids, considering the conditions of the environment in which the effort is taking place. The lipid profile varies depending on the type of sport practiced. Thus, in bikers an increase of the plasma lipids was found after effort, at the same time with a direct reconnection between the fitness level and the percentage of HDL (the HDL values were maximum when the CO2 max levels were high) (Diaz-Rios LK, RiveraCisneros AE et al.2008 Mar-Apr;). In competitive experienced basketball players it was found that triclycerids and fat acids have had a significant rise during the game, especially in the second half. At the end of the game TG and AGL were significantly lower for fullbacks than for the center players (Ben Abdelkrim N, Castagna C et al. 2009 May).

The mobilization speed of lipids from the adipose tissue is greater then their oxidation at the level of muscles and liver, thus their ratio in the blood increases and the liver is loaded with fat, as the glycogen contents decreases. Disorders of the liver function, sometimes found in long distance runners, may come up after efforts which cause such disorders, if the diet or the rest are insufficient.

The lipids have multiple roles in the body:

1.The main role is the energetic role – each gram of lipids oxidized in the body releases 9,3 kcal; thus, the mobilization of the lipids reserves for the aim of producing energy is achieved within prolonged efforts (marathon, ski, biking, swimming), which first consume the available glycogen. The use of fats in effort, even in short term effort, is represented by the alteration of the level of free fat acids, of the blood plasma and of the glycerin. Though, the turning into account of lipids as a source of energy has many inconvenients, because it requires a large amount of oxygen and may lead to ketonic bodies in the blood.

2.They have a role in the transport of the liposoluble vitamins: A, D E and K;

3.They contribute to the structure of all types of biologic membranes: mitochondrial, lizozomal, endoplasmatic reticule;

4.They perform the isolation function, thus:

- the reserve lipids secure the bodily heat insulation;
- sfingomielids secure the electrical insulation of the neuron;
- the lipids from the perinea basins secure the mechanical insulation of the kidneys;

In persons lacking physical exercise, the decrease of the lipid profile through physical exercise installs in several hours and lasts for 2-3 days. If the persons perform regular trainings, the lipid values reach normal figures and stay so. Physical strain also increases the activity of lipoproteinlipase 2-4 times and stimulates the activity of the somatotrope hormone, considered to be the physical effort hormone.

Lipids stand out through their extremely important role in the structure of live matter, influencing metabolic processes and the capacity of effort in individuals. Depending on the sports area and on the peculiarities of the training, fats represent the foundation from which a significant amount of energy may be obtained in reaching sports performance.

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STUDIA UNIVERSITATIS BABES-BOLYAI, EDUCATIO ARTIS GYMNASTICAE, LIV, 3, 2009

LE SKI ET LES REMONTEES MECANIQUES

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Résumât. Dans les années 1930, une nécessite devient évidente, équiper la montagne en appareils permettant d`offrir un accès vers les sommets a des skieurs de plus en plus nombreux.

Mots-clés: ski, turisme, infrastructure sportive

Rezumat. **Schiul şi infrastructura specifică.** Începând cu anii 1930 necesitatea dezvoltării infrastructurii specifice transportului montan care să permită accesul unui număr tot mai mare de iubitori ai muntelui şi implicit al schiului devine evidentă.

Cuvinte cheie: schi, turism, infrastructura sportivă

Dans les années 1930, une nécessite devient évidente, équiper la montagne en appareils permettant d`offrir un accès vers les sommets a des skieurs de plus en plus nombreux.

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Pendant des siècles, l`homme s`est abstenu que faire se peut, de gravir les montagnes, d`abord par crainte des conditions climatiques ou de dangers objectifs, parfois par superstition puis par manque d`intérêt et, en tout cas, par refus de l`effort. La chasse, la querre ou le colportage étaient des exceptions. Plus tard, le développement du pastoralisme génère une agriculture de montagne. Désormais, les autochtones sont confrontes a des besoins de transport en altitude. Simultanément, le développement général des connaissances fait naitre le gout pour les voyages de découverte et, bientôt, pour le tourisme.

La naissance de l`ère industrielle et les transformations de la société qu`elle induit, entrainent l`émergence de fortes avancées technologiques et de nouveaux savoir-faire. C`est ainsi que naissent, puis que se multiplient les lignes de chemins de fer. Celles-ci commencent par pénétrer dans les vallées, et bientôt, grâce aux crémaillères, se lancent a l`assaut des sites panoramique, notamment pour répondre a la demande touristique. On voit aussi, et pour les mêmes raisons, se construire des funiculaires a câble, puis les premiers téléphériques.

Le transport par câble existait déjà, largement développe par les militaires depuis 1830 pour desservir les chantiers de montagnes. Au cours de la guerre 1914-1918 les téléphériques jouèrent un rôle important dans les combats de montagne durant l`hiver. L`Allemagne et surtout l`Autriche multiplièrent le nombre d'engins. On en décombrait plusieurs centaines dans le Tyrol du Sud, et quelques milliers dans l`ensemble des Alpes. Le câble était aussi utilisé pour le transport de charges et de fourrage dans les alpages. Le principe de ces installations va désormais être applique au transport des personnes afin de leur permettre d`accéder aux sites touristiques.

Les premières utilisateurs sont des touristes avides d`horizons nouveaux, voire de sensations fortes. Avec l`avènement des sports de neige, ils vont progressivement devenir des skieurs puis des amateurs de ski de descente. Très logiquement, ils vont rechercher des moyens mécaniques adaptes pour accéder le plus facilement et le plus rapidement possible au départ des pistes de ski. C`est l`histoire du développement de ces moyens mécaniques que nous allons aborder.

La découverte et l`apprentissage du ski par un plus grand nombre d`adeptes vont la promotion de cette nouvelle activité sportive, en direction non seulement des utilisateurs, mais également des autochtones. Les sport d`hiver vont en effet révolutionner l`espace montagnard, ses activités, son peuplement, ses aménagements, son économie et sa sociologie. Les révolutions

technologiques du XIX siècle bouleversent l`activité des hommes en permettant des réalisations inconcevables auparavant. Dans la première moitie du siècle, l`application des expérimentations de Blenkinson (1812) sur la machine a vapeur et a crémaillères débouche sur la création et le développement des chemins de fer.

Apres 1850, ceux-ci vont attendre le fond des valles, les relier entre elles, voire franchir les cols a l`exemple du ``train Fell``, qui en 1867 assure la jonction entre Saint-Michel-de-Maurienne (France) et Suse (Italie) en passant par la col du mont Cenis. Des voies ferrées a crémaillères prennent ensuite le relais jusqu`a des villages ou des lieux qui vont rapidement être très prises pour la pratique du ski.

Au début du XX siècle, de nombreux villages de montagne, devenus accessibles par la route ou par le train, commencent a être fréquentes par des sportifs déjà fanatique de la pratique du ski.

Les sites de montagne a vocation de sport d`hiver vont donc devoir s`équiper d`appareils permettant d`acheminer rapidement vers les sommets, et avec le minimum d`efforts, des skieurs de plus en plus nombreux. Il devient évident que doivent être réalises des équipements en remontées mécaniques répondant a l`attente de cette nouvelle clientèle.

Mais le développement des téléskis, qui constituent l`essentiel de l`équipement des stations, ne signe pas pour autant la condamnation des technoïdes précédentes. Les funiculaires, pendant quelque temps encore, restent en effet très apprécies en Suisse et les téléphériques, désormais englobes dans l`appellations générique de téléportes, desservent de nombreux domaines skiables.

Mais la voie est désormais ouverte pour des technologies différentes, apportant davantage de confort et de rapidité, en partant du principe que le transport par câble peut se décliner a partir du système ou le skieur est tire par un câble tendu entre deux poulies (téléskis) jusqu`a des systèmes, ``*portes*`` perfectionnes.

Les progrès de la technologie ont permis, en quelques décennies, de concevoir des équipement qui offrent aux stations, aux exploitants et aux skieurs des moyens de transport performants, capables de répondre aussi bien a des pointes de fréquentation élevées qu`a l`obtention d`un compromis vitesse confort satisfaisant avec l`assurance d`une sécurité optimale.

Faut-il rappeler qu`une station de ski du XXI siècle ne peut ni s`imaginer ni fonctionner sans la capacité de proposer a la clientèle un réseau confortable et performant de remontées mécaniques? Dans l`état actuel de la

technologie, et compte tenu des améliorations réalisées, on peut considérer que l`offre des constructeurs s`oriente vers une forme de normalisation des matériels et des équipements.

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METHODS TO DEVELOP COORDINATION, AMBIDEXTRIA, SPATIAL-TEMPORAL AND CHINESTEZIC ORIENTATION IN PHYSICAL EDUCATION CLASSES FOR STUDENTS WITH MENTAL DEFICIENT

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REZUMAT. Dezvoltarea coordonării ambidextriei, a orientării spatio-temporale şi chinestezice la elevii deficienţi mintali în lecţia de educaţie fizică. Introducere: Această lucrare tratează aspecte ale dezvoltarii coordonării, ambidextriei, a orientării spaţio- temporale şi chinestezice la elevii deficienţi mintali în lecţia de educaţie fizică. Obiective: Studiul doreşte să arate că printr-o tratare diferenţiată şi preferenţială a ambidextriei şi a capacităţii de orientare spaţio-temporale şi chinestezică se poate ameliora motricitatea deficientului mintal. Dintre sarcinile lucrării dorim să amintim doar câteva: stabilirea dezvoltării somato-funcţionale, psihice, motrice a elevului în scopul alcătuirii grupelor de lucru; cât şi stabilirea principalelor sisteme de acţionare în concordanţă cu particularităţile fiecarei grupe de lucru. Metode: Experimentul este obiectivat prin: testarea iniţială şi finală a elevilor din clasa experiment şi clasa martor. Rezultate: Analiza şi preluarea statistico-matematică a datelor culese şi formularea concluziilor. Concluzii: Rezultatele obţinute în urma experimentului ne îndreptăţesc să afirmăm că motricitatea copilului deficient mintal poate fi îmbunătăţită printr-o actionare specifică şi de durată, vizând dezvoltarea îndemânării, în general şi ambidextriei, orientării spaţio-temporale şi chinestezice în special.

Cuvinte cheie: copil decifient mental, orientare spaţio-temporală şi chinestezică ambidextria, activitate fizică.

ABSTRACT. Introduction: This work treats aspects of development the orientation, ambidextria, spatial-temporal orientation and Kinesthetic in children with special needs in physical education class. Objectives: Our study aims to show that trough a differential and preferential treatment we can improve the motricity in mentally deficient child. Of all tasks we would like to

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remember just a few: establishing the somatic-functional development, mental, motric of the student in order to put together the working groups and also for establishing the main action systems according to each group peculiarities. Methods: The experiment is materialized by an initial and final testing in experiment and control class. Results: Analyses and interpretation of the obtained dates. Conclusions: The results of the research entitles us to say that motricity in mentally deficient child can be improved trough a specific and in time action, aiming the skills generally and ambidextria, spatial-temporal orientation and Kinesthetic especially.

Key words: mentally deficient child, spatial-temporal and Kinesthetic orientation, ambidextria, physical activity.

Introduction – General problems concerning the special needed education

Having in mind the scientifically substantiation of our theme we have discusses the following subjects:

1. Psychomotricity – as a complex function of motric and psychic aspects with interferes in human behavior; being assured the reception of information and also the adequate execution of the motric act;

2. Laterality – as dominant function of the brain, which establishes the inequality of left and right parts of the body, characterized by an sensorial and motrical asymmetry;

3. Ambidextria – defined as a psycho-motrical feature, which allows the use of right and left part of the human body in a balanced way

4. Motrical capacity

5. Mental infirmity – after IQ – index of intelligence: the peculiarities of mentally deficient child – somatic, neurological and psychopathology picture.

6. Main objectives in special needed school:

- Coverage of all the students in the programmed activities, having in mind their deficiencies;
- Correcting and compensation of inabilities in poor jobs, generated by mental infirmity or other causes;
- Forming of skills and habits;
- Developing the motric qualities – an increased effort capacity by stimulating the vital, affective, volitional and adaptive processes;
- Assimilation of knowledge, forming technical-tactical skills and habits in sports, athletics, gymnastics;

- Corrective and educative exercises in special conditions, kinesthetic development;
- Forming a positive attitude towards work, physical effort, fight against anxiety, self confidence;
- Forming the habits to practice sports systematically, in their free time;
- Developing the working capacity of human body.

7. The peculiarities of physical education class in special needed education.

The working hypothesis

We can improve the mental infirmity trough a differential and preferential treatment of ambidextria, kinesthetic and spatial-temporal orientation.

Work tasks

- Establishing the somatic-functional, psychic, motric development of the student in order to form the working groups;
- Establishing the main actuation systems according to the peculiarities of each working group;
- Initial and final testing of the students both: the experimental and control class;
- Analysis and statistical interpretation of the dates and drawing conclusions.

Research methods:

- Bibliographic study;
- studying the files of the students for a better knowledge;
- observing the students during the classes;
-experimental method;
- testing method;
- Statistic and mathematic interpretation of the dates;
- graphing representation of the dates.

The research

The research took place in Sacele – Bradet, Brasov, in the School for needed, 8^{th} class, A and B, during 2006-2007. The experimental class was 8^{th} A, with 14 female students, and control class was 8^{th} with 14 female students.

The content of the experiment: algorithms, planning, measurements, initial and final testing for 20 parameters.

1. Height;
2. Weight;
3. Chest perimeter – inspiration – exhalation;
4. Vital capacity;
5. Palm force in right and left hand;
6. Speed running – 50 m;
7. Endurance running – 800 m;
8. Long jump;
9. Throwing oina balls;
10. Ruffier test;
11. Matorin test to the left and to the right;
12. Tapping test for right and left hand;
13. "String" test, skill test, right and left hand: during 8^{th} seconds – stretch of a 2m string around 3 points at 15 cm one of other
14. "Basket" test – dribbling with the right and left hand during 15 m going and 15 coming back.

Results and interpretation

We had in mind the followings: arithmetic average, the sum of differences in arithmetic average, average deviation, and standard deviation, coefficient of variability. Based on these indices we have made the graphics for each test and measurement for both classes.

Conclusions and proposals

1. Indices of physical development: height, weight, chest perimeter, vital capacity have registered constant progresses compared to initial testing. The value of standard deviation and coefficient of variability showed us that the values of somatic indices are heterogenic.

2. Indices of motrical development tested by S.U.V.A.D: speed running – 50m, endurance running – 800m, long jump, throwing oina balls, together with dynamometry have shown a real progress compared to the initial testing, more obvious in experimental class.

3. The effort capacity increased with superior values in experimental class.

4. In specific tests as "String", "Basket" and "Tapping" which verifies the neuro-muscular activity of ambidextria, we registered an obvious increased

in both hand parameters, in left hand further advances compared with the right hand – in "String" and "Basket" – experimental class.

5. In "Martorin" test – for spatial-temporal orientation we got an obvious progress in jumping to the left and to the right, especially jumping to the left with 10 degrees differences compared to jumping to the right. These results show us that a special training, especially for both parts of the body can lead to an increased spatial-temporal orientation in special needed children.

6. Having in mind that most of the children in special needed school have also a physical deficiency, the kinesthetic feeling must be educated by special physical exercises, also individually having a positive influence on activity of motor recovery.

7. Permanent exercises for ambidextria creates self confidence in students, they participate active and consciously, thus having a great impact on their personality.

8. The results of the research entitles us to say that motricity in mentally deficient child can be improved trough a specific and in time action, aiming the skills generally and ambidextria, spatial-temporal orientation and kinesthetic especially.

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THE CLASSIFICATION OF THE COMPETITIVE STRATEGIES ADOPTED AT THE SPORTIVE CLUB TOP MANAGEMENT LEVEL

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ABSTRACT. The strategies concern the long and short time competitive behavior of a sportive club, taking into consideration both its culture and the contextual evolutions. The competitive advantage is the main goal of any strategy and also the most important criterion of evaluation of the sportive club's quality. Any strategy is the result of the harmonious mixture between the intelligent thinking and the creative one. Considering the fact that any sportive club has its own culture, which may have a decisive contribution to the club's short time success and that the environment in which it performs is a dynamic one, it is obliged to initiate a series of action that may guarantee its competitive advantage. This is possible only through a strategic and creative thinking whose target is not the present but the future. Strategic thinking also creates strategies and mechanisms necessary for their implementation by evaluating the competitive advantages, the risks and the obstacles which might appear in the process. In such a changing and unstable environment, to have a strategy is a must because it means an anticipation of the change and not a passive waiting for it to happen. Through strategies, a sportive club draws its coherent and stable future evolution by transforming its weak points in strong ones and of the exterior threats in opportunities. A good strategy allows to a sportive club not only to anticipate its future evolution and possible threats, but also to have a quick speed of reaction when they appear turning them out into advantages.

Key words: strategy, sportive club, sportive management, competitive advantage, sportive market

REZUMAT. Clasificarea strategiilor competitive adoptate la nivelul managementului de vârf al cluburilor sportive. Strategiile au in vedere prefigurarea unui comportament competitiv pentru un club sportiv pe termen lung, ținându-se cont atât de cultura acestuia cât şi de evoluțiile contextuale.

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Obținerea avantajului competitiv constituie principalul scop al elaborării strategiei şi criteriul cel mai important de evaluare a calității clubului sportiv.O strategie este rezultatul armonizării gândirii inteligente cu gândirea creatoare. Pornind de la premisa că fiecare club sportiv are o cultură proprie care le poate garanta succesul pe termen scurt şi că mediul în care acesta acționează este unul dinamic, în permanentă schimbare, clubul sportiv este nevoit să întreprindă o serie de acțiuni care să-i asigure avantajul competitiv. Acest lucru nu este posibil decât printr-o gândire strategică, care este o gândire creatoare prin excelență, a cărei țintă o constituie nu prezentul ci viitorul. Aşadar, gândirea strategică este cea care generează strategii şi mecanisme necesare implementării acestora prin evaluarea avantajelor competitive, a riscurilor şi obstacolelor care ar putea apărea în procesul de implementare. Într-un mediu atât de schimbător a avea o strategie este o necesitate imperioasă pentru că înseamnă o anticipare a schimbării şi nu aşteptare pasivă a acesteia.. Totodată prin strategii un club sportiv îşi propune o evoluție viitoare coerentă şi stabilă prin transformarea punctelor lui slabe în puncte forte, iar a amenințărilor venite din exterior în oportunități. De asemenea, o strategie bine conturată permite unui club sportiv nu numai să anticipeze evoluțiile viitoare şi eventualele obstacole ci şi să acționeze rapid şi într-o manieră pozitivă la schimbare.

Cuvinte cheie: strategie, club sportiv, management sportiv, avantaj competitiv, piața sportivă

Today, more than ever, the sportive clubs are in a continuous competition and this state of facts have a deep influence on their behavior and organizational management. The long term success of a sportive club depends not only by the attainment of an equilibrium between its management and the exterior political, economical, social and cultural factors, but also by the competition made by other sportive clubs. This rivalry, competition can be controlled in a certain extent but it cannot be entirely eradicated. Thus, the management perspectives and the implementation of some valuable creative strategies make the difference between them.

In this respect, the development of a strategy is a must for any sportive club. The challenge is not whether a strategy is necessary or not, but it refers to the criteria of choosing the best strategy or strategies among the so many kinds. It is well to know that there are many differences between the different types of strategies and these differences may cause the success or, by the contrary, the failure of a sportive club. That is why, in order to elaborate the most adequate strategies, the top management of a sportive

club must master its internal state and the dynamic of the external forces which might influence it; in this way a stabile balance between the external and internal forces is attained.

A sportive club may adopt different types of strategies depending on many factors such as: the competitive environment in which it performs, the attitude towards anything new and the nature of the objectives.

1. Strategies regarding the objective dynamics

Generally, the strategic alternatives differentiate one another through their strategic objectives. From this point of view we may distinguish offensive strategies (of growth), neutral strategies (of stability) and defensive strategies (of reduction).

1.1. The defensive strategy (of reduction)

The defensive strategy is generally associated to a failure so it is a very unpopular one. It is used when the previous strategies haven't worked or when a reduction of the expenses is wanted in order to face a possible future unfavorable situation.

The defensive strategy is applied on short term, in case of political or economical instability, of law modifications or any time when a sportive club faces an unfavorable course; many strategic possibilities may be considered, such as:

a. The straightening strategy implies the financial improvement of a sportive club in difficulty; this can be made through:

- the cost reduction in the club's infrastructure
- different changes in the club's departments and at the staff and team level
- the cease of any transfers of some valuable sportsmen which implies huge transfer sums and huge salaries
- the promotion of the young talented sportsmen from the own junior team
- the selling of some top players for considerable sums of money, thus reducing the expenses with their salaries
- the reduction of the expenses regarding the club's publicity and advertisement
- the reduction of the expenses with the salaries
- the identification of the weak points and their eradication from the club

b. The Insolvent Strategy

This strategy implies the selling of a sportive club in a more or less deliberated way. The club's stockholders or the investors may decide to sell their shares considering different reasons: the club's future is not a safe and clear one so they intend to sell it in order to get the best possible price in the given circumstances, or they may simply want to get out of this business in order to get into a new different one considered more profitable. Another reason may be an economic crisis with deep repercussions on the club's budget.

There may be many other situations when a club's situation simply does not allow a continuation of the activity in normal conditions and the owners or the stockholders found themselves in the situation of selling their shares in order to pay the club's debts.

Speaking about this type of strategy, two phenomena have been observed: one refers to the decision to declare a club's bankruptcy and to act properly is always delayed and the other to the appearance of a resistance against the liquidation decision, a so called anti-strategy.

A special attention must be paid to the phase in which a club's activity is ceased in order to avoid different unpleasant financial aspects.

1.2. The Neutral (stability) Strategy

This kind of strategy is used when a sportive club is pleased with its present situation and has all the reasons to want to preserve and continue it. The activity of a sportive club is based on the same previous methods and mechanisms with small possible adjustments and the performance level remains mainly unchanged.

This type of strategy has been considered by many as the result of routine and conservatory. A sportive club chooses this type of strategy from different reasons such as:

1. the sportive club is satisfied with the actual results and performances
2. the environment and the opponent clubs do not represent a serious threat
3. the previous implemented strategies were a success and the club's position is satisfactory and all these do not justify any changes
4. the previous obtained performances and the development of the club's infrastructure required a huge financial effort and now the club needs a period of calmness and tranquility for gathering new resources for future development strategies.

The success of this kind of strategy is deeply influenced by the environment which must be a stable one.

The main kind of neutral strategies are:

- The profit strategy, which implies a reduction of expenses and investments for obtaining a short-term profit. It can be obtained by selling the most valuable sportsmen of the club, in this way getting a quick profit a substantial reduction of the monthly expenses with their salaries.

- The Consolidation Strategy implies quantitative strategic objectives similar to those estabilished in the previous period but qualitative superior to the previous achievements. Using this type of strategy, a sportive club wants to improve the quality of its activities and thus to strengthen its position. For example, a sportive club which has as its target the winning of the internal championship and for this objective has bought a number of sportsmen from other clubs from different foreign countries, uses the consolidation strategy just for the continuation of the transfer policy and for winning the internal championship in the next years. This type of strategy is sometimes recommended after some periods of development which required a huge financial effort.

- The Strategy of Continuity has as its purpose the continuity and the preservation of the objectives at the same level. To make this thing possible, a stable permanently watched over environment is necessary. This situation is suitable for the amateur clubs or for the clubs which do not have very high performance standards. For the professional clubs this thing is not suitable because of the rough competition between these which means a continuous development of their abilities and because of the environment in a continuous change.

1.3. Offensive (of growth) Strategies

These types of strategies implies to target some more courageous objectives than before, based on a serious a rigorous information and documentation. They target the obtaining of some qualitative and quantitative performances superior to those obtained up to present, by strengthening the club's concurential capacity or by conquering new sportive markets. This type of strategy implies new methods and technologies and the development of a creative system. Most of the time this growth is associated with the success of a club.

The growth strategies points to two types of growth:

1. A stable, steady growth meaning a future development similar to the previous one. This type of growth is the most often used the final goal being the obtaining of the competitive advantage on the sportive market

2. The effective Growth implies to attain some objectives superior to the previous ones.

The procedures for attaining and implementing this type of strategy often implies the use of juridical and financial information and ways of approaching.

The juridical methods refers to:

a. Fusion means that two or more sportive clubs join each other in a single common action implying common objectives and interests in a new juridical framework. Fusion can be obtained in two ways:

- through absorbion, in which one or more clubs are assimilated by another one; in this situation the new club's growth is ensured by everything the other club or clubs bring to this fusion.

- through merging in which two or more sportive clubs decide to join in a new juridical framework offered by the new created club.

b. Fusion –scission through which a club can be divided into two or more clubs with a more substantial capital originated from the first club.

The financial procedures include:

a. Negotiations between the two or more clubs. This situation occurs when one sportive club wants to get control upon another sportive club whose capital is in the hands of many stockholders found in the situation of wanting to sell their shares. The direct negotiation is vital.

b. The obtaining of the most shares

Because the management of a sportive club implies huge amounts of money, an unpleasant situation may occur; that is the club's capital is scattered, a lot of persons sharing it. If another club buys constantly a number of shares from another club, it will end by having enough shares to gain control over the first club. This procedure is not an easy one, a lot of resistance being noticed from all those involved.

c. The public buying offer is spectacular, meaning the public offer of a sportive club by another implying a number of shares to be bought. The inconvenient implies only the club that wants to buy because it has to pay in cash a huge amount of money.

d. The exchange public offer is similar to the previous one, the only difference referring to the fact that a sportive club do not propose a share buying but an exchange to another club.

2. Strategies regarding the getting of a competitive advantage

The competitive advantage can be obtained considering many possibilities which will cause a differentiation of the strategies. First it is important to determine exactly the domain in which a sportive club will perform and only then to choose the best strategy able to accomplish the club's goals. The quality and originality of the chosen strategy gives a certain level of performance to a club. Many strategies can also be chosen.

2.1 Strategies referring to a cost reduction. These types of strategies assures a competitive strength in the sports field in which the clients are very sensitive about the prices. This strategy is based on a severe control of the expenses and it promotes new technologies for this. For example, a tennis club that owns indoor and outdoor tennis courts of poor quality and do not have high standards of their maintenance, might create an advantage by renting them at the lowest possible prices. It addresses to that kind of tennis players who prefer a good price to quality. But there also might be another situation when a tennis club that owns indoor and outdoor tennis courts have high maintenance standards, assuring a very good quality of the tennis courts. So the club may choose a low price strategy, assuring high quality at low prices, in this way getting a good position . However this type of strategy implies some risks such as:

–the opponent investments cause a continuous decrease of the club's advantage

- the club's capacity of innovation is reduced
- the past experience cannot be neglected

Generally, the sportive clubs that have chosen this type of strategy have limited financial resources and that is why they must pay a lot of attention to the opponent ones which might represent a real threat.

2.2. The differentiation strategy means that a club tries to create one or more special advantages for itself. Through this strategy the clubs ensures themselves great competitive qualities especially when the sport consumers' preferences are too varied to be satisfied by a standard service. The great diversity of services is in the benefit of consumers. The services 'diversity, a higher price and loyalty of the consumers are factors which may create competitive advantage for a club. Thus, a club that owns an excellent well equipped material base, après-sport services like sauna, massage, etc, may become an elitist club as for the prices and the quality of the services. Through the differentiation strategy such a club will address to the consumers with a lot of financial possibilities that appreciate the quality independent of price.

The risks implied by this kind of strategy is imitation . The resources and capacities necessary for differentiation are:

- intuition and creativity at the club's management level
- remarkable capacity of conciliation
- image
- close cooperation between the club's departments

2.3 Focusing strategies on a certain segment

These types of strategies are used when a sportive club does not want to attack directly, due to its small dimensions or due to its insufficient resources. In such a circumstance the club decides that it is much better for it to focus only on a certain aspect proper to its resources and abilities instead of attacking many aspects or facing the opponent clubs.

The risks of such strategy are:

- a reduction of the gained cost advantage
- a loss of interest from the consumers

3. Strategies based on the kind of offered services and products

3.1 Diversification Strategy is characterized by a wide variety of services and products offered to the sport consumers. The diversity, may be attained by enlarging the number of sportive discipline in a club, by the extension and development of the sportive infrastructure. The diversity may occur in the interior of the same field of activity of the club or in another one. The goals of the diversification strategy can be:

a. The placement diversification when a sportive club has a top position, thus having a lot of money. It tries to manage the available resources on long and short term. For example, it can be the increase of the activities and sportive discipline number of a club.

b. The re-spreading placement

When a sportive club has a good position on a sportive market in decline which do not offer enough development perspectives. It can be the case of some sportive markets found in the middle of some huge international scandals, and thus in the mass-media's attention, that are no longer credible from the investment point of view. The sportive clubs may re-orient their financial capital towards other sportive branches more credible.

c. The survival diversification when a sportive club has a weak position so it must look for long and short term solutions for its survival. It is

about a very delicate kind of diversification which implies a total reconsideration of the club's entire activity.

d. The comfort diversification when a sportive club has a middle position comparing to the other clubs. By adding a complementary activity, the club tries to adjust the opponent game unfavorable to it, by changing the services offered.

3.2. The strategy of specialization is characterized by a restrained area of services offered to the sport consumers, but with sportive, economic, social and technical performances highly superior. This type of strategy implies a continuous modernization of the services in order not to lose the competitive advantage.

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ADAPTATION TO ROMANIAN NORMS OF COMPETITIVE STATE ANXIETY INVENTORY-2 REVISED (CSAI-2R). A PILOT STUDY

CRĂCIUN MARIUS[1]

ABSTRACT. Objectives: Anxiety has been a topic of great interest within sport psychology research due to the fact that it has become generally accepted that training tehniques should take into account this important feature in order to enhance sport performance. Our research aims to develop a Romanian adaptation of the Revised Competitive State Anxiety Inventory-2 (Cox et al., 2003). Methods: The instrument was translated into Romanian following Vallerand's (1989) proposed methodology. The scale's reliability was examined with Cronbach's internal consistency coefficient using data from 73 athletes. Results: Estimates of the CSAI-2R' internal consistency (ranged between .79 and .83) provided good evidence of the scale's reliability. Conclusion: The results from the pilot study encourrage us to argue that the adapted form of CSAI-2R represents a reliable instrument for the assesment of competitive state anxiety and offer an insight on the factors involved in sport performance. Suggestions are discussed for the validation process.

Key words: state anxiety, psychometric properties, reliability, internal consistency, adaptation

REZUMAT. Adaptarea la normele româneşti a inventarului CSAI-2R. Studiu pilot. Obiective: Anxietatea este un subiect de mare interes în domeniul psihologiei sportului datorită faptului că trebuie luată în considerare atunci când dorim îmbunătățirea performanței sportive. Scopul lucrării noastre este de a dezvolta varianta Romanească a Inventarului CSAI-2R (Cox et al., 2003). Metodă: Inventarul a fost tradus în limba română respectând metodologia lui Vallerand (1989). Fidelitatea scalei a fost examinată utilizând coeficientul de consistență internă Cronbach calculat pe datele obținute de la 73 de sportivi. Rezultate: Estimările privind consistența internă a scalei CSAI-2R (cu valori între .79 şi .83) ne

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arată evidențele unei bune fidelități.Concluzii: Rezultatele studiului pilot ne încurajează să argumentăm că forma adaptată a inventarului CSAI-2R reprezintă un instrument fidel pentru evaluarea anxietății-stare şi oferă informații cu privire la factorii implicați în performanța sportivă. Sunt discutate sugestii pentru continuarea adaptării printr-un proces de validare.

Cuvinte cheie: anxietate - stare, proprietăți psihometrice, fidelitate, consistență internă, adaptare.

INTRODUCTION

Sports create special opportunities for the study of the feelings of the athletes in various events. Anxiety is one of the most frequently researched constructs in the field of sport and exercise psychology. State anxiety in sports refers to the personal feelings that an athlete has prior and during a competition that include fear and intense excitement (Spielberger, 1966). Anxiety should be classified as cognitive and somatic anxiety. Cognitive anxiety refers to the mental component of anxiety caused by an athlete's negative expectations about success. Cognitive anxiety is characterized by the conscious awareness of unpleasant feelings about oneself or by external stimuli, apprehension and problems in the optic field disturbing visual images. Somatic anxiety refers to the perceived physiological arousal and the affective elements of the anxiety experience that develop directly from autonomic arousal. Somatic anxiety is reflected in specific physiological responses. Martens (1977) reported a third dimension of state anxiety - self-confidence. Self-confidence is the realistic expectation of athletes that they can succeed; it is their faith in themselves and their abilities. Negative thoughts about themselves, about the conditions of competition, are source of decreased self-confidence. If the subconscious generates and provides negative thoughts, then the body is programmed to perform unsuccessfully. If the opposite happens then the body is programmed to perform with success, that why, thought should always be positive. When the levels of cognitive and somatic anxiety are high and the levels of self-confidence are low before the competition, then the athletes possess high state anxiety. On the contrary, when the levels of self-confidence increase, they minimize the cognitive and somatic anxiety. The high performance of the athletes is caracterised by low cognitive and somatic anxiety and high self-confidence (Mullen & Hardy, 2000).

Although there are a lot of scales available to measure anxiety, the Competitive State Anxiety Inventory-2 (CSAI-2: Martens, Burton, Vealey, Bump, & Smith, 1990) has generally been the scale of choice since its development. Given its prominence as a research tool, the CSAI-2 has been the subject of considerable scrutiny of its psychometric characteristics. Several studies have now been published which have raised concerns about the factorial validity of the CSAI-2 in its English (Cox, Martens, & Russell, 2003; Lane, Sewell, Terry, Bartram, & Nesti, 1999, Tsorbatzoudis, Varkoukis, Kaissidis-Rodafinos, & Grouios, 1998). To address this situation, Cox et al. (2003), using the Lagrange multiplier test, revised the original three-factor model through systematic and sequential item deletion. These researchers created a 17-item model that excluded four cognitive items, two somatic items and four self - confidence items. Having deleted problematic items in the original CSAI-2 and having subsequently supported the factorial validity of a revised version of the measure, termed the CSAI-2R, they recommended that researchers and clinicians should in future use the revised measure in preference to the original.

The aim of this work was to develop a Romanian adaptation of the Revised Competitive State Anxiety Inventory-2 (CSAI-2R).

METHODOLOGY

Participants

73 high level athletes, male and female (40 males – 33 females), aged 17-38 years took part in the research. These athletes came from Cluj city area and had participated in the Division I championship in Romania. The sample of research was constituted in large majority by athletes from Universitatea Cluj Sport Club. The athletes competed at international and national level in different sports: soccer, judo, basketball, handball, rugby, volleyball. All participants completed the Inventory on volunteer bases.

Measures

The CSAI-2R is a 17-item scale that measures cognitive state anxiety (5 items), somatic state anxiety (7 items) and self-confidence (5 items) in a competitive setting. Respondents rate their feelings before competition (e.g., *I feel jittery, I am concerned about losing*) on a scale anchored by 1 = *not at all* and 4 = *very much so*. Subscale scores are calculated by summing items in each subscale, dividing by the number of items, and multiplying by 10. Score range is 10 – 40 for each subscale. The

factorial validity of the CSAI-2R was previously established by Cox et al. (2003) using confirmatory factor analysis (CFA) on data from 331 athletes, which showed a good fit of the hypothesised measurement model to the data (CFI = .95, NNFI = .94, RMSEA = .054). The instrument was translated into Romanian following Vallerand's (1989) proposed methodology which includes: (a) the back translation technique, (b) examination of the translation by experts in the field, and (c) pilot studies. This procedure has been used repeatedly in the past for the translation and adaptation of psychometric questionnaires into Romanian language (e.g. Craciun et al., 2008, Craciun et al., 2009).

Procedure

The athletes (men and women) filled in CSAI-2 R approximately 1 hour before the competition. Before completing the inventory, the participants were assured of confidentiality and provided with verbal and written instructions that emphasized (a) that there were no right or wrong answers and (b) the importance of responding honestly.

Results

In order to compute the results we used SPSS 15. Using a matrix 73 X 17 we obtain descriptive data of the responses. The study of the psychometric properties of the inventory finished with item analysis and internal consistency of factors. Table I displays the means, standard deviations, skewness and kurtosis on each factor.

Table 1.

Descriptive statistics for items (N=73)

	Mean	SD	Skewness	Kurtosis
ITEM 1	1.95	.82	.458	.431
ITEM 2	2.10	.95	.489	-.789
ITEM 3	3.21	.95	.521	-.472
ITEM 4	1.86	.75	.545	-.472
ITEM 5	1.97	.92	.987	.210
ITEM 6	1.84	.81	1.241	.592
ITEM 7	3.82	.80	-.793	-.510
ITEM 8	1.82	.84	1.201	.690
ITEM 9	2.10	.89	.692	-.182
ITEM 10	3.21	.89	-.654	-.623
ITEM 11	2.03	.98	.721	-.724

	Mean	SD	Skewness	Kurtosis
ITEM 12	1.58	.73	1.324	1.234
ITEM 13	2.98	.90	-.312	-.692
ITEM 14	1.73	.89	1.123	.401
ITEM 15	1.56	.78	1.234	3.120
ITEM 16	3.12	.95	-. 612	-.542
ITEM 17	1.45	.71	1.567	2.345

The higher means are in Self-confidence subscale (items: 3, 7, 10, 13, 16) and item number 7 presents the higher value (M=3.82). The lowest value (M=1.56) item 15 from somatic anxiety subscale. As psychometric data have a tendency to be not normally distributed, attention was given to the Mardia coefficient. In current study, Mardia values showed significant deviation from normality in the sample, which suggests that the data were not multivariate normal (multivariate kurtosis = 612.21; $Z = 21.65$, $p < .001$).

Table 2.

Means, standard deviations, Cronbach's alpha and inter-factor correlations for the CSAI-2R (Cox et al., 2003).

Factors	Mean (SD)	Internal consistency	Somatic anxiety	Self-confidence
Cognitive anxiety	16,65	.79	.67	-.56
Somatic anxiety	13.41	.81	-	-.59
Self-confidence	24	.83	-	-

For each of the three latent factors in the 17-item model, a reliability coefficient was also computed, based on the formula of Fornell and Larcker (1981). The reliability coefficients, computed as the sum of squared standardized factor loadings divided by the sum of squared standardized factor loadings plus the sum of error variances, describe the variance captured by measurement errors as opposed to the variance attributable to the latent factors. Coefficients less than 0.50 indicate that the error variance is greater than the variance of the constructs. As shown in Table 3, the

reliability coefficients indicate that 43 – 55% of the total variance for the latent factors in the 17-item model is due to measurement errors. The alphas for the 17-item model are displayed in parentheses. For purposes of comparison, the reliability coefficients (Fornell & Larcker, 1981) for the original three-factor model are listed together with reliability coefficients based on standardized factor loadings and error variances reported by Cox et al. (2003) for the 17 items models.

Table 3.

Reliability coefficients (Fornell & Larcker, 1981) for the three factors of the CSAI-2R.

	Cognitive anxiety	Somatic anxiety	Self-confidence
Athletes (N=73)	.51 (.79)	.43 (.81)	.55 (.83)
Cox et al.(2003)*	.47	.39	.56

Note: Cronbach's alphas for the factors in the CSAI-2R are shown in parantheses.

Internal consistency coefficients for the three factors are presented in Table 4. Additionally we present the correlation item-factor and alphas value in case of omitting this item. For the first subscale, somatic anxiety, the correlations item-factor are high and significant with exception of item 17. In case we eliminate this item, internal consistency will be 0.7845. For Self-confidence scale values are satisfactory but value of internal consistency will grow a little if we eliminate item 13. Satisfactory values are obtained in case of cognitive anxiety subscale. Alpha's value (0.7943) will not grow if eliminate one of five items from this factor.

Table 4.

Item analysis and internal consistency analysis

Factor	**Items**	**Correlation item-factor**	**Alpha without this item**
Somatic anxiety alpha = .8122	**Item 12**	**.6780**	**.7845**
	Item 6	**.6890**	**.7691**
	Item 4	**.7324**	**.7561**
	Item 9	**.6783**	**.7653**
	Item 1	**.6671**	**.7321**
	Item 17	**.1814**	**.7845**
	Item 15	**.6432**	**.8129**

Factor	Items	Correlation item-factor	Alpha without this item
Self-confidence alpha =.8343	**Item 10**	**.7235**	**.6981**
	Item 3	**.7123**	**.6781**
	Item 7	**.6731**	**.7321**
	Item 16	**.5692**	**.7893**
	Item 13	**.4256**	**.7923**
Cognitive anxiety alpha =.7943	**Item 11**	**.7345**	**.7456**
	Item 2	**.7129**	**.7235**
	Item 8	**.6741**	**.7523**
	Item 5	**.6134**	**.7851**
	Item 14	**.5732**	**.8324**

Discussion

The aim of this study was the adaptation of CSAI-2 to Romanian norms. This inventory is made upon the definition of competitive anxiety a multidimensional model created by Martens et al. (1990). We started with a precise translation of the inventory helped by experts. After this phase, the inventory was completed by a sample of athletes in a pilot study aimed to explore psychometric characteristics.

The internal consistency alphas were .79, .81. and .83 for the cognitive anxiety, somatic anxiety, and self-confidence subscales respectively. Alpha coefficients supported the internal consistency of the subscales. Inter-correlations were in the predicted direction and of an appropriate magnitude for factors that are hypothesized to be correlated rather than orthogonal. Cronbach alpha coefficients exceeded criterion values for all subscales at each time point (cognitive anxiety = .82 - .88, somatic anxiety = .79 - .89, self-confidence = .87 - .92). Inter-correlations among factors were in line with theoretical predictions and supported their conceptual independence. Overall, results supported the factorial validity of the revised scale in five replications. The present findings indicate that the CSAI-2R has satisfactory psychometric characteristics, unlike those reported by Lane and colleagues in 1999 for the original CSAI-2, which showed a flawed measurement model. Results suggest that researchers investigating anxiety in sport should use the CSAI-2R in preference to the original CSAI-2.

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KINETIC THERAPY ORIENTIENTED ON RECOVERY AFTER ACCIDENTS AT THE LEVEL OF PERFORMANCE ATHLETES' UPPER LIMB

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ABSTRACT. The trainer has to detect daily (at a glance - physical appearance, loss of zest for work) directly or during personal discussions, any negative condition of athletes. If this has been ascertained the athlete may be exempted from training for a limited period of time (one or several days) and can be supported by a doctor, kinetic therapist or/and psychologist. If the athlete's condition is neglected, regardless of subjective or objective reasons, qualitative and quantitative accumulations can be totally or, at the best, partially lost. Under these circumstances extra work is needed from couples of trainer – athlete, athlete - kinetic therapist or doctor, so the level of training aimed for the respective stage can be reached. Traumatisms occur more often than generally considered. Consequently, recovery workout is an individual training, strictly dosed. It is applied based on training methodology and is carried out immediately after the immobilization period. Load dosage increases depending on health condition and effort ability. The content and form of trainings depend on the type of accident and on the dimension of the injured area . An important fact is that the recovery workout is considered to be completed when there is a complete rehabilitation as far as the strength to effort is concerned and when it does not only deal with the injured area but also with the whole body, by using complex methods. Regardless of the time when an athlete needs to be recovered, medical and hygienic facilities must be associated with psychical recovery because any accident which keeps away an athlete from the team he is linked to, which prohibits any effort and especially participation in official competitions, has, in most circumstances, a psychic echo of frustration, marginalization, discouragement, mistrust in complete recovery. The process of recovery of athletes' functions must take into account the type of sport, the athlete's age, his level of performance, the structures stressed during practice and the functional level at which the athlete must return in order to resume training and athletic activity. A basic concept in athletes' recovery is represented

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by the *specific adaptation to the challenges imposed by the sport being practiced and by the characteristics of the traumatized athlete*.

Keywords: traumatism, kinetic therapist, trainer, recovery workout, psychological recovery.

REZUMAT. **Kinetoterapia orientată în recuperarea după accidente la nivelul membrului superior, la sportivii de performanță.** Antrenorul trebuie să depisteze zilnic (dintr-o privire – aspectul fizic, lipsa poftei de lucru) direct sau prin discuții personale, eventualele stări negative ale sportivilor. Față de cele constatate, la nevoie cu sprijinul medicului, kinetoterapeutului sau/şi psihologului, sportivul poate fi scutit de antrenamente pe timp limitat (o zi sau mai multe). Neglijându-se starea sportivului, indiferent de cauze - subiective sau obiective – acumulările calitative şi cantitative se pot pierde total, sau în cel mai fericit caz parțial. Această situație necesită o muncă suplimentară din partea cuplurilor antrenor – sportive, sportive – kinetoterapeut sau medic, pentru atingerea nivelului de pregătire propus pentru etapa respectivă. Traumatismele apar mult mai des decât se consideră în general. In cazul acesta antrenamentul de recuperare este un antrenament individual, dozat strict. El se aplică pe baza metodologiei de antrenament şi se efectuează imediat după perioada de imobilizare. Dozarea sarcinii creşte pe baza stării de sănătate la zi şi a capacității de effort. Conținutul şi forma antrenamentelor depinde de tipul accidentului şi mărimea zonei lezate.

***Cuvinte cheie**: traumatism, kinetoterapeut, antrenor, antrenament de recuperare, recuperare psihica.*

STUDY REFERRING TO A RECOVERY PROGRAMME USING KINETIC THERAPY METHODS FOR ATHLETS TAUMATIZED AT THE LEVEL OF UPPER LIMB

The recovery objectives for traumatized athletes are numerous and are concomitantly or successively applied, depending on the athlete's clinical and functional condition and on its evolution. For some injuries algorithms have been made up. They are presented below. These objectives, applicable in almost all cases of sport injuries are:

- Control inflammatory process and pain;
- Recovery of mobility in joints and of soft periarticular tissue flexibility;
- Improve muscle strength and endurance;

- Development of metabolic types - specific biochemical linked to the practiced sport;
- Improve cardiovascular strength, effort ability;
- Establish a maintenance program;
- Athlete's motivation, his determination to return to his athletic activity and his availability to bear some outstanding pains.

The maintenance program includes the guidelines which are given to the athlete to maintain flexibility, muscle strength and aerobic capacity, as well as protective measures to prevent recurrence.

For the kinetic therapist, the moment of bone consolidation of fracture is particularly important because it allows the mobilization with loading the injured segment. An inadequate immobilization may reactivate the outbreak with new vascular ruptures and consequently with small hematoma, which can delay osteogenesis of cartilage tissue formation and installing of pseudo arthrosis. But a late restraining, causes adhesions, joint stiffness, tissue retractions which are sometimes irreversible.

To assess the recovery period the following four factors are considered to be important:

- Patient age; the older the patient is, the duration of fractured bone healing is longer. Thus, an infant bone fracture heals in about three weeks; at 8 years of age, in 8 weeks; at 12 years of age, in 12 weeks; at 20 years of age in 20 weeks, and at after 60 years of age 25-30 weeks. This "symmetry" in the healing time is just orientative, only mentioned to emphasize that a fracture in childhood can reinforce faster than when adult or after the age of 60.

- Localization and appearance of fracture; fractured bones well covered with muscles heal faster than bone fractures which are immediately under the skin (such as forearm fractures) or inter articularly. Spongy areas heal faster than broken compacts (epiphysis 2 times faster than diaphysis of the same bone at the same age). Oblique and spiral fractures of diaphysis, having a large area of fracture heal faster than transverse fractures.

- Initial displacement of the fracture; fractures without displacement, with an intact periosteum, heal approximately two times faster than fractures with displacement. Any rupture of the periostal sleeve extends their period required for fracture consolidation.

- The contribution of blood to the fracture fragments; repairing the outbreak of fracture has as basic requirement the existence of a good vascularization of the fracture route. If a fracture fragment is deprived of blood intake, either by the bone or fractured area particularity, or by

separation and removal of a fragment from bone - gag formation is much delayed and even impossible. In this situation a rigid immobilization is imposed, e.g.: metal osteosynthesis.

Thus, a complete recovery within a relatively reduced period of time is the primary concern of the patient, no matter his age.

Ch. Rocher introduces the notion of functional mobility factor to differentially express the importance of the different mobility segments for the articular function. Each type of motion has elementary functional coefficients of mobility, which, in summary, determine an overall functional coefficient.

Ch. Rocher set the overall functional coefficient of mobility, which is commonly used to assess joint amplitude for the elbow joint, representing the following factors:

JOINT	MOVEMENT	MOVEMENT AREA	COEFFICIENT
Elbow	Flexion	0 - 20°	0,4
		20° - 80°	0,6
		80° - 100°	0,9
		> 100°	0,4
	Supination	0 - 30°	0,4
		30° - 90°	0,2
	Pronation	0 - 30°	0,4
		30° - 60°	0,2
		60° - 90º	0,1

He studied recovery records of 4 athletes, aged 21 and 23, in the Recovery Center of Brasov.

No.	Name	Age /sex	Diagnosis	Traumatism	Sport
1	B. V.	22 M	Right radial head fracture	Fall during training	rugby
2	A. N.	23 F	Radius fracture/3 sup. left.	Fall during competition	athletics
3	I. A.	23 F	Right humerus cominutive fracture and radius distal epiphysis fracture	Traffic accident	football
4	M. B.	21M	Olecran fracture and old, operated humerus fracture	Fall during training	Ice skating

Based on the study referring to the rehabilitation of athletes, it was found that the movements and processes used had as a result the following: increase of muscle strength, joint amplitude, coordination and ability of hand movements.

Referring to the way physical exercises were performed the following methodic indications were taken into account:

- stable postures were chosen and exercises were carried out slowly, rhythmically, without harshness;

- the principle of progressivity was respected , the exercises, being gradually rendered more difficult from the point of view of force, amplitude and coordination;

- muscle toning exercises were executed, insisting on the amplitude of motion to be possible against progressively increasing resistance.

Regaining joint mobility was achieved by:

a. passive movements were performed by kinetic therapist until pain appeared and self passive movements were performed by the patient; they were associated with self massage maneuvers and gentle manual or mechanical traction. Brutal or sudden tractions were avoided because they can produce tissue ruptures or joint stiffness.

b. Free, active movements were made, which represent the basis of kinetic therapy.

These movements were carried out at the shoulder level by a series of exercises: throwing the ball (flexion and extension of arm), side tapping (arm flexion - abduction - external rotation and elbow bent at 90° running an extension motion - abduction – internal rotation), climbing exercises;

- Analytical movements were executed in water (hydro-physical therapy) or on land, consisting of flexion and extension exercises in the elbow, pronosupination at forearm and flexion - extension, abduction - adduction in the wrist;

- Exercises were performed with portable objects: stick, low weights, small rubber balls, rings, etc..;

c. Exercises were executed for neuromuscular facilitation through resistance movements in adjacent segments;

d. Eccentric contraction was used - muscle although opposes an external force is defeated by this, the fibers gradually elongate, and the angle between the joint surfaces increases. Eccentric contraction is not used in the early stages of recovery as the pressure increases and causes pain, which require stopping the exercise.

e. occupational therapy referring to specific sports activity

f. massage on tendon insertion consisted of manoeuvres of roller, friction and vibration.

Muscle strength was increased with resistance exercises performed against movements of flexion – extension, pronation - supination, flexion - extension, abduction - adduction in the wrist;

For recovery of muscle strength free active physical exercises were also used. Increased muscle strength was obtained through the following types of contractions:

- Isometric contraction - the muscle works against a resistance equal to its maximum strength, fiber length remaining constant;

- Concentric contraction - the muscle defeats a resistance which is less than the maximum muscle strength; muscle length decreases gradually, as well as the angle between the joint surfaces;

- muscle-toning was carried out in stages: first the flexor muscles and then the extension, insteps and pinnate. Exercises for toning fist muscles followed. Direct manual resistance was used, as well as indirect resistance represented by portable objects and mechanotherapy (pulley-weight system).

It was found that patients were followed in the dynamic recovery process. Thus the joint and muscle balance, forearm perimetry and palm flexor dynamometry were performed immediately after taking off plaster (initial measurements), after 15-20 days of kinetic treatment (interim measures) and the end of the recovery (final measurements). Based on the differences the functional gain could be determined.

It was found that trauma favours the emergence of psychic disorders evident by neuroses, which prevent the conduct in good conditions of athletic activities and/or professional ones.

In conclusion, acting immediately after traumatism, with a kinetic, well organized program, the functional coefficient finally reached approximately 90% of its normal value, so it can be said that the recovery was almost complete and the athletes were fit to start recovery workout.

In recovery of elbow fractures of athletes, kinetic therapy remains the primary means of recovery.

The methodology must take into account the existence of muscle and joint changes, which may come late or even impede the success of treatment.

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ONGOING STUDY CONDUCTED ON THE IMPORTANCE OF THE KINESITHERAPY IN MYOTONIC DYSTROPHY

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ABSTRACT. This paper is a study of a subject with myotonic dystrophy, aged 25 years. The research was conducted over a period of approximately one year and the aim was to structure an intervention kinesitherapeutical program tailored to the particular subject and finally achieve a socio-professional reintegration at a higher quality level. Experimental study followed the principles of early intervention, treatment intensity, interdisciplinary team involvement, predictability and continuity, exploring specific skills acquired, to develop the skills necessary for daily life which are required educational-therapeutic intervention. Objective methods of assessment that we used muscle testing site (after Dr.Sidenco L., 2003), especially of the extensor muscles of the hands being the most affected in this case and test ABLLS-R in order to obtain relevant data to fine motility. Following the research found that by applying a specific kinesitherapeutical behavior can be seen stagnation and even a reduction in symptoms of the disease, the objectivity of the results in table and graph paper attached.

Keywords: dystrophy, retraction, motility

REZUMAT. Studiu constatativ privind importanța kinetoterapiei în distrofia miotonică - studiu de caz. Prezenta lucrare reprezintă un studiu efectuat pe un subiect cu distrofie miotonică, în vârstă de 25 ani. Cercetarea s-a desfăşurat pe o perioadă de aproximativ un an, iar scopul a fost acela de a structura un program de intervenție kinetoterapeutică adaptat la particularitățile subiectului şi de a realiza în final o reintegrare socio-profesionale la un nivel calitativ superior. Studiul experimental a respectat principiile intervenției precoce, intensității tratamentului, implicării echipei interdisciplinare, predictibilității şi continuității, explorării abilităților specifice dobândite, dezvoltării abilităților necesare vieții cotidiene ce sunt necesare intervenției educațional-terapeutice. Ca metode obiective de evaluare am folosit testing-ul muscular (după Dr.Sidenco L., 2003), în special la nivelul musculaturii extensoare a mâinilor fiind şi cea mai afectată în acest caz şi testul ABLLS-R în scopul obținerii unor date relevante referitoare la motricitatea

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fină. În urma cercetării întreprinse s-a constatat că prin aplicarea unei conduite kinetoterapeutice specifice se poate observa o stagnare şi chiar o diminuare a simptomelor afecțiunii, prin obiectivitatea rezultatelor din tabelul şi graficul anexat lucrării.

Cuvinte cheie: distrofie, retractură, motricitate

Introduction

Miotonic dystrophy is a neuromuscular affection autosomal dominant transmitted with an incidence of 1 in 8 000 children. The clinical symptoms generally occur in the young adult, the first sign being most often the delay of relaxing the hand after the fist had been gripped (called myotony), a manifestation encountered in most of symptomatic cases, accompanied by hypotony and progressive muscular hypotrophy in the palmar extensor muscles. Other frequent manifestations of the disease would be cardiac disorders, smooth muscles affections, mental disorders, hypersomnia, ocular catharactics, and insulin dependant diabetes. There could occur congenital forms of this disease which are more severely manifested: muscles hypotony, major mental retardation, facial displegia, nutrition difficulties and respiratory disorders, along with neo-natal mortality of 25%. The congenital forms of the disease are almost always transmitted from mother to child (according to Covic M & co, 2004).

Photo 1: congenital hand myotony dystrophy
(www.stanford.wellsphere.com/wellpage/dystrophic)

Hypothesis

It is assumed that the kinesytherapeutical methods and techniques are beneficial in treating the affection, in diminishing the muscular retractions of the flexor muscles of the superior limbs, fighting the hypotony and the hypotrophy of the extensor muscles of the superior limbs, in improving the fine motility and the motor control of the hands.

Means and method

As the incidence of this affection is pretty low, the study was performed on one single female subject of 25 years old, in the incipient phase of the disease. The research lasted around 12 months, divided in four stages. Thus, in the second and third stages we effected the evaluations and carried the kinesitherapeutical intervention and in the fourth stage, we took down and interpreted the obtained results. The progress in the therapeutical activity was also ensured by the interdisciplinary team work of the Betania Day Care Center from Bacau.

Table 1.

Clinical case

Initials	Age	Sex	Clinical diagnosis	IQ
A.P.	25 yrs	F	Myotonic dystrophy	70

Table 2.

Diagnostic criteria

Major criteria		Additional criteria	
Hypotony (extensors MS)	+	Skeletal deformations	+
Facies miopatic	+	Bulging midriff	+
Muscular atrophy	+	Thin ribs	+
Respiratory difficulties	+	Anal sphinterial insufficiency	+
Nutrition difficulties	+	Oedemas	-
Minor mental retardation	+	Ventricular dilatation	-
		Haematomas	-

Measurment methods (exploring and evaluating)

During the study, a muscular testing was used (graded from 0 to 5) (acording to Dr. Sidenco L., 2003), especially at the level of the extensor muscles of the hands which were most affected in this case and the ABLLS-R test in order to obtain some relevant data regarding the fine motility.

The ABLLS-R test (according to Partington J., 2007), includes 25 behavioral categories and evaluates the physical and linguistic defficiencies. Within these categories, the study focused on the fine motility, answering 27 questions related to the everyday activities. The questions were simply formulated, and the answers were graded : Yes- 1 point, NO- 0 point, then they added up and were interpreted according to the obtained score.

The contents of the kinesitherapeutical intervention

The treatment **objectives** were: eliminating the muscular retractions from the flexor muscles of the hand, improving the muscular trophicity, tonifying the hypotonic musculature of the extensor muscles of the superior limbs, improving the fine motility and the motor control, improving the respiratory function, re-adjusting in the social and professional domain as much as possible.

Techniques, proceedings and methods that were used:

- warm applications on the flexor musculature of the superior limbs in order to relax the muscles;
- ultrasounds applications on the flexor musculature of the superior limbs;
- electo-therapy on the hypotonic extensor musculature of the superior limbs;
- relaxing therapeutical massage on the retracted flexor muscles;
- stimulating therapeutical massage on the hypotonic extensor muscles;
- passive stretching for the palmar flexor retracted musculature ;
- passive mobilizations in the extension direction of the hand;
- passive mobilizations of abduction and extension of the thumb;
- neuromuscular and proprioceptive facilitating techniques (rhythmic initiations, relaxation- agonistic opposition, rhythmic stabilization) in the direction of extension of both the hand and thumb, in order to enhance the extensor musculature (ulnar and radial extensor of the carp, commun extensor of the fingers, auricular extensor, index finger extensor, thumb long extensor);
-miotensive techniques on the thumb and hand direction extension;

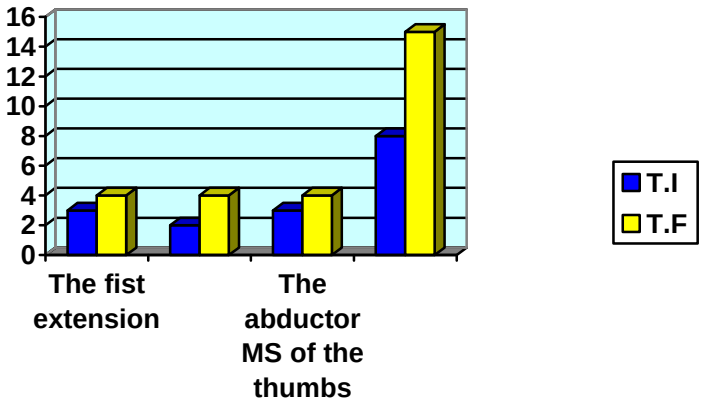
- the kabat diagonals extension (D2E);
- thoracic and abdominal breathing exrecises.

The scores

Table 3.

Muscular testing and the ABLLS-R test results

Fist Extensors (ulnar and radial of the carp extensor, commun extensor of the fingers, auricular extensor., index finger extensor, thumb long extensor.)		**The Abductor Muscles of the Fingers** (the commun extensor of the fingers, the abductor muscle of the little finger, the dorsal interbone muscles,the short abductor of the thumb)		**The Abductor Muscles of the thumb** (the long and short abductor muscle of the thumb)		**ABLLS-R Test regarding the fine motility of the hand**	
T.I	**T.F.**	**T.I**	**T.F**	**T.I**	**T.F**	**T.I**	**T.F**
3	**4**	**2**	**4**	**3**	**4**	**8** p.	**15** p.



Graph 1 – the results of the muscular testing and the ABLLS-R test

Discussing the results

Loking at the muscular testing results, it can be easily noticed that the muscular force of the palmar extensors and abductors has considerably improved, which denotes that the kinesitherapeutical techniques and methods had beneficial effects in fighting the muscular hypotony and hypotrophy, thus: at the initial testing, the patient executed the extension of the fist with cubital and radial deviation, without the hand resistance, the abduction of fingers on limited amplitude and the abduction of the thumb without the hand resistance. At the final testing, due to continuously applying the kinesitherapeutical individualized and progressive program, the muscular force of the extensor abductor muscles of the hand improved, so that the patient performs the extension of the fist without leaning and even with hand resistance, the abduction with a slight resistance on the distal phalanx and raises vertically the thumb on the abduction movement, with a slight resistance on the first phalanx. In regard of the fine motility and the controlled movements of the hands, a progress of 7 points was recorded, which means that the patient performs her everyday activities with a great ease (for instance, hangs pegs on a wire, cuts with a pair of scissors, opens small-zipped bags, undoes the lid of a jar, squeeze glue from a glue tube, uses easily digital clips, so forth).

Conclusions

- Structuring a kinesitherapeutical program sticking to all the principles, determined enhancing the motor strength and consequently improved the fine motility and the defficient motor control within this affection, confirming the hypothesis of the present paper ;
- The used kinesitherapeutical means enforcing on the relaxing therapeutical massage on the retracted musculature and the proprioceptive and miotensive facilitating techniques, the Kabat method associated with the medicine treatment for the concerned affection, contributes to maintaining the functional parameters within almost normal limits.
- The kinesitherapeutist holds an important part in the intervention team, focusing on the motor compound, with a significant importance in helping these patients sufering from myotonic dystrophy re-adjust in the physical, psychological and social environment.

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DEEP VEIN THROMBOSIS: PHYSIOPATHOLOGY AND PREVENTION PULMONARY EMBOLISM

GLIGOR ELENA[1], ZAMORA ELENA[2], CIOCOI-POP D. RAREŞ[2], GLIGOR DANIEL

ABSTRACT. Deep vein thrombosis-DVP is a important disease because it determin pulmonary embolism. In the development of the disease there are many risk factors which we must known for the profilaxy. Under the mechanism of production, the vascular injury and the conection endothelium-leucocyte is very important in the development of the blood clot. The general profilaxy (without drugs) can be applied in all cases, but individually and the special profilaxy (with drugs) is applied for selected cases (for exemple after:surgery, trauma, immobilisation).

Key words: DVP, Physiopathology of pulmonar embolism, Prevention of pulmonar embolism

REZUMAT. Tromboza venoasa profunda-TVP este o afecţiune cu risc vital prin embolia pulmonara pe care o poate produce. In producerea afecţiunii sunt multi factori de risc ce trebuie cunoscuti in vederea profilaxiei. Sub aspectul mecanismului de producere leziunea vasculara si interactiunea endoteliu-leucocite are rol major in initierea formarii cheagului. Profilaxia generala (fara medicţie) este aplicabilă la toate cazurile dar individualizat iar profilaxia specială (cu medicaţie) este aplicată selectiv (exemplu post:chirurgical, traumatic, imobilizare).

Cuvinte cheie: TVP, fiziopatologia embolismului pulmonary, prevenirea embolismului pulmona**r**

Deep vein thrombosis or DVP is a blood clot that forms in a vein deep in the body. Most vein blood ctots occur in the lower leg or thigh.

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They also can occur in other parts of the body. A blood clot in a deep vein can breakoff an travel through the bloodstream. The loose clot is called an embolus. When the clot travels to the lungs and blocks blood flow, the condition is called pulmonary embolism-PE. It can damage the lungs and other organs in the body and cause death. The incidence of first venous thrombosis is 1 to 3 per 1000 individuals per years an dis commonly manifested as a DVT of the leg, with a mortality of 1 % to 2 % if PE occurs. DVT are most common in adults over age 60, but can occur at any age.

DVT risk factors. Risks for DVT include:

- Fractures:
- Recent surgery in especially :hip, knee, or female reproductive organ surgery;
- Sitting for a long time, such as on a long plane or cap trip;
- Cigarette smoking;
- Status of the hypercoagulability (such as factor V Leiden), increase blood's tendency to clot;
- The treatment with hormone replacement therapy or birth control pills;
- Overproduction of red blood cells in bone marrow (polycytemia vera) or related conditions-travel risks;
- Elderly people who are: overweight, obesity, diabetes or cancer
- Autoimmune diseases, such as: systemic lupus erythematosus, inflammatory bowel disease, hyperthyroidism and renal disease.

Pathogenesis. Blood clots can form in body deep veins when:

- As a result of injury or damage to the muscles and veins. This damage may result from injuries caused by physical, chemical, and biological factors (such factors include:surgery, injury, inflammation or an immune response);
- Blood flow is sluggish or slow (can cause sluggish or slowed blood flow: after surgery, and you're ill and in bed for along time, or traveling for long time;

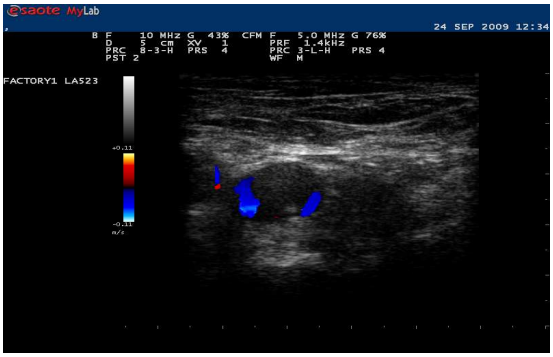

Figure. 1. TVP of femoral vein with partial recanalisation (Doppler color)

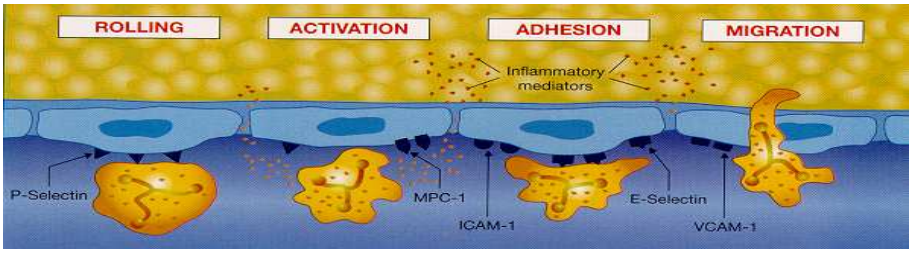

Figure 2. Interaction leukocyte-endothelium, as a result of altered sher stress, contribute to the inflammation of the venous wall and valves causing thrombosis (UIF-2008).

DVT prevention (methods, without drugs):

- Lifestyle changes for same problems in society (obesity, inactivity, cigarette smoking and air long travels) with: nutrition without excess calories, exercise [1,2].
- The most effective preventative measure is regular daily aerobic exercise. (such as walking, movement of lower limbs and swimming keep muscles, active and encourage healthy blood flow;the types of exercise are especially recommended for elderly because they are low-impact exercises that also promote joint health [3].
- Avoid dehydration: drink water (such as intake of 1 l drink /5 hours of travel) and minimize alcohol consumption;
- Reducing time of sleeping and doses tranquilizer drugs [4];

- Maintain normal blood pressure (guidelines define normal as <120/80 mm Hg rather than <140/90 mm Hg);
- Mechanical measures (vascular compression) [2,5].

Conclusion:

1. Evaluation and determine the risk for DVP with us to optimize prophylaxis;
2. The general prophylaxis (without drugs) is applied for all cases;
3. The special prophylaxis (with drugs) is applied for selected cases with risk of thrombosis

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THE INDEPENDENCE IN WATER OF PERSONS WITH NEURO-PSYCHO-MOTOR DISABILITIES – THE HALLIWICK CONCEPT

MANIU DRAGOS ADRIAN[1], MANIU EMESE AGNES[2], ZAMORA ELENA[1]

ABSTRACT. The Halliwick concept was developed by James McMillan 50 years ago. Initially it was intended as a strategy (called 10 Steps Program), to teach children with disabilities how to swim. Shortly after applying the 10 Steps Program at the Halliwick School for Crippled Girls in London the teaching staff started to notice improvement in the emotional behavior and physical development of the children. The changes in behavior were assigned to a unique teaching/learning method and to a psycho-sensor-motor learning program improved by the principles of hydrodynamics. Acknowledging the therapeutic effects of the 10 Steps Program, McMillan and his colleagues customized the program as a therapeutic intervention called also Water Specific Therapy or Logic Approach to Therapy in Water.

Key worlds: Halliwick Concept, Water Specific Therapy, Neuro-Psycho-Motor Disabilities

REZUMAT. Independenta in apa a persoanelor cu dizabilitati neuro-psiho-motorii Conceptul Halliwick. Conceptul Halliwick a fost dezvoltat de către James McMillan acum 50 de ani. Inițial a fost conceput ca o strategie (numită Program în 10 puncte), pentru a învăța înotul copiilor cu dizabilități. La scurt timp după introducerea programului în 10 puncte în şcoala Halliwick Schoolfor Crippled Girls în Londra, personalul didactic a început să observe schimbări în spre bine în comportamentul emoțional şi dezvoltarea fizică a copiilor. Schimbările în comportament a fost atribuite unei metode unice de predare/învățare şi unui program de învățare psiho-senzorio-motorii îmbunătățit de principiile hidrodinamice. Recunoscând efectele terapeutice ale Programului în 10 puncte, McMillan şi colegii lui au adaptat programul ca intervenție terapeutică denumită si Terapie specifică în apă (Water Specific

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Therapy) sau Abordarea Logică a Terapiei în Apă (Logic Aproach to Therapy in Water)

Cuvinte cheie: Conceptul Halliwick, Terapie specifică în apă, Terapiei în Apă

Introduction

James McMillan (1913-1994) initially conceived a strategy in order to teach disabled persons how to swim. The concept uses the principles of the mechanics of fluids in order to enable the subjects to gain stability and controlled movements in water. He named this program 10 Steps Program and introduced it at the Halliwick School for Crippled Girls in London. The results were remarkable. Within a few weeks not only did the children learn how to swim but showed improvement in controlling their head, stability of the torso, breathing control and self-esteem.

McMillan and his colleagues founded the Association for Therapeutic Swimming continuing to further develop the concept over the following 13 years. Their intentions were also recreational. In 1963 McMillan was invited to teach the concept in the Center Bad Ragaz, Switzerland. During the following 12 years he developed the Halliwick concept. Between 1975 and 1979 he was employed as project leader for further developing the 10 Steps Program into a specific water therapy known also as Logic Approach to Therapy in Water.

Today, after 50 years of development and implementation, the Halliwick concept is one of the most important strategies in water therapy, especially with regards to neurological and pediatric disorders.

The Philosophy of the Halliwick Method

The purpose of the Halliwick concept is to give patients the possibility to gain independence both in the water and on land by using a philosophy and structure which facilitates and encourages self-confidence.

- It emphasizes the ability and not the disability.
- It incorporates the ability to adapt in water.
- It develops a person’s understanding of being in water.
- It teaches movement in water for each single person.
- It pays special attention to breath control.
- It uses the balance and safety position in water without using any floating equipment.

- It promotes confidence, relaxation and the pleasure of being in water.
- It uses group dynamics and games in order to trigger motivation

The method can be used as a therapeutic intervention but also as a teaching method for swimming.

McMillan claimed that anybody can swim and swimming is a means towards independence.

Balance is a necessary ability in order to become a swimmer. Balance is impacted by the density and shape of the body. A swimmer, especially one suffering from a neurological disorder, might need assistance in order to gain and maintain balance. The assistance is given by the therapist, being individual. The floating equipment is never used because it encourages addiction which would significantly interfere with the purpose of independence.

In order to become a swimmer active participation is necessary and it is more efficient if it is performed in a group.

Motor Learning Process

The method's purpose is independence which is put forth by coordinated moves. In water keeping the balance requires the ability to adapt to the mechanical changes of the environment. The ability to adapt is the result of a psycho-sensor-motor learning process, which gives the person the possibility to learn how to keep the balance in an unstable environment. Once balance (stability) is gained, movement can be initiated and controlled.

McMillen understood the connection between balance and movement, realizing that in order to learn how to swim (initiating and controlling the movement) a child suffering from neurological disorders (eg. disabilities regarding coordination, understanding, perception and/or pain) would have to initially learn how to keep the balance. Gaining and keeping the balance is not easy and very often impossible for these children. McMillen's solution was to develop some techniques for manual assistance which could help the patient to learn the control of rotation schemes.

McMillan suggests the existence of a connection between the mechanical effects of fluids and the adaptability mechanisms of the body in relation to inertia. It is largely accepted that the physical properties of any environment are a constraint for keeping the balance and it requires an adjusted motor behavior (eg. enlarging the supporting surface, using the hands for support, stiffening the body in order to consolidate the center of gravity).

In his method Halliwick takes into account two hydrodynamic factors.

The motor behavior adapted in the presence of hydrodynamic elements leads to a psycho-sensor-motor learning program which is the Halliwick concept. The hydrodynamic elements generally accepted as the ones influencing water therapy, also play an important role in the Halliwick method. Anyway, the most important mechanical effect of fluids is the metacentric effect. Metacenter is a term from naval architecture used to describe the point around which oscillate the gravity and the ascensional (archimedical) force. Both are equally important and influential; any little change of either gravity or ascensional force leads to the loss of balance.

Shape, density and symmetry of a body will influence the metacenter (balance). In water balance occurs when the body makes the necessary adjustments which will determine that the gravity and the ascensional force are equal and opposed. In case these forces are not equal and collinear, the body will become instable and will turn in order to gain balance. The body uses automatic reactions in order to equilibrate and stabilize the posture. In case the lack of balance cannot be coordinated, the body uses movements schemes based on primitive reflexes such as: the tonic asymmetric reflex of the neck, tonic labyrinth reactions. These reactions can block undesired rotations especially those on the median axis, in order to stabilize the posture. McMillan uses these reactions in order to gain symmetry on the median line as a starting point for the control of the coordinated turns.

For McMillan the efficiency of the lack of weight in the water was of special interest. He believed the postural tonus is influenced by the proprioceptive afferences stimulated by the gravitational forces. When a person is sunk into water, the proprioceptive afferences are reduced and also the postural tonus is reduced. The tactile information is improved and the "system" is based on primitive reflexes or on a less coordinated motor behavior, in order to monitor and control the movements and posture in an environment with altered feedback sources.

McMillan has also observed the fact that the antigravity effects upon the weakening of the tonus were permanent regardless of the water temperature.

The 10 Steps Program

The 10 Steps Program is a sequence of motor learning which focuses on postural control in order to teach subjects how to swim.

Ten successive steps lead the subjects to experiment and to master, in a variety of movement schemes, a locomotion by rhythmical “swimmer” movements.

The three stages of the ten steps program constitute an efficient method for teaching both disabled and healthy persons how to swim.

The three stages include mental adaptation, balance control and movement. (Fig.1.)

10 Steps	Stages
1. Mental adjustment and detachment	Mental Adaptation
2. Sagittal rotation (rotation control) 3. Vertical rotation (rotation control) 4. Side rotation (rotation control) 5. Combined rotation (rotation control) 6. Upward movement 7. Static balance 8. Turbulent gliding (induced)	Balance Control
9. Simple progression 10. Halliwick basic movements	Movement

Fig.1. 10 Steps Program, Three Stages of the Halliwick Program

The mental adaptation includes mental adjustment and detachment. It includes adjustment to the properties of water: ascensional force, water streams, waves as well as adaptation to the gradual downsizing of the support offered by the instructor during the activities in vertical position.

An important part of the mind adaptation is breath control, which focuses on exhaling in order to prevent swallowing or inhaling water.

The breath control facilitates the advancing of the head in the water, which is essential for the balance during the activities. At the beginning of the mental adaptation stage, the support offered by the therapist is at the level of the shoulder girdle and depending on the needs and abilities of the patient it can move towards the upper member or the pelvic girdle. The support is never offered at the level of the head because it is of critical importance for the balance. Gradually the support offered by the instructor will be dispensed with. This is called detachment.

Detachment is the most important task of the instructor. When too much support is offered, the subject is not stimulated to maintain the balance. If too little support is offered, stress reactions can occur which interfere with the achievement of the targeted results. (Fig.2.)

Undesired skill	**Controlled skill**
Variable performance	Consistent performance
Incorrect, clumsy	Precise
Slow	Fast
A lot of co-contraction	Smooth movement
Need for visual control	No visual control is necessary
Visible postural adaptations	Imperceptible postural adaptations
Rigid in execution	Flexible in execution

Fig.2. Effects of experience and feedback upon the changes in motor behavior. (Smits-Engelsman, 1999)

The desired results derive from the feedback received by the subject regarding the improvement of acquisition. This feedback can come just from correctly sustained motor experiences which allow the subject to practice and master the specific skill.

The detachment is a continuous process of changing the support offered and of using the elements of hydrodynamics in order to increase the degree of difficulty and to induce stability. (Fig.3.) Each activity or skill introduced requires different levels of detachment. The purpose is to teach the subject to gain balance as much as possible in an open kinetic chain. Finally, even though detachment is mainly dealt with in the first stage of the 10 steps program, it is used throughout all the steps by which new skills are introduced.

Simple balance	**Means to induce balance**
Support at the level of the shoulder girdle	Transfer of the caudal support
Support at the hands	Transfer of support from the side to the medial
Many supporting points	Few/no supporting points
Depths of the water around toracal 11	Depths of the water above toracal 11
Large base	Narrow base
Compensatory movements of the hands	Without hand movements
No water streams around the body	Water streams around the body
No waves	With waves
No metacentric effect	With metacentric effect

Fig.3. Methods of increasing the difficulties during the detachment process

The therapeutic results during the first stage (mental adaptation) are emphasized at the beginning by the control of breathing through the mouth; more specific aids during the mental adaptation such as: closing the lips, vocalization and activities of the diaphragm. With regards to the control of the head and torso we mention the decrease of the hipertonus, dissociation, the facilitation of recovery and symmetry reactions. Finally the activities of adjustment to water include games which offer the possibility to practice and train functional skills like: walking, jumping and turning.

Balance control includes restoration of balance on different planes and axes, upward movement, static balance and turbulent gliding. Balance control is the ability to maintain or change independently a posture in water. The subject must learn a certain level of balance control (automatic and centralized) in order to prevent undesired movements and gain efficient postural control. During the first step of this stage, the subject learns to control (or restore) sagittal, vertical, side and combined rotations in order to gain control of the posture.

Sagittal rotation is performed around a sagittal axis, from a vertical position and consists in lateral inclinations left to right or transfer of the weight.

Vertical rotation is performed around a transversal axis with the movement of the subject from orthostatism into dorsal decubitus position (floating on the back) and back to orthostatism.

Lateral rotation is performed around the longitudinal axis of the spine making a 360 degree turn possible.

Combined rotation combines the vertical rotation with the one on the side, or the sagittal one with the side rotation and is used in order to teach the concept of safety position in which the subject is taught to turn with the face above the water.

After the subject masters the rotations, the upward movement is introduced, based on the concept that the ascensional force will lift the objects and subjects towards the surface. The subject learns to come to the surface by using the ascensional force (to float) and to gain a comfortable position in which he/she can breathe by using the rotation schemes.

The first 5 steps of balance control required a maximum level of movement. Gradually, after the subjects learn to master the rotation schemes, they are initiated into the static aspects of the program which require a precise degree of postural centralized control.

While in static balance the subject adopts a variety of postures from orthostatism to floating. The trainer uses a variety of variables such as water

streams or tactile stimulation (Fig. 3) in order to interfere with the subject's balance or stability. The mastery consists in the subject's capacity to remain stabile in floating position.

When the floating is mastered and the subject can maintain the position of its body, the trainer introduces the movement in water, with turbulent gliding (induced). The subject is in a dorsal decubitus position and is moved passively through the water by the trainer, who moves backwards pulling the subject in the water stream produced by his body movement. The trainer can also produce turbulence under the subject's blades, which would need to keep a still and balanced position of the body without paddling and without increasing the body's tonus. This step allows the subject to experience a centralized postural control while he/she is pulled through the water.

There are many therapeutic effects in the second stage of the 10 steps program.

The sagittal rotation increases the mobility and stability of the spinal column. It enhances the capacity of stretching for something and improves the lateral balance. It also facilitates reactions of redress and support.

Vertical rotation is a kind of dissociated or selective extension. All the components of this chain can be practiced including the positioning of the head and torso, laying the scapulas on the thorax, the extension of the thoracic spine, the adjustment of the tilting of the pelvic girdle, the eccentric activity of the abdominal muscles and the controlled mobility of the knee joint.

Lateral rotation facilitates the rearrangement reactions between head, scapular belt and pelvic girdle. The oblique musculature is very active in stabilizing the components against each other. The control of the lateral rotation is of extreme importance during swimming, walking and many other functional activities.

Combined rotation has the same benefits as mentioned above and is more functional if the exercise is based on three-dimensional movement schemes.

Static balance and turbulent gliding (induced) is used in all the cases in which the stabilization of the torso, pelvis and lower extremities is needed.

Movements which include simple progression and basic swimming movements constitute the final part of the 10 steps program. At this level the subject is effectively capable to create efficient and skillful movements in water. Once turbulent gliding (induced) is mastered, subjects are taught to move forward in water in a simple way which makes independent movement in water possible. While the progression needs to be adapted for

each subject (based on functional skills, body composition and symmetry), the propulsion movements are usually a certain form of rowing. The rowing movement gradually becomes a Halliwick swimming movement, which is a symmetrical bilateral movement with the upper limbs in supine position. The most important therapeutic result of the movement stage is the training of the dynamic stability of the torso. During swimming, the subject must effectively propel himself/herself which requires coordination and proper central synchronization. Swimming can be considered a double task with automatic components of postural control.

The Halliwick therapy has started as a method to teach disabled children how to swim and in 50 years of development and implementation, therapeutic results have been assessed during the concept's usage. McMillan and others have tried to apply the mechanical effects of the water in water therapy. The resulted strategies are known under the name of Specific Water Therapy.

This approach can be used in neurological, orthopedic and rheumatic affections. The Specific Water Therapy is not a group of exercise but rather a decision making system which entails elements for the planning, execution and evaluation of water therapy applications.

Elements of Water Specific Therapy include:

- objectives of the treatment
- rotation schemes
- starting position
- treatment techniques
- exercise schemes
- treatment approaches

The Treatment's Objectives

The purpose of water therapy is to offer the patient the possibility to improve his functional abilities on land. The treatment in water has to be used as an extension, a completion of the therapy on land.

McMillan identifies 7 objectives which he can positively influence by using Specific Water Therapy.

These objectives are:

1. Increasing the muscle force of weak musculature
2. Increasing articular mobility
3. Improvement of posture and balance reactions
4. Improvement of the overall physical condition (effort capacity)

5. Decrease of pain
6. Decrease of spasticity (return to normal of the muscular tonus)
7. Increasing mental adaptability

The physiological laws regarding the increase of the muscular force, the cardio vascular training and the stretching of the connecting tissue need to be considered in connection with these objectives.

Once the evaluation is done and the treatments objectives are set, the therapist selects the suited rotation plan, the correct starting position and treatment techniques.

Rotation Schemes

The selection of the most suited rotation planes is based upon the effect the deficiency has on the shape and density of the patient's body. For a hemiplegic for instance, lateral tilting and sagittal rotations together with the learning of straightening postural reactions sustain the vertical position. The same patient will execute the lateral rotation along the longitudinal axis in order to facilitate the balance posture and reactions in dorsal decubitus.

With a muscular imbalance in frontal plane, the vertical rotation along the transversal axis can be applied in order to fortify the weakened muscular groups or to facilitate the balance posture and reactions.

A person suffering from sever spastic tetraplegia can work with combined rotations in order to reduce spasticity, increase the amplitude of the movements and improve the symmetry and extension of the spine.

Starting Position

The starting positions are designed to determine biomechanical and hydrodynamic effects. The depth of the water influences orthostatism. Normally the water level of up to T11 allows the person to maintain a neutral position in relation with gravity and the arhimedic force. The water level over T11 increases the effect of the ascensional force and lowers the sustaining of the weight on the lower members, it increases the controlled balance, basically that of the head. If the water level is under T11, the patient experiences lowered effects of the ascensional force and the sustaining of the weight on the lower members. A classical Halliwick position is the sitting position, adapted in order to improve the control of the head. As a version of this position we come upon the cycling position and the kneeing position. Another position is the dorsal decubitus (floating on the back). In this case, the lombar spine is in a neutral position, the upper

limbs, depending on the torso's stability, alongside the body or spread, the head in neutral position or lightly bent, tights in 0 position with legs together and in dorsiflexion. Floating on the belly (ventral decubitus) is another position in which the lombar and cervical spine are in extension but it is rarely used. In oblique position, the body is in neutral extension in suspension on the diagonal, with the legs resting on the bottom of the pool and with the face floating on the water surface.

Treatment methods

7 treatment methods, coinciding with the 7 objectives formulated by McMillan, are used to interfere with the metacentric balance. This interference might provoke the subject to use movement schemes in order to develop postural control, balance and movement. One should notice that every method can trigger multiple results. For example, when a subject is provoked to gain postural alignment and balance, it will execute isometric and isotonic activities with variable resistances which will have as an incontestable effect the toning of the weak muscle groups.

Spasticity decrease together with the increase of movement and the strengthening of certain weak antagonist muscles will lead to the increase of the active articular mobility.

All activities and hydrodynamic forces will create a favorable environment for pain reduction.

Exercise Schemes

The exercise schemes used in Specific Water Therapy can be described as symmetrical (both sides of the body execute the movement simultaneously), asymmetrical (just one part of the body executes the movement), lateral crossed (upper extremity on one side executes the movement with the lower extremity on the opposite side) and bilateral (movement schemes are executed by the lower or upper limbs concordantly)

Treatment Approach

The treatment approach comprises the following stages:

- Pre-training: - mental adaptation and detachment
  - control of sagittal rotation
  - control of vertical rotation
  - control of lateral rotation
  - control of combined rotation

- Inhibition – static postural control: - static balance
- Facilitation – dynamic postural control, with changes which take place at the position level: eg. from sitting to orthostatism, support posture and base: walking with steps and stopping.
- Dynamics: is postural control with changes both in the patient's position and in the support base (can be the bottom of the pool, lateral sidewall, support offered by the therapist) An example of posture change is jumping.

The Halliwick method describes a specific water therapy which uses hydrodynamic forces, the metacentric effect, inertia movements and primitive reflexes in order to offer patients the possibility to improve functionality at a variety of levels.

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WHEELCHAIR ASSESMENT AND PRESCRIPTION FOR CHILDREN WITH CEREBRAL PALSY

CRAIOVEANU OANA, ZAMORA ELENA[1]

ABSTRACT. These article is about the importance of a proper wheelchair for children with cerebral palsy. Each person who needs a wheelchair must first be assessed, in order to make sure that they receive a wheelchair that meets their individual needs. The aim of the assessment is to prescribe a wheelchair that enhance the mobility, comfort, ability, independence and posture of the user.

Key words: assessment, disability, wheelchair, cerebral palsy

REZUMAT. **Prescrierea si utilizarea scaunului rulant la copii cu paralizie cerebrala.** Acest articol este despre importanta unui scaun rulant adecvat la copiii cu IMC. Fiecare persoana care are nevoie de scaun rulant trebuie mai intai sa fie evaluata, ca sa poata primi un scaun rulant care sa se potriveasca cu nevoile sale individuale. Obiectivul evaluarii este acela de a prescrie un scaun rulant care sa imbunatateasca mobilitatea, confortul, abilitatea, independenta si postura utilizatorului.

Cuvinte cheie: evaluare, dizabilitate, scaun rulant, paralizie cerebrala

Wheelchair users

People who use wheelchairs namely "wheelchair users" come from all different backgrounds and cultures; they work and have families like everyone else. Wheelchair users can lead active, independent and productive lives as long as they are given the same rights in society as everyone else. The basic opportunities a wheelchair user needs are:

- Mobility
- Accesss

These lead to:

- Independence.

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These should be the same for everyone in society no mater what age, religion, nationality, they are or whether they have a disability or not.

Mobility

- Having mobility is the first step to living an independent life
- A wheelchair can be provided but if this does not fit properly the user will not be able to move
- Providing good fitting wheelchair whith is good for the user's lifestyle is very important for mobility

Access

This is how people are able to enter their local communities

This might mean their ability to get to the market, schools, places of work ship or on transport.

Cerebral Palsy

Cerebral palsy is a term which covers all the effects of damage to the brain in the early years of childhood. "Cerebral" refers to the brain and "Palsy" to the damage.

Every child with cerebral palsy is affected differently, because the problems of each child depend of the extent of the damage to the brain, this damage is different in different children.

Most children have difficulties in the following:

- Carrying out big movements, such as reaching for things or running
- Making fine movements with their hands and fingers
- Maintaining their posture (i.e. the way they stand or sit)
- Understanding and learning about the world around them.

Cerebral palsy is not a disease or an illness, it is the description of a physical disability that affects a person's movement, it is commonly the result of failure of a section of the brain to develop, or damage to a section of the brain, occurring either before the child is born, during birth or after birth.

Cerebral palsy can result from factors occurring:

- Before birth, e.g. poisoning, maternal influences, high blood pressure
- During birth, e.g. difficulty with, or a delay in establishing breathing soon after birth
- After birth, e.g. trauma, infection (meningitis), convulsions, baby being born early.

Cerebral palsy is not progressive. It will not become more severe as the child gets older. Some of the difficulties however, may become more

noticeable. As the child grows, the priorities for helping the child to develop (and to actively participate in life) may change. For exemple, when the child is very young, it may be most important to help the child to develop skills may be of more importance.

People with cerebral palsy often have difficulty controlling their movement and facial expressions. This does not necessary mean that their mental abilities are in any way impaired.

Some people with cerebral palsy are of higher than average intelligence, other people have moderate or severe learning difficulties. Most, like the majority of people without cerebral palsy, are of average intelligence.

The main effect of cerebral palsy is difficulty in movement. Many people are hardly affected at all whilst others have problems with walking, eating, talking or using their hands. Some people are unable to sit up without support and need to do most everyday tasks.

Children's bodies are not always affected in the same way. Sometimes the legs are more affected than the arms. Sometimes one side of the body (arm and leg) is affected more than the other side, and in other cases the whole body will be affected.

A child with cerebral palsy cannot control his/her body movements very easily. The reason for this is that wrong information is sent from the brain to the muscles. This results in changes to the child's "muscle tone" (muscle tone is the tension in our muscles that enables movement and upright posture).

A child may have some or most of the following features. They may be slightly affected, or more severely affected:

- High muscle tone: movements are stiff, slow and laboured
- Low muscle tone: children are 'floppy' and have difficulties maintaining different positions and moving where any effort is required
- Unwanted movements
- Poor posture, contractures and deformities restricting movement.

These changes in muscle tone will influence the child's ability to do some of the following:

- Move, sit and stand
- Play
- Speak
- Eat, drink and possibly swallow.

There is no cure for cerebral palsy. However, if children are lifted, held and positioned well fro an early age, and encouraged to play in a way

that helps them to improve their posture and muscle control, they will learn to maximize their abilities. Input from a therapist, when aimed at helping the child to function in normal life, is of great benefit to the child. In this way a child will be able to join in with their family life, as well as learn about the world around them, thus enabling a more fulfilling and independent life.

Supportive seating

Many children and adults with cerebral palsy are unable to sit without external support, or without a lot of concentration or effort. These people need a 'supportive seat' which provides more postural support than is provided by a standard char or wheelchair. A supportive seat may or may not have wheels.

There a many benefits of supportive seating, a few are listed below.

Sitting helps to maintain health and can prevent the development of secondary disabilities:

- Children who spend a lot of time lying in one position, or sitting with a poor posture, may begin to develop secondary disabilities. Secondary disabilities may be muscle contractures and/or postural deformities, these problems are caused by a combination of abnormal muscle tone and a lack of movement of the child's muscles and joints.
- Enabling a child to sit up with good posture, using supportive seating, helps them to maintain health, e.g. aids breathing and digestion, slows down development of secondary disabilities and encourages normal child development through giving access to learning.

Supportive seating provides stability for children to function

For many people, the ability to sit develops naturally. People do not have to think about controlling their posture or their movements. This happens naturally. It is easy to sit and at the same time to concentrate on many other tasks such as talking, eating, writing. The body will adapt to different tasks automatically. For example, when we need to do something complicated with the hands, the body will automatically become stable and still.

For children with cerebral palsy and for some children with other physical disabilities, sitting may be much harder. The child may have to work very hard to be able to sit. They may not be able to do anything else at the same time. For these children the support of a chair can help to control

their sitting posture, which will help them to concentrate on other activities, as shown below.

Eating: this requires good coordination of the hands and also the mouth. Often children with cerebral palsy can have difficulties with eating. Supportive seating can provide stability to help children with this activity.

Mobility: for those children who have the ability to push, supportive seating in their wheelchair helps to stabilize their body so that can propel with the maximum efficiency.

Even those children who cannot push themselves, a supportive seat will help them to maintain their position as their wheelchair is pushed along. This way they will be more able to see and experience the world around them as they move.

A supportive seat provides more postural support than is provided by a standard chair or wheelchair. It requires a comprehensive assessment by a qualified therapist to ensure that the child receives the right prescription (and seat). For this reason, when seating a child with supportive needs, as far as possible, always work with an experienced therapist.

The parents should be included in the seating session and should understand why the child needs the seating system provided. It is important to make sure that the child's abilities are maximized when they are in the seat.

Some examples of supportive seating are described here.

We can have a static seat or a mobile one. The static seat cannot be moved by the child, however, other family members or helpers can move this seat(even when the child is using the seat).

Because children with cerebral palsy require extra support, the supportive seating system is made up of different parts to help the user maintain a good sitting posture(shoulder straps- to help maintain an upright position, backrest- to support the trunk, lateral trunk support- to stabilize the trunk, lap belt- to stabilize the pelvis).

The mobile seat have: head rest- to support the head, lateral hip pad- to stabilize the pelvis, abductor block- to keep the knees apart, foot plate and straps.

Ideally, a child or adult who needs supportive seating, should be provided with a wheelchair that has been built according to his /her individual needs. However, this is not always possible. Therefore, it is often necessary to adapt an adult's wheelchair by adding the appropriate postural components, such as lateral supports.

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