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Desktop Editing Office: 51st B.P. Hasdeu Street, Cluj-Napoca, Romania, Phone + 40 264 405352

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PHYSICAL THERAPY EXERCISES IN SPINE KYPHOSIS FOR ADOLESCENTS WITH VISUAL DEFICIENCY

RĂDUCANU GELU[1], ANDREICA DANIEL[2], RĂDUCANU NICOLETA[3]

ABSTRACT. An important health problem of students is the kyphosis generated by the vicious positions assumed while sitting in school desks. The present study attempts to evaluate the outcomes of physical therapy upon a group of students with a visual deficit. The positive results made us continue this exercise program and recommend it, in a readily adapted form, as a prophylactic physiotherapy, a program that can be practiced both in schools, in physical education classes, and even at home.

Keywords: spine, kyphosis, physical therapy, prophylactic physiotherapy, visual deficit.

REZUMAT. Exerciții kinetoterapeutice în cifoza adolescenților cu deficit vizual. O problemă importantă de sănătate a elevilor este cifoza rezultată ca urmare a adoptării unor poziții vicioase în bănci. În lucrarea de față am încercat să evaluăm rezultatele exerciților kinetoterapeutice în cadrul unui lot de elevi cu deficit de vedere. Rezultatele pozitive ne determină să continuăm acest program de exerciții şi să-l recomandăm în forme uşor adaptate, ca un program de kinetoprofilaxie ce poate fi practicat atât în şcoli, în cadrul orelor de educație fizică, cât şi la domiciliul elevilor.

Cuvinte cheie: coloană vertebrală, cifoză, kinetoterapie, kinetoprofilaxie, deficit vizual.

Introduction

The 2007 National Summary Report regarding the health status of children, adolescents and young people in communities and pooling the data regarding the major chronic diseases observed in preschoolers and students

[1] AF ASISTMED, str. Decebal nr. 21, gelu.raducanu@clicknet.ro
[2] Primăria municipiului Cluj-Napoca, Centrul de zi pentru vârstnici nr. 2, str. Decebal nr.21 (masterand Kineto Sport UBB Cluj)
[3] Spitalul Clinic de Recuperare Cluj-Napoca, Policlinica Sportivă

in urban and rural areas revealed that the first fall of chronic ocular diseases was followed by staturo-ponderal hypotrophy, sequels of rickets, acquired deformations of the spine, obesity, chronic diseases of tonsils and adenoids, other endocrine disorders. Studying the prevalence of these chronic diseases and the pre-school population, it can be observed that some of them are characteristic of a certain age, therefore they are primarily encountered in students in the VIIIth and XIIth form who suffer from refractive defects, acquired deformations of the spine, non endocrine obesity and other endocrine and metabolic diseases.

Having this piece of information we have chosen to carry out this research at the School for the visually impaired in Cluj-Napoca. As a common health problem, visual disability is associated with a deformed spine, particularly kyphosis, as a result of the adoption of vicious postures in desks, an example in this respect being the resting of their heads on desk or the tendency to bend forward.

Observing the deformation of the spine in students that attend this school, we formulated the following **hypothesis**: the application of physical therapy exercises can influence this deficiency.

Material and method

To put this study into effect, we selected a total of 16 students, both boys and girls aged 10 to 15. They were divided into two groups, study group (eight students) and control group (eight students). All students had different stages of spine kyphosis deformities. The following measurements were carried out:

- height,
- the occiput-to-wall distance,
- the Stibor sign,
- the difference between inhale and exhale.

All measurements were expressed in centimeters. The examinations were made before and after the therapeutic program.

The study group followed a physical therapy program over a period of 6 months; this program had the following objectives:

- General toning
- Toning up the dorsal spine
- Correction of vicious postures through forming a reflex of stable attitude of the body
- Toning up the muscle groups of the dorsal region (by the shortening procedure)

- Toning up the anterior muscle groups of the thorax region (by the lengthening procedure)
- Prevention of compensatory lordosis curves
- Correction of shoulder, shoulder blade, chest, pelvis and legs deficiencies that accompany kyphosis
- Prevention of restrictive respiratory dysfunction with the help of respiratory gymnastics

The exercises were carried out in the gym that was fitted out and equipped with batons, medicinal balls, stairways and ladders, mattresses, espaliers. The meetings lasted between 30 and 40 minutes and were divided into three parts: warming-up, the kinetic program itself and recovery. During the warming-up and recovery corrective and hipper corrective positions were introduced.
In choosing the exercises the special situation of these students and their physical abilities were taken into account, paying special attention to the contraindications associated with ophthalmologic disorders (e.g. excessive effort, jumping, sudden movements and carrying weights – all contraindicated in glaucoma and retinopathy).

Exercises included in a meeting:

1 A: standing against the wall in order to correct the cervical and lumbar curves, students tried to lean their backs against the wall;
T: isotonic contraction of extensor muscles;
E: the gravitational force.

2 A: while standing and after repeating the previous exercise, they walked with their hands joined at the neck and elbows pulled back;
T: isometric contraction of dorsal extensor muscles;
E: gravity.

3 A: dorsal lie flat, long torso extent as if they had to push some sort of a weight with their heads;
T: isotonic contraction of the extensor muscles of the torso and the neck;
E: the gravitational force.

4 A: lie flat dorsal side with arms and legs bent at the knee. Stretch legs on inhaling and return on exhaling
T: isotonic contraction of flexor quadriceps and thigh;
E: gravity.

5 A: sitting with legs stretched from the knee, correcting the back by bending the body forward while extending the upper limbs on inhaling and returning on exhaling.
T: isotonic contraction of flexor torso and upper limbs;
E: gravity.

6 A: quadruped with elbows bent, chest as close to the floor as possible.
T: isotonic contraction of flexor upper and lower limbs;
E: gravity.

7 A: back leaning against the fixed ladder , taking hold of slats, with both hands, above the head,
body suspension and return (repeat several times);
T: isometric contraction of dorsal extensor muscles and flexor muscles of the arms;
E: gravity and fixed ladder.

8 A: the same position as in the previous exercise while bringing the knees to the chest;
T: isometric contraction of dorsal extensor and flexor muscles of the arms and isotonic contraction of flexor limbs;
E: gravity and scale ladder.

9 A: back leaning against the fixed ladder, taking hold of slats, with both hands at the hip level; distance the back from the ladder as far as the arms allow it and bring a knee to the chest;
T: isometric contraction of the extensor muscles of the back and upper limbs and isotonic contraction of flexor of inferior limbs;
E: gravity and fixed ladder.

10 A: sitting with the back leaning against a fixed ladder; bringing the arms front to reach the stairs up, knees are bent in order to reduce the lordosis of the lumbar spine;
T: isotonic contraction of the upper and isometric flexor of legs;
E: gravity and fixed ladder .

11 A: sitting with the back leaning against a wall, while pushing the head into the wall for about 5-10 s, without pulling the back away in order to reduce the cervical lordosis, return and long break between two repetitions;
T: isometric contraction of the extensor muscles of the trunk and neck;
E: wall and gravity.

12 A: walking through the room while bringing arms from side to the back and performing two shoulder tensions on inhaling, followed by a normal walk on exhaling ;
T: isotonic contraction of adductor shoulder blade, of the arms extensors;
E: gravity and the physical therapist hand.

13 A: normal walk with the back corrected;
T: isometric contraction of dorsal and extensor isotonic contraction of muscles of lower limbs;
E: gravity.

Results

The study group consisting of 8 students registered the following data:

Table 1.

Data Study Group

No.	Name	Age	Sex	main disease	associated diseases
1	PA	13	F	typical average functional kyphosis	congenital cataract, strong myopia, secondary glaucoma
2	CA	10	M	typical short functional kyphosis	chronic Glaucoma, strong myopia, damage of the choroid
3	IBV	13	M	average functional kyphosis dorsal scoliosis	secondary paresis, impaired balance, and ophthalmic diseases
4	RM	14	F	typical primary short kyphosis	temporal retinal detachment, strong myopia
5	II	12	F	typical average primary functional kyphosis	retinal detachment, congenital cataract
6	GR	13	F	functional average kyphosis secondary dorsal lordosis	primary glaucoma
7	MR	15	M	average dorsal kyphosis	serious anxiety disorder, dissociation, congenital microcephaly, epilepsy
8	AG	12	F	average dorsal primary functional kyphosis	retinopathy, secondary glaucoma

The control group consisting of 8 students registered the following data:

Table 2.

Data Control Group

No.	Name	Age	Sex	main disease	associated diseases
1	HC	11	M	typical average functional kyphosis	congenital cataract
2	PO	12	F	typical short functional kyphosis	chronic Glaucoma, strong myopia
3	AH	13	F	average functional	strong myopia

				kyphosis dorsal scoliosis	
4	GN	15	M	typical primary short kyphosis	retinal detachment, strong myopia
5	RI	16	F	typical average primary functional kyphosis	retinal detachment, congenital cataract
6	TV	11	M	functional average kyphosis, secondary dorsal lordosis	primary glaucoma
7	ML	14	F	average dorsal kyphosis	optic nerve atrophy
8	PU	12	M	average dorsal primary functional kyphosis	retinopathy, secondary glaucoma

The examinations made before the therapeutic program, expressed in centimeters.

Table 3.

Data Study Grup, mesurements before terapeutic program

	normal	PA	CA	IB	RM	II	GR	MR	AG
Height		153	123	160	155	136	155	170	145
occiput to wall distance	0	7	6	7	3.50	4	8	6	7
the Stibor sign	10	7	5	9	6	5	6	7	7
the difference between inhale and exhale	5	5	5	4	5	4	5	4	4

Table 4.

Data Control Grup, mesurements before terapeutic program

	normal	HC	PO	AH	GN	RI	TV	ML	PU
height		123	133	140	155	151	125	145	143
occiput to wall distance	0	6	6	7	4	6	5	7	6
the Stibor sign	10	5	6	8	6	5	6	6	4
the difference between inhale	5	6	5	5	5	4	6	4	4

and exhale									

Table 5.

Study Grup, mesurements after terapeutic program

	normal	PA	CA	IB	RM	II	GR	MR	AG
Height		155	124	162	158	137	158	171	147
occiput to wall distance	0	5	3	4	0	0	4	3	3
the Stibor sign	10	8	8	10	9	8	8	9	9
the difference between inhale and exhale	5	5	5	5	5	5	5	5	4

Table 6.

Data Control Grup, mesurements after terapeutic program

	normal	HC	PO	AH	GN	RI	TV	ML	PU
Height		125	134	144	157	154	128	144	145
occiput to wall distance	0	7	6	8	5	6	6	8	7
the Stibor sign	10	5	6	7	5	5	6	5	4
the difference between inhale and exhale	5	6	5	5	5	4	6	4	4

Discussion of results

As a result of this study and comparing the results of measurements, we discovered the beneficial effect of physical therapy practiced in order to correct spine deficiencies.

In the case of two of the subjects that were part of the study group we observed an improvement in indices measured up to the return to normal parameters.

The best results were obtained by the more cooperative students, the anxious and introverted or insufficiently motivated people had lower results.

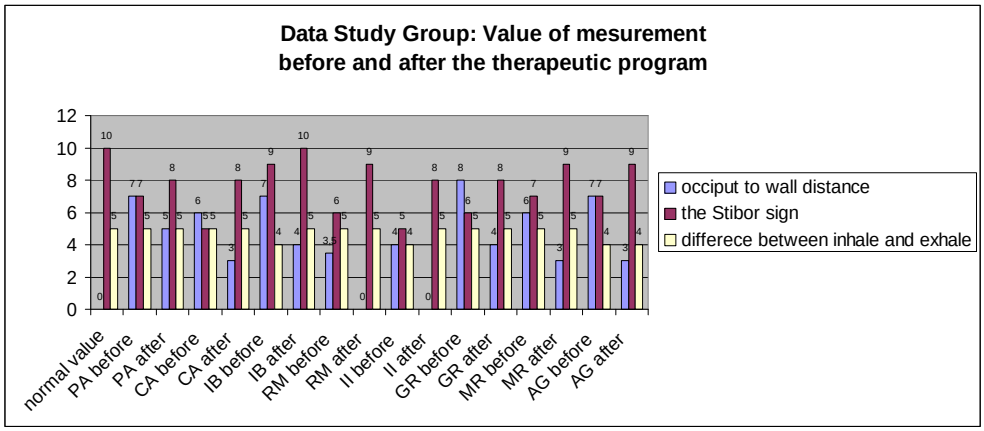

Fig. 1: Data values: normal values, occiput-to-wall distance, the Stibor sign, the difference between inhale and exhale, expressed in centimeters, before and after the therapeutic program.

Further exercises to improve these parameters were recommended to all students that took part in this study.

In the case of the control group, a stagnation or even a worsening of the spine deficiencies could be observed, these being expressed by the measurement results which deviated a lot from the normal values.

Conclusions

1. Physical therapy exercises have an important role in recovering from spine deficiencies;

2. Expert observation and examination should be done as early and regularly as possible, especially in the case of small school age children;

3. School staff (head teachers, educators, teachers) could pay more attention to the postures assumed in desks (and could familiarize themselves with the basic concepts on postures and correct body alignment;

4. Exercise practicing, during sports classes, is seen as a practical preventive measure;

5. Leading the more severe cases towards physical therapy where there is personnel specialized in recovery.

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DEEP VEIN THROMBOSIS: INCIDENCE, FACTORS PREDISPOSING, KINETOTERAPY

ZAMORA ELENA[1], GLIGOR ELENA[2], GLIGOR DANIEL[2], KONYA I.[3]

ABSTRACT. DVT is a relatively common disease, potentially fatal, in the awareness of subjects and kinetoprofilaxie measures (exercise legs every 2 to 3 hours to get the blood flowing back to the heart) are of great importance. The number of patients with DVT interned in the department of cardiology Recovery Hospital, Cluj-Napoca, during February 2008 - January 2009, was 18, reported the month patients were grouped by preferred period from October to December, which is important known, for prophylaxis. All patients had risk factors for the development of thrombosis, respectively: a risk factor 22% (4 patients), two risk factors 55% (10 patients), or with multiple risk factors 22% (4 patients). Exceptional importance of prevention for DVT is underlined by the fact that DVT occurred once, often determined by complications (chronic swelling of the affected member) difficult to correct, even if drug therapy was instituted promptly and correctly.

Key words: DVT, predisposing factors for DVT, kinetoterapy

REZUMAT. TVP este o afecţiune relativ frecventă, cu potenţial fatal, în care conştientizarea subiecţilor şi măsurile de kinetoprofilaxie (exerciţii fizice la nivelul membrelor inferioare, efectuate repetat, la 2-3 ore, pentru favorizarea circulaţiei venoase, de reîntoarcere spre inimă) sunt de mare importanţă. Numărul pacienţilor cu TVP internaţi în secţia de cardiologie a Spitalului de Recuperare, Cluj-Napoca, în perioada februarie 2008-ianuarie 2009, a fost 18; raportat la luna calendaristică pacienţii s-au grupat de predilecţie în perioada octombrie-decembrie, fapt important de cunoscut, în profilaxie. Toţi pacienţii prezentau factori de risc pentru apariţia trombozei, respectiv: un factor de risc 22 % (4 pacienţi), doi factori de risc 55 % (10 pacienţi), sau mai mulţi factori

[1] University of Babeş-Bolyai form Cluj-Napoca, Faculty of Physical Education and Sport
[2] Spitalul Clinic de Recuperare din Cluj- Napoca
[3] Kinetoterapeut

de risc 22 % (4 pacienți). Importanța excepțională a prevenției pentru TVP este subliniată şi de faptul că TVP odată apărută, determină de cele mai multe ori complicații (edemul cronic al membrului afectat) greu de corectat, chiar dacă terapia medicamentoasă a fost instituită prompt şi corect.

Cuvinte cheie: TVP, factori predispozanți pentru TVP, kinetoterapie

Deep vein thrombosis-DVT is a major vein disease, life-threatening for the patient, taking into account mainly the risk of thromboembolism, chronic venous insufficiency and post-thrombotic syndrome.

Purpose of this study was to determine the incidence of deep vein thrombosis-DVT, and the factors favoring the disease in patients hospitalized in the cardiology department, the Rehabilitation Hospital of Cluj-Napoca, in order to prevent relapses and implementation of a program kinetoprofilaxie effectively.

Materials and methods

The present study was performed within one year, respectively in February 2008-January 2009. The number of internal cases of DVT was 18, distributed as follows: 12 women and 6 men. The average age of patients was 64 ± 11 years. Patients were examined clinically and laboratory investigated by special laboratory tests (D-dimers, exploration coagulation tests for a possible genetic predisposition) and ultrasound. To assess the function and structure of vessels (evaluation of vascular structures and function) was performed two-dimensional ultrasound and Doppler ultrasound with compression, for which highly sensitive ultrasound was used, type ESAOTE. The technique can immediately affect the diagnostic and management work-up of the patient, dictate therapeutic decisions, determine response to therapy and predict pacient outcome. The real-time nature, lowcost of sonography and quality of information renders it the technique of choice for the diagnosis of most cardiovascular diseases.

Results and discussion

Patients with superficial venous thrombosis-TVS, the time period patient were increased to 78, while those who had DVT was only 18 (ratio about 4 to 1), Figure 1.

Figure 1. Deep vein thrombosis to the femural vein (a deep vein blood clot)

Distribution of patients with DVT by age, is played in Table 1.

Table 1.

Distribution of patients with DVT by age.

Age	Number patients
30-49	2
50-59	3
60-69	**9**
70-79	2
>80	2

Deep vein thrombosis was found to be higher in patients aged 60 and 69 years, possibly secondary to limited physical activity, irregular and other comorbidities present at this age. In patients hospitalized with DVT, favoring factors are presented in Figure 2.

Factors favoring common among patients with DVT are family history and older age (Figure 2). Other factors favoring present in a large proportion are in the history of deep vein thrombosis patients, 33% and obesity at 22%. The number of patients with DVT assigned to months, are given in Figure 3.

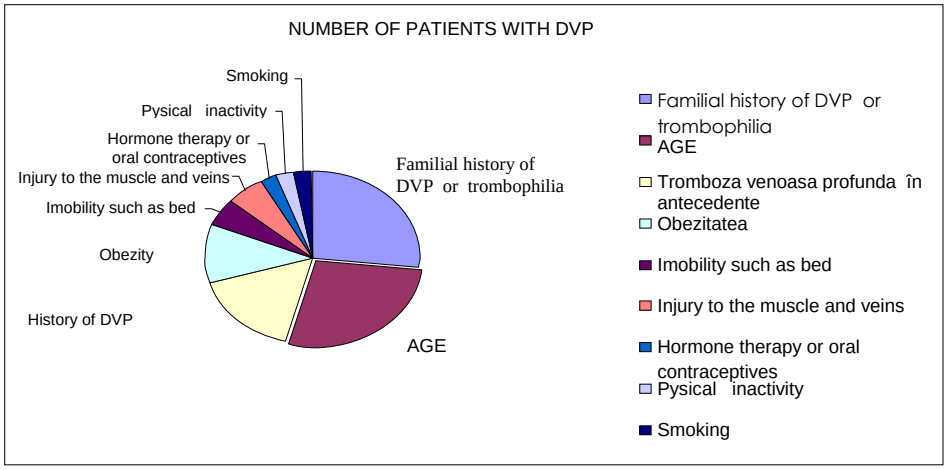

Figure 2. Graphical representation favoring factors for thrombosis in patients studied

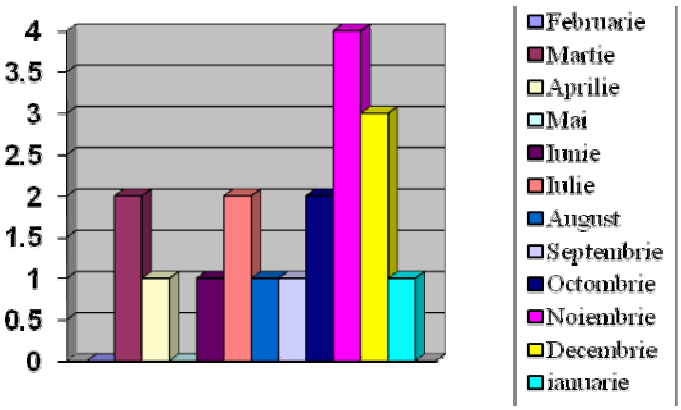

Figure 3. Graphical representation of patients with DVT, according to the calendar month

Most cases of deep venous thrombosis occurred in winter months, November-December respectively. In other months the number of patients with DVT was lower and in February and was not registered any cases of DVT in hospitalized patients [1,2,3].

The number of factors favoring each of hospitalized patients with DVT was found that: 22 % of patients had more than 3 factors favoring, 56% were favored by two factors only 4 patients had one favorable factor (Figure 4) .

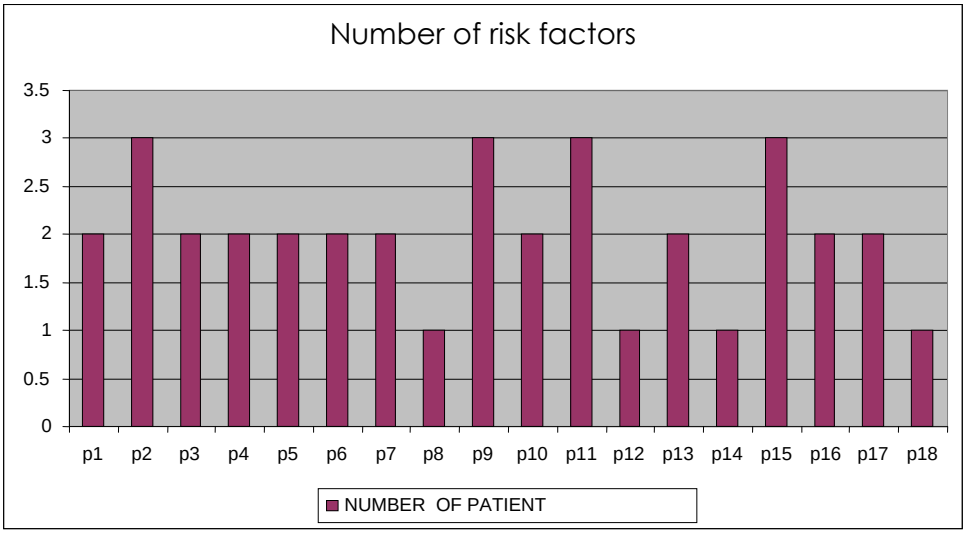

Figure 4. Graphical representation of the number of factors favoring the patient

Therapeutic conduct (objective): prevention of pulmonary embolism, decreased mortality and occurrence posttrombotic syndrome. Treatment with anticoagulants is the main treatment for deep vein thrombosis, represented initially by unfractionated heparin followed by oral anticoagulation with warfarin 3-6 months or even over yet.

Treatment of DVT and one physical therapy was instituted in early stage disease so as well as convalescent. The early stage was intended to reduce swelling, pain control, prevent complications and psychological effects [4, 5,6]. After day 5-6, the movement of patient was allowed out of bed and taking first steps. The pace and duration of walking was increased gradually and under medical control. *Physical therapy* to reduce swelling besides the affected member is, and recanalizarea vein, which is essential for patient recovery and complications.

Control of therapeutic effect (the vein), by Doppler ultrasound was performed about 7 days after the establishment of comprehensive therapy, anticoagulant and kinesiology.

Conclusions

1. DVT is a relatively common disease, potentially fatal, in the awareness of subjects and kinetoprofilaxie measures are of great importance.

2. The number of patients with DVT interned in the department of cardiology Recovery Hospital, Cluj-Napoca, during February 2008 - January 2009, was 18, reported the month patients were grouped by preferred period from October to December, which is important known, for prophylaxis.

3. All patients had risk factors for the development of thrombosis, respectively: a risk factor 22% (4 patients), two risk factors 55% (10 patients), or with multiple risk factors 22% (4 patients).

4. Exceptional importance of prevention for DVT is underlined by the fact that DVT occurred once, often determined by complications (chronic swelling of the affected member) difficult to correct, even if drug therapy was instituted promptly and correctly.

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THE ROLE OF KINESITHERAPY IN THE CONGENITAL HIP LUXATION

ANGHEL MIHAELA[1], ANGHEL ALEXANDRU IONUȚ[2]

ABSTRACT. The hip luxation is one of the severe malformations of the limbs, relatively frequently dealt with, which leaves extremely important functional traumas and is hard to be treated, implying a high level of invalidity. The frequency of children suffering from of hip luxation is progressively high, given the multitude of favoring and triggering factors.

Key words: congenital hip luxation, methods and means.

REZUMAT. Rolul Kinetoterapiei în lixația congenitală de şold. Luxația congenitală de şold este una din malformațiile grave ale membrelor, relativ frecvent întâlnită, ce lasă sechele funcționale deosebit de importante, greu de tratat şi cu mare grad de invaliditate.

Frecvența copiilor cu luxație de şold este în zilele noastre în continuare creştere, datorită a foarte multor factori favorizanți şi declanşatori.

The hip luxation is one of the severe malformations of the limbs, relatively frequently dealt with, which leaves extremely important functional traumas and is hard to be treated, implying a high level of invalidity.The frequency of children suffering from of hip luxation is progressively high, given the multitude of favoring and triggering factors.

Cuvinte cheie: luxația congenitală de şold, metode şi mijloace.

This malformation has a pronounced familial background, the disease being sometimes recorded at more than one members of the same family, but it can seldom occur, the hereditary characteristics being less than 10% of the cases. The luxation can be one or two sided, most of the statistics recording the two sided cases. The geographical repartition is variable; commonly dealt with in the European countries (France, Italy, Germany, The Czech Republic,

[1] "Vasile Alecsandri University" from Bacău; Adress mail: anghelina74@yahoo.com
[2] Kinesitherapyst – Bacău

almost 3%), it is exceptionally encountered at the yellow race and almost innexistable among the black people (according to C. Baciu).

In our country, Romania, the percentage is 1%, the disease being more commomnly recorded in the north-west of Transylvania. There is a series of oseoarticular modifications in the hip luxation dysplasia and in the hip luxation, which worsen by age: the hip joint is atrophied, with no depth, its front opening angle looking normal but with anterior-superior and posterior-superior brims round and underdeveloped. The capsule is loose; its articular laxity being accompanied by a retraction of the flexor muscles (iliopsoas) and the external rotators, the femural bone is anteriorly placed and directed forward on a 60º or even a bigger angle. From 60º forward bent, the articular cooptation is scarce and the hip luxation is almost inevitable.

These effects can involve real luxations, the femural head being covered by the articular capsule but protruding from the hip joint.Sometimes, the displacement is less important, the femural head being kept in the marginal position, deforming the cartilaginos bourrelet and making the hip joint oval.

There is a delay of ossification of the nucleus of the femural head; when it appears it is less than the normal and situated more externally; the femural bone is short. The hip joint is plain so the angle of the joint ceiling is very steep. The transverse ligament of the acetabulum is long, thick and placed before the lower part of the joint forming a transversal bar. It must be extirpated to allow a good reduction. The articular capsule accompanies the femural head in its movement. Because of the traction it supports, the capsule is thickenned.

In non-treated luxations till an older age, there is an ossified atrophy of the femur bone and of the iliac bone. The femur head forms a new joint, by the pression it permanently produces on the iliac bone, especially in the anterior luxations, more by the periostic neighbouring reaction and less by carving in the iliac bone.

It is classical for the clinical symptoms in congenital hip luxation to be divided according to the moment of beginning walking. Under the influence of walking, the pre luxation situation progressively transforms into luxation. The pre luxation case can be diagnosed in children even from birth, if more attention is given to the clinical and radiologic aspects.

Given the importance of early dyagnosis of the disease, we enumerate the main symptoms which must be looked for in the new-borns and the first months of life:

- anterior swinging, with asymmetric exaggeration of lordosis, in posterior luxation;
- posterior swinging, with asymmetric exaggeration of lordosis in posterior luxation;
- the shoulders' asymmetry while walking;
- limiting the abduction-adduction movements;
- pains under the form of attacks after more prolonged tiredness placed at the knees' level, in the buttock, along the sciatic nerve, in the inguinal area;
- limping and the pain in the hips;
- the sensation of a stuck hip in a vicious position;
- lombar articular limitation, in one sided luxation;
- fatigue more rapidly resented after a short walking;
- the accentuated swinging of the pelvis;
- limited movement in the healthy hip;
- fatigue in short walkings around on a bumpy field;
- rubbing against one another the knees while walking;
- the adduction of the ribs;
- a secondary valguum knee;
- exaggerated lordosis in bilateral posterior luxation;
- anterior swinging of the pelvis;
- when obese, there is a functional impotency;
- difficult walking due to the asymmetria of the limbs;
- painful fits sometimes followed by immobilizations with a bed confinement.

Most frequently, the dyagnosis of congenital hip luxation is late established, after the age of one year old, when the clinical signs are evident, and the orthopedic early treatment becomes useless.

The treatment of children suffering from congenital hip luxation at the age of 12 -24 months is mostly surgery, to obtain a concentric and stable reduction of the femoral head in the insufficiently developed hip joint.

The hypothesis of the paper

The number of children suffering from hip luxation is presently growing, given more favoring and triggering factors.

Starting from the major effects on the neurovegetative and neuromuscular systems, the kinesitherapy has its values, working as a therapeutic and recovery agent in this affection.

Roughly given the interest domains of the thesis, the present paper started from the following hypothesis:

1. If methods of research, evaluation and exploring are selected and applied, which offer the possibility of gathering some data relating the education of walking correction, co ordination skills and readjust of the pelvis position by kinesitherapy, systems of logical and efficient systems can be structured.

2. Establishing the manner in which selecting, assembling and applying the specific means of kinesitherapeutical intervention can serve a double purpose:

- on the child's psyche, such as: gaining or improving self confidence, acquiring the notion of welfare, the increase of the interest for the outer world, the control of interest and self-disciplin.
- on the child's neuromuscular system by: maintaining a constant orthostatic posture, eliminating the preparatory positions and means, the increase of muscular force of the pelvian belt, of the pelvis and the inferior limbs, improving the co ordiantion, the quicker reflex responses and better movements patterns.

In order to verify the hypotheses, the ongoing paper includes information and real data , recorded within a 6 month's time.

The objectives of the paper

Bearing in mind the formulated hypotheses, I set myself to making this paper to provide the specialists in the field, structures of efficient actions for treating-recovering the children suffering from congenital hip luxation:

1. Choosing the most appropriate applied programs within the process of neuromotor education of the patients.
2. Adjusting the exercise structures according to the level of affection and the age of the patient.
3. If the type of orthopedic intervention co ordinated with kinesitherapy have influenced the length and the results of the functioning recovery.
4. Adjusting the exercises according to the post intervention results.
5. Constant survey on the dynamics of the subjects' reaction towards the kinesitherapeutical treatment in order to ensure a constant improvement of the program and the analysis of the final results, comparing the investigated parameters.

The experimental activity was dispalyed within the Betania Day Center from Bacau, where I had the opportunity to work with different cases of patients suffering from congenital hip luxation, studying and analyzing five subjects suffering from the fore mentioned dyagnosis, with ages from 3 months to 12 years old, whom I included in the present paper.

Methods of research and used means

Along the development of the experiment and in order to elaborate the present paper, I made use of several methods of research: methods of documentation and the study of references, the method of observation, the methods of measurment and evaluation (the test mehod).

The clinical manifestations vary according to the child's age, to the change of place of the femural head (underluxable, dislocable or dislocated) and to the moment in which the dislocation was produced (in the prenatal, perinatal or postnatal period).

From the beginning it must be stated that the old concept which claimed that the hip luxant displesia lasts till the age of 6 months, afterwhich the congenital hip luxation installs, is overdued, mainatining a certain didactic value. Also, it must be reinstated the idea that a dislocation of the hip from the moment of birth does not mean teratological luxation but only the hip luxation in the moment the birth, associated with other malformations can be assigned to this terminology.

For the age of 0-3 months I used two clinical tests which denote a dyagnosis: Ortolani test, for the dislocated hip and the Barlow test, fot the dislocable hip. Before effecting these tests, there must be performed a minute inspection of the new- born in order to discover the presence of some pathological elements that frequently associate with a congenital hip luxation. The most frequently used are: metatarsus varus, valgus hinfoot, torticollis, plagiocephaly and contracture in extension of the knee, the asymmetry of the thighs' folds and the popliteal regions, the asymmetry of the inguinal folds.

From the age of three months and a year, the clinical symptoms were determined by the progressive posteriorlateral and superior displace of the femural head. The most frequent clinical symptoms recorded in this period were: the abduction contracture of the hurt hip, the apparent shortage of the thigh (the pozitive Galeazzi sign), the vicious position of the inferior limb in external rotition, when the knee and thigh are in extension.

According to the age of walking, the symptoms of trochanter ascension increased: the Bryant triangle turns from an isosceles triangle into a square trinagle with uneven three sides, the femural head is not palpable at the basis of the Scarpa triangle, by the insuffiencency of the pelvis-trochanter muscles, and especially the middle gluteus appears the Trendelenburg sign. Applying the therapeutical measures within the recovery program took into consideration the lesion gravity, the type of gravity and not in the least, the age of the subject.

The first applied therapeutical measure followed conserving the physiological position of the segment. Also, in order to reduce the muscualr atrophy, passive stretching mobilizations of the contractured muscles were performed. The applied technique was the passive stretch of the muscle until the maximum length, then the slow reduction and well proportioned of the segment in initial shortage position.

The increase of the functions of the muscular remaining healthy fibers and re-gaining of the kinesitesical image was effectated by passive mobilizations with muscular stretch, a thing that was simultaneously performed with the mechanical excitations of the skin above the concerned muscle. Pinches, frictions, ice massage (on the antagonist musculature of the spastic one), following the stimulating effect of the stretch-reflex.

The active mobilizations with resistance were used to increase the function of the remaining muscular fibers and regaining the function of the affected fibers (the iliopsoas muscles, made up from the great psoas and the little psoas, the piriform muscle, the inferior and superior twin muscles). It was insisted on the active movement to regain the amplitude of movement and on the movement with resistance (isometric and isotonic) to regain the strength, but also the incomplete values of the movement angle.

The increasing activity of the muscular force and applying the resistance were performed gradually, according to the muscular response and preventing the appearing of non coordination.

Of a great therapeutical importance in combining the recovery program were the global schemes of reeducation (the Kabat method). Dyagonals were used for the affected inferior muscle rallying all the articualtions one by one. The exercises were executed both for the affected inferior muscle, but also for the healthy one. Kabat dyagonals were applied for the trunk, in order to restore the posibility of effecting the usual movements and to prevent the trunk to turn in a vicious attitude.

The Kabat method had the advantage of training more than one muscular groups in the same time. The total regaining of the motor activity of the segment means the recovery of the coordination of the movements. This

was possible within the global movement schemes which had as objectives rendering the functionality of the inferior limb, of the stability and the posture. This thing began from the first stage of the recovery program.

The specific objectives were: the increase and the maintain of the articular mobility, the increase of the muscular strength- it is a fundamental objective in educating, re-educating the walking disorders, the increase of the muscular endurance, the increase of the coordination, the control and the poise in the postures characteristic to the age: in orthostatism and in walking, correction of the poise and alignment of the body.

Observing the walking was one of the most usual examinations, making part from the current clinical examination which is presented in the affections of the hip (congenital hip luxation):

- any deviation of the inferior limb that moved away from the center of weight was obligatory compensated by the superior part of the body by a movement towards the center of gravity to prevent a fall. For instance, if the pelvis leaned anteriorly, and the trunk leaned anteriorly, too, in the same time, the body was unbalanced and fell. To avoid the fall, the trunk was posteriorly drawn back through the increase of the lombar lordosis.

- the patients walked with short steps, the suspension period was prolonged on the unaffected side, a particular attitude of the pelvis and the trunk being the reduced amplitude of rotation of the hip.

- the pelvis presented a slight fall during the unipodal support.

- the movement attitude of the hip was reduced, especially the extension.

- the modifications of the pelvian movements affected the muscular forces, modifying the length and the direction of the active muscles and affects the distribution of the articular weight.

By hydrotherapy, with a role of increasing the blood circulation, the neuro- muscular stimulating capacity, improving the overall motility, using some swimming techniques and helping materials (life buoys and buoys), I had in mind the preservation of the physiological position of the segment.

The results and conclusions:

1. After six months of recovery treatment in our center using the forementioned methodology, the morpho-functional survey shows a significant improvement of all the refered parameters.

2. The early beginning of the recovery treatment enhanced the chances to obtain better results in a shorter time, but this thing was not

sufficient, proving that this condition is valuable only if associated with that of regarding the consistency, the rhythmicity and its continuity.

3. The selected means and procedures applied the methodological principles of the kinesitherapy succeed in eliminating the specific dysfunctionalities of the congenital deviations. But, I noticed that the periodic interruptions or abandoning of the recovery treatment lead to losing the results in a quicker rythm than the one it was obtained.

4. The type of orthopedic intervention colaborated with the kinesitherapy influenced the duration and the results of the functional recovery, so that a particualr importance must be granted to the dynamic splints and the pausing ones.

5. Knowing and respecting the particulariaties of each patient's affection, of all the factors that can influence the recovery process and also the developmental stages, closely connected to the maturation of the nervous system, ensure the selection and application of the best means:

Before the beginning of the recovery, the level of defficiency must be put down and closely follow the resulted program. Recovering the children lies on a well knowing of the anatomical, physiological and topographical stages of normal development, next to knowing the recovery stages of the luxation.

The family plays an important part in the child's life, so that the parents must actively involve in the treatment, to learn how to behave and how to manipulate the child at home, when the recovery treatment must be carried on and strengthened , so that the obtained results are better and more lasting.

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THE IMPORTANCE OF PHYSICAL THERAPY IN THE FUNCTIONAL RECOVERY OF THE KNEE WITH GONARTHROSIS

HOROTAN PAUL-EMIL[1], OGNEAN RALUCA-MARIA[2], NICA LAURA-ALEXANDRA[2], ELENA ZAMORA[3]

ABSTRACT. *Goals of the study.* The goals of the study were the following: efficient and fast recovery of the affected knee, teaching the patient how to continue the recovery program at home and not the last, teaching the patient to respect the prevention rules of the disease. *Methods of working.* We had five patients in the study during March and May 2009. The patients who came to our healthcare unit were suffering from primarily or secondary gonarthrosis. The average of age was 51. After the patients followed a physical treatment, based on exercises for the growth of muscular force and joint mobility, the initial goals were fulfilled. In order to evaluate the movement in the joint we used the goniometric method. For the evaluation of the muscular force, we used a scale called "Scale of the National Foundation for Infantile Paralysis" (Scala Fundației Naționale pentru Paralizie Infantilă), the inspection method and palpation. To evaluate the stability in the joint we used the inspection method and the evaluation of walking. The patient was evaluated the moment he presented to the hospital. We used this initial evaluation to identify the exact health condition of the patient. The final evaluation, made before the patient left the hospital was used to observe the evolution of the health condition of the patient and also to identify the correct rules of prevention for the patient to respect at home. *Results.* At the initial evaluation, the patients presented an average of 85-90 degrees at the flexion movement in the knee joint. After the physical treatment, the flexion movement increased with 10-20 degrees. The extension movement increased with about 15-20 degrees as comparing to the initial evaluation. The age of the patient and the bone structure had an important influence upon the success of the physical treatment. The muscular force and the joint stability developed along

[1] Master student, 1st year, specialization - Physical therapy of the affections of the locomotory system, Sports School, „Babeş-Bolyai" University, Cluj-Napoca.

[2] student, 4th year, specialization – General medicine, Medical School, Medical and Pharmacy University „Iuliu Haţieganu", Cluj-Napoca.

[3] professor, medical Phd, hedmaster of the Theoretical disciplines and Physical therapy Department, Sports School, „Babeş-Bolyai" University, Cluj-Napoca.

with the growth of joint movement. *Conclusions*. Gonarthrosis is an affection that demands combined therapy: surgical and non surgical treatment. One of the most important parts of the treatment is the physical treatment. Physical treatment helps us regain the function of the affected joint. The physical treatment must be practiced for at least 14 days; afterwards, the patient must continue the treatment at home after the indication of the physical therapist.

Key words: Gonarthrosis, Chronic evolution, Functional impotence, Physical treatment

REZUMAT. Rolul kinetoterapiei în recuperarea funcțională a genunchiului cu gonartroză. *Obiective.* Obiectivele urmărite au fost: recuperarea rapidă şi eficientă a genunchiului afectat, instruirea pacientului pentru continuarea tratamentului la domiciliu şi nu în ultimul rând instruirea pacientului pentru respectarea măsurilor de prevenție. *Material si metode.* În perioada martie - mai 2009 a fost urmărit un lot de 5 pacienți care prezentau gonartroză atât primară, cât şi secundară, cu vârsta medie de 51 de ani. În urma aplicării unui tratament kinetic bazat pe exerciții de creştere a amplitudinii de mişcare şi de creştere a forței musculare, scopurile stabilite inițial au fost atinse. Pentru măsurarea amplitudinii de mişcare s-a folosit metoda goniometriei. Pentru aprecierea forței musculare au fost folosite Scala Fundației Naționale pentru Paralizie Infantilă, metoda inspecției şi metoda palpării, iar pentru aprecierea stabilității articulare s-au folosit metoda inspecției şi evaluarea mersului. A fost efectuată o valoare inițială care ne-a folosit în stare de sănătate a pacientului în momentul internării. De asemenea, evaluarea finală efectuată la externare a avut ca scop aprecierea evoluției pacientului şi stabilirea indicației pe care pacientul va trebui să le respecte la domiciliu. *Rezultate.* În cadrul evaluării inițiale, pacienții au prezentat, în medie, la mişcarea de flexiune o amplitudine de aproximativ 85º- 90º. În urma tratamentului kinetic s-a constatat o creştere a amplitudinii cu aproximativ 10º- 20º față de rezultatele obținute la evaluarea inițială. Amplitudinea mişcării de extensie s-a ameliorat cu aproximativ 15º-20º față de evaluarea inițială, un rol însemnat avându-l vârsta pacientului şi structura osoasă. Forța musculară şi stabilitatea articulară au evoluat progresiv şi direct proporțional cu amplitudinea de mişcare articulară. *Concluzii.* Gonartroza este o afecțiune care necesită tratament combinat: chirurgical şi nechirurgical. Accentul find pus pe terapia fizică cu ajutorul căreia a fost posibilă recâştigarea funcției articulare. Tratamentul kinetic trebuie menținut cel puțin 14 zile, după care pacientul trebuie să îşi continue tratamentul la domiciliu conform indicațiilor terapeutului.

Cuvinte cheie: Gonartoză, Evoluție cronică, Impotență funcțională, Tratament kinetic

Introduction

Gonarthrosis is a disorder of the knee joint, generally involving early joint surface and cartilage damage of any kind. (2) Factors that generate gonarthrosis are: repeated traumas and an incorrect biomechanics of walking. Activities such as: wearing unsuitable clothing and shoes, prolonged orthostatism or intense effort are considered to be additional generate factors. (4)

The unhealthy life style of people nowadays makes the body weaker and more vulnerable to the interaction with different pathogenetic agents. Not only the internal factors affect the body, but also the external ones.

Almost 65% of the patients who addressed our healthcare unit were suffering from one of the types of gonarthrosis. As we can notice, this disease is very common especially among women aged 40+ (almost 70% of the cases).

These aspects lead us to the conclusion that gonarthrosis is a disorder encountered mainly in women approaching menopause. This joint disorder starts in teen age and is caused by great effort or repeated traumas. As we become older, the body goes through several changes in metabolism, the cardio-pulmonary system, the immune system and others. These changes lead to the weakening of the self defense ability of the body, as far as installation of new diseases and the evolution of older ones is concerned. (15)

A thing worth mentioning is the fact that the patient can't die of gonarthrosis. However, when the disease reaches its chronic stage, the patient is bound to use a wheel chair or crutches. The pain that the patient feels limits the daily activities both at home and at work.

One of the most important advantages is the fact that this disease has an impressive degree of prevention rules. If one respects these rules, it is likely to avoid the installation of the disorder or to stop its evolution, if already installed.

Once the disease installed, the patient will suffer for the entire life. The role of the medication, as well as of surgical, physical and rheumatologic treatment is to stop the evolution of the disease. (7, 13)

Goals of the study

The goals of this study are closely related to the aspects of the above mentioned prevention and treatment.

- Efficient recovery of the joint functionality through a precise physical therapy program. There are a series of exercises that a patient needs to practice; these exercises have a specific methodology that could generate

benefits such as: pain lessening or increasing the functional capacity of the affected joint.

- Teaching the patient to continue the physical treatment at home. It is very important for the patient to continue the treatment after leaving the healthcare unit. In order to be able to do this, the therapist must teach the patient to practice the correct exercises at the correct intensity, in order not to endanger the progress obtained through the treatment in the healthcare unit.
- Making the patient acknowledge the rules of prevention of the disease. Even if most patients come to the hospital when the disease is already evolved, the patient must respect the prevention rules in order not to make the disease worse.

Methods of working

The study took place between March 2009 and May 2009. We observed five patients who were suffering from gonarthrosis, at the traumatology section of the Recovery Clinic in Cluj-Napoca.

In order to reach our goals, we had our patient evaluated at the moment he came to the hospital. We also ran another evaluation after the treatment, at the moment the patient was ready to go home. For both evaluations, we used the same methods of evaluation and quantification.

In order to evaluate the movement in the joint we used the goniometric method. For the evaluation of the muscular force, we used a scale called "Scale of the National Foundation for Infantile Paralysis" (Scala Fundației Naționale pentru Paralizie Infantilă) (12), the inspection method and palpation. To evaluate the stability in the joint we used the inspection method and the evaluation of walking.

The data we have obtained at the initial evaluation were compared to those obtained in the final evaluation. Based on these results, we could provide the patient with the exact information concerning his health.

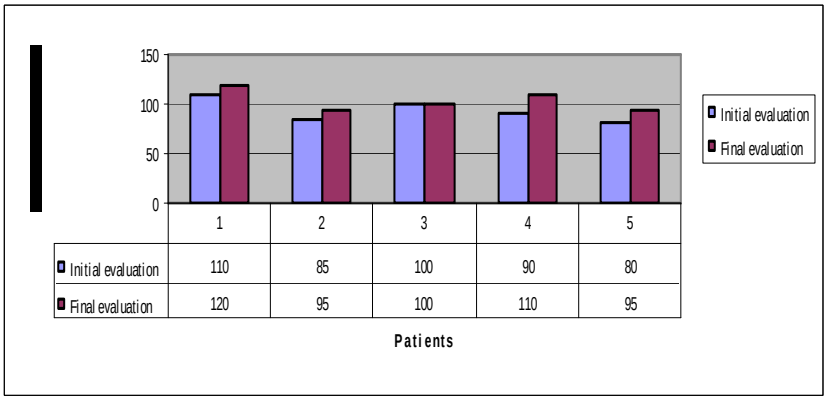
Results and discussions

The patients who accepted to be a part of our study were suffering from different stage of evolution of the knee joint disease. Two of the patients had to undergo correctional surgery in order to reduce the damage of the bone and cartilage structures. The rest of the patients had only physical, anti-inflammatory and rheumatologic treatment.

All patients that participated to the study had serious shortage in the flexion and extension movement in the affected joint. A huge degree of joint

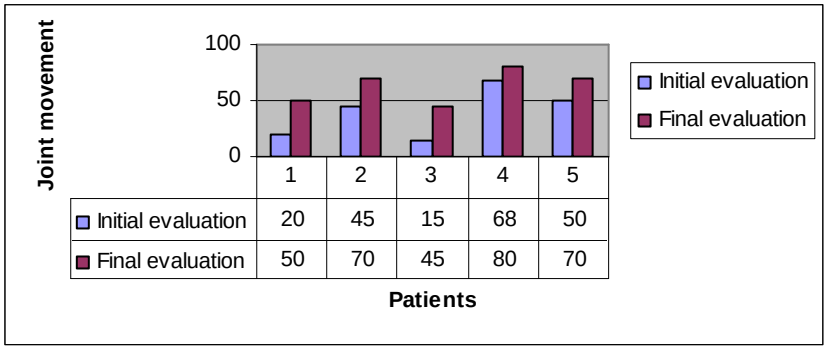
instability was added to these shortages, due to the weak muscles of the affected inferior limb. (12)

The physical treatment had a major role in the reduction of the joint shortages and also in the increase of the muscle force, needed for the improvement of the joint's stability. After the 14 days planned for the treatment, we were able to see an improvement of the flexion movement with 10º-15º for each patient. As far as the extension movement was concerned, we were able to see an improvement with 20º-25º due to the particularities of the extension muscles and ligaments.



	1	2	3	4	5
Initial evaluation	110	85	100	90	80
Final evaluation	120	95	100	110	95

Fig.1. Flexion movement in initial and final evaluation



	1	2	3	4	5
Initial evaluation	20	45	15	68	50
Final evaluation	50	70	45	80	70

Fig.2. Extension movement in initial and final evaluation

Most of the patients had a 3rd degree muscular force (the muscular contraction allows the mobilization of the segment against gravitation) at the affected leg; at the healthy one, the muscular force was evaluated at the

4th degree (the muscular contraction allows the mobilization of the segment against gravitation, but also against a medium resistance made by the examiner). After the physical treatment, the degrees of the muscular force changed as follows: in the affected segment, the muscular force was evaluated to 4th and in the healthy segment the muscular force was evaluated to the 5th degree (the muscle can execute the entire movement against an external resistance that is equal to the normal force).

Table 1.

Muscular force in initial and final evaluation

Nr.	Patient name	Muscular force			
		Initial evaluation		Final evaluation	
		Left	Right	Left	Right
1	R. G.	3	4	4	5
2	T. T.	3	4	4	5
3	A. E.	3	4	4	5
4	M.M.	3	4	4	5
5	P. F.	4	3	5	4

Table 2.

Joint stability in initial and final evaluation.

Nr.	Patient name	Joint stability			
		Left	Right	Left	Right
1	R. G.	unstable	stable	stable	stable
2	T. T.	unstable	stable	stable	stable
3	A. E.	unstable	stable	stable	stable
4	M. M.	unstable	stable	stable	stable
5	P. F.	stable	unstable	stable	stable

The joint stability improved significantly. Therefore, the affected segment became more stable and the patient was taught again how to use the correct biomechanics of the limb in motion.

Conclusions

- Gonarthrosis demands combined therapy: surgical and non surgical. Most of the patients come to the hospital with an evolved stage of disease. This is the main reason why the patient needs corrective surgery performed by a specialist. After the surgery, the patient should follow a complementary non surgical therapy consisting in: physical therapy, anti-inflammatory and rheumatologic treatments. All these steps lead to an efficient recovery of the patient. The anti-inflammatory treatment protects the joint from further swellings, resulted from the physical treatment. The rheumatologic treatment has an anti-algic effect.
- The physical treatment is the main factor as far as the recovery of the functionality of the affected joint is concerned. The exercises of the physical treatment have the role of increasing the joint mobility and the muscular tonus in the affected body part. These exercises are meant to give the muscles the necessary strength to sustain all future movements.
- The physical therapy has the following objectives: the increase of joint movement, muscular force and of joint stability. After the initial evaluation, we found out that there was a lack of movement ability and muscular force in the affected body part. These were the main reasons why the physical treatment was based on exercises for improving the weakened abilities.
- The physical treatment should be carried on for at least 14 days. The disappearance of symptoms does not allow us to interrupt the treatment. One of the most important aspects of this fact is the patient's satisfaction, who can continue or stop the treatment.
- The patient must continue the treatment according to the indications of the therapist after leaving the hospital. The patients who went through correctional surgery must be supervised even more. Patients of this type have difficulties when starting walking because of the long-term bed immobilization. It is very important that these patients respect the rules indicated by the therapist as far as correct walking is concerned. If these rules are not respected, complications or diseases may appear. In case of the patients who did not have surgery done, they have to respect the prevention rules so the disease will not evolve and they will not be obliged to come back to the hospital for correctional surgery. (12)

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IMPORTANT FACTORS TO FOLLOW SO AS TO FACILITATE REHABILITATION AFTER KNEE SURGERY

RACOLTA HORIA[1], CIOCOI-POP DUMITRU RARES[2], POPESCU DANA SIDONIA[1]

ABSTRACT. The muscular imbalance between the agonist and the antagonist muscles was suggested as being a possible cause of knee injury occurred during sport practices. One of the most frequent methods used so as to determine the muscular balance between the agonist and the antagonist muscles is the isokinetic testing. The muscular resistance of the quadriceps and hamstrings can be evaluated through the isokinetic testing, providing a calculation of the torque generated by the quadriceps and the hamstrings, in report with the force. Introducing isokinetic protocols in the rehabilitation of the articulation affection is necessary so as to have a better balance between the agonist and the antagonist muscles. Due to a controlled and constant movement the inertial moment is avoided.

Key words: knee rehabilitation, isokinetic testing, isokinetic protocols, isokinetic dynamometer

REZUMAT. Factori important de urmat pentrru facilitarea recuperării genunchiului. Dezechilibrul muscular dintre agonişti şi antagonişti se presupune a fi o cauză posibilă a accidentelor genunchiului care au loc în practica sportivă. O metodă frecventă de determinare a echilibrului muscular dintre agonişti şi antagonişti este testarea isokinetică. Rezistența musculară a cvadricepsului şi a ischiogambierilor poate fi evaluată prin testarea izokinetică furnizând date în privința momentului forței generat de cvadriceps şi ischiogambieri raportat la forță. Introducerea de protocoale izokinetice în recuperarea articulației afectate este necesară pentru a avea un echilibru între agonişti şi antagonişti. Datorită unei mişcări constante şi controlate momentul inerțial este evitat.

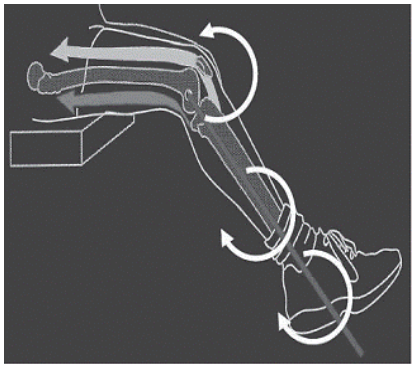
Cuvinte cheie: reabilitarea genunchiului, testare izokinetică, protocoale izokinetice, dinamometru izokinetic

[1] Kinetoterapeut, Cluj-Napoca
[2] Universitatea Babeş-Bolyai Cluj Napoca, Facultatea de Educație Fizică şi Sport

INTRODUCTION:

Lately the focus was on describing and assessing the rehabilitation techniques after knee surgery. The muscular imbalance between the agonist and the antagonist muscles was suggested as being a possible cause of knee injury occurred during sport practices. One of the most frequent methods used so as to determine the muscular balance between the agonist and the antagonist muscles is the isokinetic testing.

Isokinetic dynamometer



In compliance with Newton's first law, an object will remain in relaxation or movement at constant speed, with the exception of external force acting upon it. Particularly, an isokinetic dynamometer is made of a lever arm that is controlled by an electronic servomotor.

This servomotor allows the clinician to pre-establish an angular speed and the mobile lever arm is attached at the level of the limb.

At the moment when the pre-established speed is accelerated, the isokinetic apparatus opposes a light resistance so that a constant speed would occur again. During a concentric isokinetic test the speed should be constant and movement occurs only when the patient is capable of reaching the pre-established speed.

Through an isokinetic test can be obtained several measurements among which the maximum torque is the most frequent measure that is used.

In contrast with the isometric and isotonic contractions, the isokinetic contraction is also a dynamic contraction, but the movement speed is regulated so that the resistance would be in compliance with the force applied at every moment of the movement amplitude. For a correct isokinesis, resistance should vary lightly, according to the muscle's length, so as to maintain the same force.

Different studies have examined the atrophic processes associated with knee surgeries and with the subsequent methods of muscular force recovery. The muscular resistance of the quadriceps and hamstrings can be evaluated through the isokinetic testing, providing a calculation of the torque generated by the quadriceps and the hamstrings, in report with the force.

The report between the maximum torques of the Torque peak was used to evaluate the functional capacity of the knee and the muscular balance. The force report Q/H can lead to predispositions to injury.

The hamstrings muscle plays an important role in the stability of the knee. Reducing the antagonist function of the hamstrings muscles and working only on the quadriceps leads to muscular imbalance between Q/H and, thus, injury may occur.

The involuntary motor tracts of tonic muscular activity

It is difficult to make the distinction between the voluntary muscular activity and the tonic muscular activity from the point of view of the movement function, but it is better outlined in the report of the anatomic structures that are involved.

The nervous cells in the anterior human body. Apart from the alpha motor neurons there are other neurons in the anterior horn and they participate to the movement action.

The alpha motor neurons that produce A range type fibers are of two types: the dynamic range whose axons stop in front of the polar zone of the intrafusal fiber and the static range whose axons reach the equatorial zone of the intrafusal fiber, right on the nuclear bag and on the nuclear chain of the fiber.

The muscular spindle is a specialized receptor that functions independently of our conscience. The muscular spindle is a spindly form measuring 0.7 – 4 mm length and 0, 1-0, 2 mm width, placed between the muscular fibers and wrapped in a capsule formed of concentric cell blades in which there are collagen fibers oriented on the long beam of the spindle. Inside this capsule there are 3-10 muscular fibers (entitled intrafusal fibers so as to be differentiated from the extrafusal fibers).

There are three regions of the intrafusal fibers:

- The polar zone, the extremities having many myofibrils which are poor in sarcoplasm.
- The myotube, which makes the link between the polar zone and the ecuatorial zone.
- The central zone, having voluminous nuclei, little sarcoplasm with myofibrils towards its periphery where there is the anulospiral ending.

a) The sensitive innervation. In the central zone of both intrafusal fibers there is the anulospiral – main receptor ending, composed of myelinated fibers that wrap round the central zone of the intrafusal fibers just like a reel.

b) A second receptor, like a smaller bunch, more poorly myelinated, is placed towards the periphery of the intrafusal fiber, especially bon the fibers having nuclear chain.

c) The motor innervation. The main efferent pathways towards the muscular spindle reach “the ending plagues” that are to be found in the polar zone and in the juxta-equatorial zone.

The nervous pathways can be afferent and efferent.

a) The afferent nervous pathways. From the muscular tendinous receptor start afferent pathways towards the nervous cells of the anterior horn through the spinal sensitive protoneuron.

Fiber I_a or the main afferent fiber (A_I) starts from the equatorial receptor of the intrafusal fiber of nuclear bag or chain types. Reaching the anterior horn, it makes the synapse with: the alpha motor neuron (agonist), the facilitating intercalary neuron which then links itself to the alpha motor neuron (synergist), the intercalary neuron (Renshow), through which it will link to the alpha motor neuron (antagonist).

Fiber II- the secondary afferent fiber (A_{II}) (II_a) starts from the Ruffini corpuscles that are juxta-equatorial, especially on the intrafusal fiber of nuclear chain type. In the anterior horn it makes the synapse with the intercalary neurons and through them with the alpha motor neurons like fiber I_a. differences consist of the actions conducted by these fibers.

Fiber I_b starts from the tendinous Golgi organ, realizing the synapse with the inhibitory or facilitating intercalary neurons and, through them, with the alpha motor neurons of the agonists, synergists and antagonists.

b) The efferent nervous pathways. From the motor neurons of the anterior horn the axons teach the muscles through:

- The A alpha fiber — the cilindrax of the alpha motor neuron that reaches the motor plague of the extrafusal muscular fiber.
- The dynamic A range fiber – the cylindrax of the dynamic range motor neuron reaches the polar zone of the intrafusal zone.
- The static range fiber – the cilindrax of the static range motor neuron reaches the juxta-equatorial zone of the intrafusal fiber, right nearby the Ruffini corpuscles.
- The beta fibers – starting from the motor neurons of the anterior horn that presumptively reach both the extrafusal and the intrafusal fibers.

The connections medullary anterior horn – muscle form a very well self-regulated functional system. Within this system, “the range loop” is the best known. It is formed of: **the range motor neuron, the A range fiber, the intrafusal fiber, the anulospiral ending, the fiber I_a, the spinal sensitive protoneuron, the tonic alpha motor neuron**.

The Motor Unit

The motor unit – considered to be the smallest neuromuscular functional unit, is a complex formed of the neuron, the axon and the totality of muscular fibers that reach the endings of this axon. The neuron can be the

one in the medullary anterior horn (the peripheral motor unit) or that of the motor cranial nerves.

The report between the neuron and the number of muscular fibers that it innerves is named “motor unit innervation coefficient”. This coefficient is very variable from one muscle to another. In the motor unit there is always the same type of muscular fibers (white and red).

The tonic and motor neurons have a low level of activity.

On the other hand there are some proofs which suggest that several motor units are recruited abiding on a development calculation of the necessary tension, activation and other proprioceptive factors.

The recruiting of motor units was influenced by the contraction speed as well as by the initiation angle of the contraction. Wageman and Pierce observed that the proprioceptive influences in the volitive control time of the individual motor units and they concluded that their activity depends on the muscle’s relaxation time, on the angle as well as on the necessary specific activity of the muscle. Therefore, in the strong voluntary movements initiated in the motor cortex there can be a re-establishment of all motor unit types or a preferential activity of the phasic motor neurons with the cortical inhibition of the tonic motor neurons.

Therefore, it seems that there is not only a simple hierarchy of the motor units with gradual activation thresholds (from small to high) but there but there can also be a flexibility degree in the re-establishment hierarchy (recruiting) which depends on the prioceptive feedback, of the compulsory muscle activity and of the enhanced integration of the central nervous system. However, an accurate description of these factors requires a more detailed analysis before applying the accurate fiber re-establishment models to the specific muscular activity patterns in the case of the human body.

Muscular hypertrophy

It was previously indicated that there can occur adjustments of the motor unit, as a result of the neurotrophic influences or of the muscular – neural retrograde factors or through the synergic result of both. Secondly, the adjustments of muscular fibers will occur as a result of their repeated usage through involving the respective motor units, tonic or phasic, during the specific recruiting activity. Muscular hypertrophy is caused by an increased synthesis of the proteins, an increased number of muscular fibers per section and an increased diameter of the muscular fiber.

It was suggested, although the study has not been completed yet, that the muscular tension is the first factor that causes the compensatory hypertrophy.

The response of fibers ST and FT, however, is different under the same conditions of hypertrophic tensional stimulation. It was reported that the tension stimulus accelerates most of the hypertrophy quantity in the FT fiber reservoir, indicating that the FT fibers are more sensitive to the hypertrophy induced by tension. Regardless the preferential adjustment to tension of the muscular fibers the final result of the specific intramuscular changes is the enhancement of muscular force.

Muscular atrophy

The muscle has an extraordinary capacity of adjustment to the strains that are imposed to it, especially to surgeries, muscular rupture etc.

Different studies reported a more intense atrophy in the case of ST fibers (red fibers) in comparison to FT fibers (white fibers) at the vast lateralis muscle, in patients presenting ACL rupture.

Edstrom reported ST fiber atrophy in patients operated of ACL and who had been immobilized for five weeks. During that time, the patients presented quadriceps isometric spasms and straight-leg raises for one hour per day during the last four weeks of the immobilization period. Although these were recruited as motor units during that period of time, the ST fiber zone decreased 26% and there were not any changes in the FT fiber zone. These conclusions are exclusively related to an affection of the knee.

Grimby at al. examined the patients 14 months after the ACL surgery and the operated leg was 20% weaker than the leg that had not been operated.

In order to increase muscular force, several factors should be taken into account, such as acute or chronic injury, the type of surgery (classic or invasive), if there was any surgery intervention or not or if a certain degree of motor unit activation is allowed during immobilization, the degree of pain.

CONCLUSION:

Introducing isokinetic protocols in the rehabilitation of the articulation affection is necessary so as to have a better balance between the agonist and the antagonist muscles.

With the support of an isokinetic dynamometer we can measure the level of force between the agonist and the antagonist muscles, both before the surgery and after the surgery.

Due to a controlled and constant movement the inertial moment is avoided.

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EDUCATION FOR HEALTH AND RATIONALE ALIMENTATION- METHODS OF PROPHILAXY AND TREATMENT OF OSTEOPROSIS

ZAMORA ELENA[1], COROI RAMONA[2], CRĂCIUN DAN DRAGOŞ[1], TOŞA C. GHEORGHE[3]

ABSTACT. The study unfolded for a period of 5 months in a private physical therapy facility. The goal of this study was to establish the guide mark and the conditions for the recovery of osteoporosis trough physical exercises and healthy nourishment. In the study were investigated a number of 35 female patients. Each patient took part in a physical therapy program, educational courses about healthy nourishment and lifestyle. The physical therapy program improved physical performances regarding joint mobility, a correct posture and muscular force. The bad habits concerning nourishment were corrected due to participation in the special courses.

Keywords: osteoporosis; nutrition; life style; physical exercises.

REZUMAT. Educația pentru sănătate şi alimentația rațională- metode de profilaxie şi tratament ale osteoporozei. Studiul s-a desfăşurat pe o perioadă de 5 luni întru-un cabinet de kinetoterapie din Zalău. Obiectivul studiului a fost de a stabili reperele şi condițiile pentru recuperarea osteoporozei prin excerciții fizice şi alimentație sănătoasă. In studiu au fost cuprinse 35 de paciente care au urmat un program de kinetoterapie şi cursuri despre alimentație şi un stil de viață sănătos. Programul kinetic a crescut performanțele fizice în privința mobilității articulare, a posturii corecte şi a forței musculare. Obiceiurile proaste în privința alimentației au fost corectate ca urmare a participării la cursuri.

Cuvinte cheie: osteoporoză, nutriție, stil de viață, exercițiu fizic

Even though osteoporosis in not a major cause of dying, it is an important illness. Type I osteoporosis is hardly detectable, being a “silent” disease. Is a serious disease with important consequences in 60% of cases,

[1] FEFS Cluj-Napoca
[2] Kinetoterapeut, Zalău
[3] Clinica de Neuro-chirurgie, Cluj-Napoca

and it is the source of major disabilities and even death (in 30 % hip fracture is the cause of death and in 30% of the cases the recovery is long and expensive).

But osteoporosis is a treatable disease. Avoiding lordotic and kiphotic postures combined with the avoidance of head flexion is the golden rule in osteoporosis physical therapy. The exercises in physical therapy aim at increase strength of the paravetebral and abdominal muscles resulting in the increase of the density of the vertebral column bones and stimulating the periost trough physical exercise, a bone formation stimulus.

After the age of 35 the bone looses continuously from its substance, a normal and natural phenomenon in the process of aging. Osteoporosis can affect the younger females too, creating a high risk for fractures with a negative prognosis for healing.

Early diagnosis of osteoporosis is DMO which can be done trough dual absorption with X-rays (DEXA) and CT scan.

DEXA is a specialized radiology technique and represents the golden standard in measuring the bone density. This method can differentiate changes in bone mass comparing it with that of healthy individuals.

The menopause is the beginning of hormonal and metabolic changes in women. This study was conducted on women of different ages because osteoporosis is mainly a female disease.

The goal of this study was to establish the guide mark and the conditions for the recovery of osteoporosis trough physical exercises and nourishment.

A number of 35 patients diagnosed with osteoporosis were studied.

After answering a questionnaire regarding general data each patient was introduced in a recovery program comprised of physical therapy, educational courses about feeding and a healthy life style. The second questionnaire was focused on life style, mainly on nourishment.

The study unfolded for a period of 5 months in a private physical therapy facility in Zalău.

Questionnaire 1

Gender	
Age	
Height	
Weight	
The cyclic of the menses	
Duration of the menses	
Pregnancies	

	Births	
	Abortions	
	Disorder of menses	

Questionnaire 2

No	Question	Yes	No
1	Are 55 or more		
2	Your muscular force is weak		
3	Did your parents suffered from osteoporosis		
4	Did your parents suffered from bone fracture		
5	Do you smoke?		
6	Are you vegetarian?		
7	Do you eat meat more than once a day?		
8	Do you exercise?		
9	Do you suffer from more than 3 diseases?		
10	Do you drink milk daily?		
11	Did you suffer surgery?		
12	Your height decreased more than 5 centimeters?		
13	Do you drink alcohol?		
14	Do you drink coffee?		
15	Are you under your normal weight?		
16	Did you experienced more than once your menses to stop?		

Physical therapy is method and mean for a positive intervention in osteoporosis. Physical exercise, even in a small amount, but regularly practiced, helps maintaining bone density, fortifies muscular system so the risk of falling is decreased. Even this is not applicable for everyone here are some rules:

- the best exercise are those who use gravity: walking, stair climbing, standing; the swimming is not as effective but is better than nothing.

- exercises that stress the vertebral column like aerobic gymnastics or jogging must be avoided.

- sit-ups, flexion of the body or exercises that curve the back must be avoided; also jumping or exercises on slippery surfaces must be avoided due to the risk of fall. Adduction of the legs must be avoided because can fracture the weakened femoral col.

Physical activity stimulates bone formation, improves muscular force, improves balance.

The best physical exercise program must combine impact carrying exercises like walking, light running with exercise to tone the muscles.

Physical therapy has the following goals:

- prevention and recovery of muscle hypertrophy;
- removal of the spasm;
- avoiding muscular atrophies;
- correction of body attitudes;
- maintaining a satisfactory joint function;
- maintaining force and stamina;
- mantling a good coordination;
- maintaining a correct posture;
- maintaining effort capacity

The questionnaires were applied the second time after a two months period. The patients were advised to feed healthy and to be aware of the importance of nourishment in prevention and even stopping the osteoporosis.

Fliers with the proper food for consumption were given to the patients.

Data analysis provided the following results:

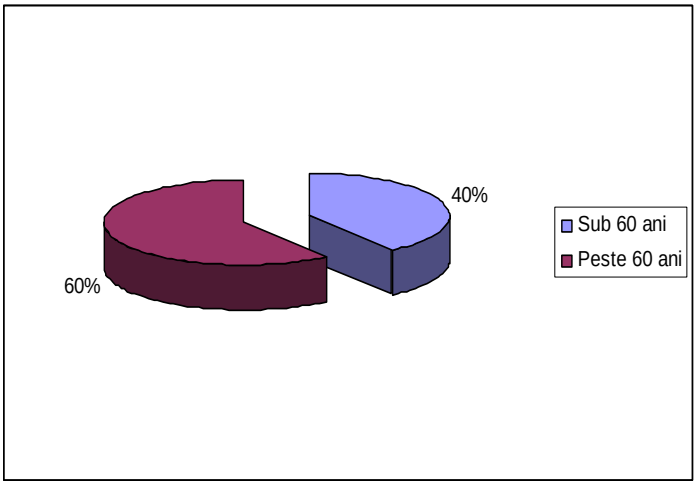

Fig. 1. The age of the patients

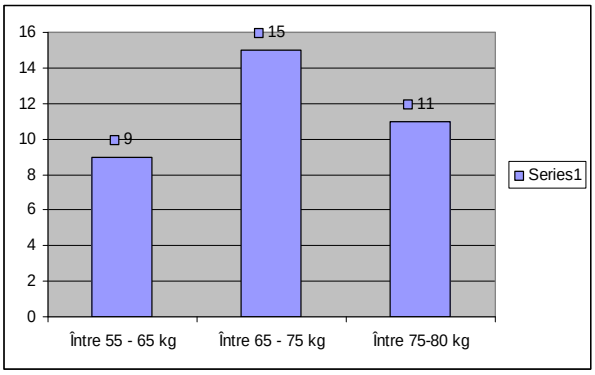

Fig. 2. The body weight of the subjects

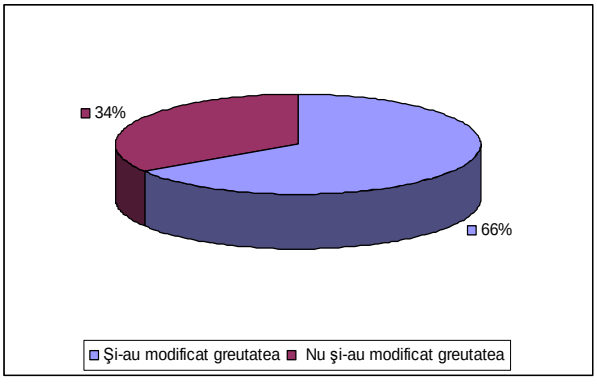

Fig. 3. Changes in body weight

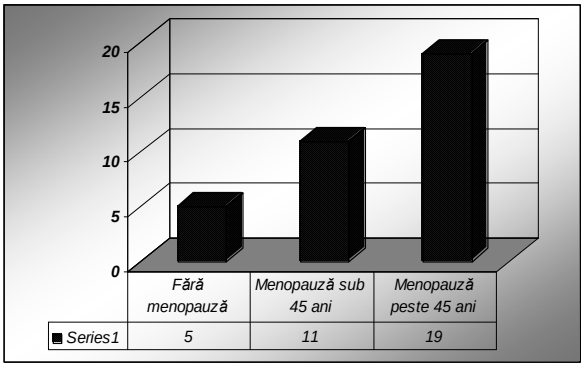

Fig. 4. Menopause age

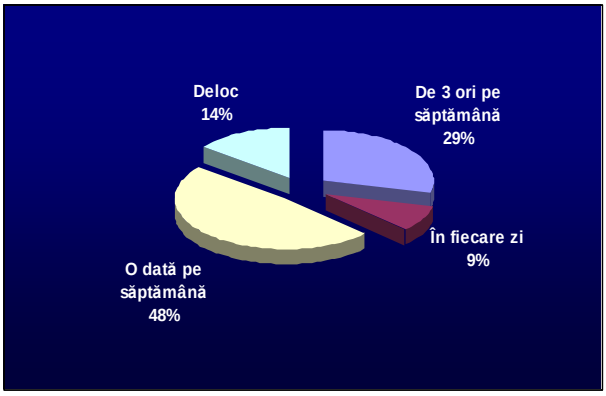

Fig. 5. Patients who exercised before treatment

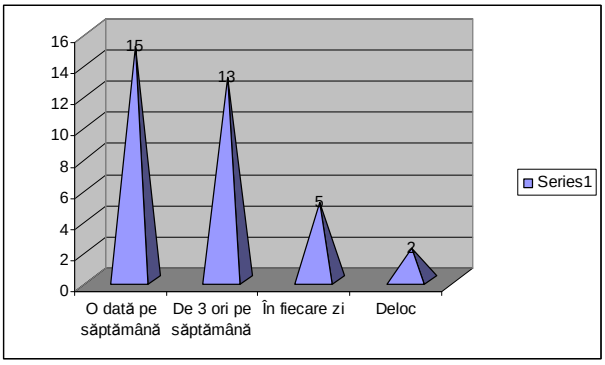

Fig. 6. Number of patients who exercise after treatment

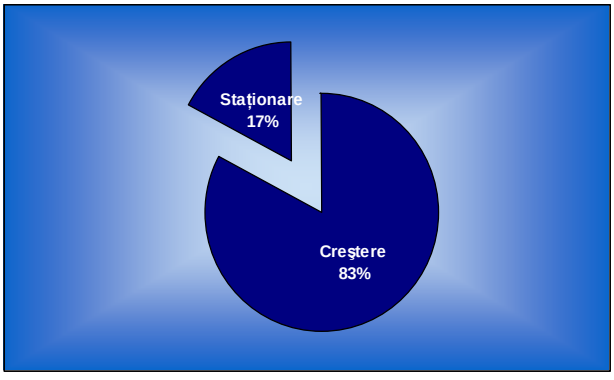

Fig. 7. Evolution of joint mobility

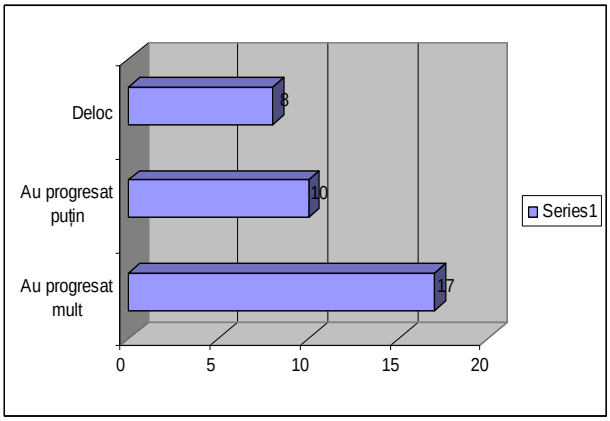

Fig. 8. Number of patients who evolved in maintaining coordination and the ability of moving

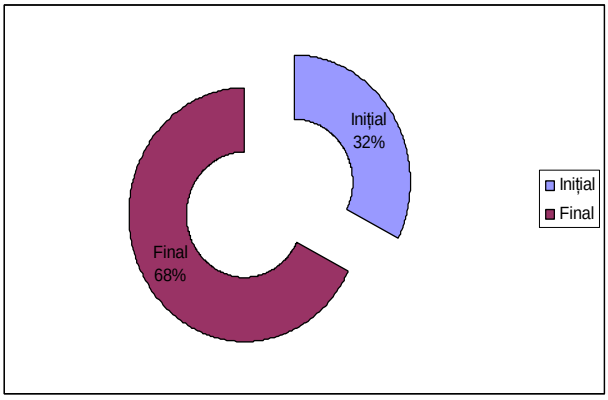

Fig. 9. Evolution of patients in maintaining a correct posture

Conclusions:

More than half of the patients have in their history bone fracture or parents who suffered from bone fractures.

Patients with osteoporosis can have a risk free life trough prophylaxis-medicines, diet and physical therapy.

Regular physical exercises helps in maintaining bone density and fortifies muscular system

Physical therapy program improved physical performances regarding joint mobility, posture and muscular force.

As a result of the courses, unhealthy feeding habits were changed.

It is very important to prevent osteoporosis through physical therapy at young ages (childhood and teen-age) because exercise education and healthy nourishment will have repercussions in the adult life.

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REDRESSING PHYSICAL DEFICIENCIES THROUGH ELECTROTHERAPY

ZAHARIA CRISTINA ELENA[1]

ABSTRACT. In the last century, but especially in the last decades, it has been noticed an important body growth and development "acceleration" phenomenon. This phenomenon, statistically pointed out, is accompanied by an inadequately functional development. As a natural consequence, the most affected sector of the human body is the spinal column. If physical deficiencies are not rectified in time, they will have critical repercussions later upon the spinal column, such as: rachidian dystrophies, spondylosis, epiphysitis, disc diseases, medical, social and economical problems concerning both the treatment of this affections and the professional regrouping. As a result, by strengthening the muscular structure of the column spine, inclusively implementing good posture reflex we will prevent or delay spinal column pathology, and not only. We can treat the actual deficiencies, improving it, and we will prevent the disorders that follow later on.

Key words: electrotherapy, rectangular currents, physical deficiencies, adults

REZUMAT. Corectarea deficienţelor fizice ale colonei vertebrale prin electroterapie. Electroterapia a fost şi este folosită de către kinetoterapeuţi în recuperarea afecţiunilor ce prezintă musculatură denervată în vederea menţinerii tonusului muscular în limite optime. Prezenta lucrare doreşte să sublinieze faptul că electroterapia, folosind curenţii de joasă frecvenţă, poate contribui cu succes la corectarea deficienţelor fizice ale coloanei vertebrale, situaţie în care musculatura este normoinervată însă tonusul este scăzut sau după caz crescut. Prin aplicarea curenţilor se poate face un antrenament optim, acţionând cu exactitate pe musculatura deficitară, lucru dificil de realizat prin exerciţii fizice, existând riscul de a influenţa în mod negativ musculatura sănătoasă.

Cuvinte cheie: *electroterapie, curenţi rectangulari, deficienţe fizice, adulţi*

[1] Univ. „Al. I. Cuza", Faculty of Sports and Physical Education, Iaşi, **Email:** cristina_zaharia2002@yahoo.com

The motivation of this topic resulted from a personal study regarding the incidence of poor posture and physical deficiencies in students of this faculty. More aggravating is the fact that most of the students were conscientious of there state, but none of theme was fallowing any correction treatment.

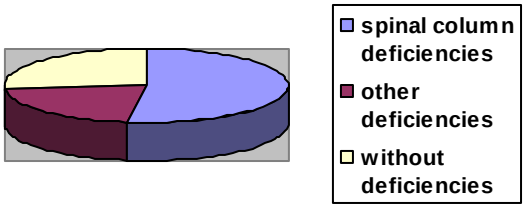


Fig. 1. Incidence of poor posture and physical deficiencies

The present paper desires to demonstrate that excitomotory therapy, in species low frequency currents therapy can be a mean used by physical therapist in the process of redressing the physical deficiencies, strengthening the spinal column and inducing the good posture reflex.

Means and methods

The muscle electro stimulation devices have won a good name, through the physiological effects generated by the low frequency currents, being exicitomotory, for the recovery of certain muscles or parts of injured muscles, as a result of traumas or prolonged immobilization.

Because in spinal column deficiencies we come across affected muscular groups – either hypotonic, either hypertonic, we can successfully use electrical stimulation therapy – stimulation and decontracture, for improving the spinal column support.

The objectives of the study are listed in the objectives of the physical deficiencies therapy, specific for each deficiency.

With excitomotory therapy we are able to work analytical on specific muscular groups, this thing is hard to achieve in exercise therapy of the spinal column, just because of anatomical particularities of backs musculature. Because some movements can not be dissociated, there is the risk that healthy musculature enters in action, in this way increasing the probability of failure, but worst increasing the risk of producing other deficiencies.

Through excitomotory therapy we know exactly and precisely the musculature that will do the work out during the treatment sitting.

For the deficiencies discovery, the devices necessary are the ones found in a physical therapy cabinet. For electro stimulation "COMPEX Mi THETA PRO" was used, self-adhesive with staples electrodes, echo gel.

The application of the rectangular currents in electro gymnastics of the striate musculature is usually through bipolar technique. For improving the conductibility, we have to degrease at first the area with alcohol, a thin coat of echo gel on the electrode surface, and then the electrode will be applied on the desired area. The length of one sitting was, in general 30 minutes, with a 3 times a week frequency, for a 6 month period. The electrodes were applied on the target areas, found with the help of the motor point pen.

All patients that were included in the study were aware of their deficiency, which at some point in their childhood attended a corrective program, which hasn't brought any modifications, either because it was precocious interrupted, either because of its low efficiency.

The patients are students of Faculty of Sports and Physical Education, from Iaşi and show column spine physical deficiencies as follows: 3 persons with kyphosis, 2 persons with lordosis, 1 person with scoliosis.

Results and discussions

FIRST CASE

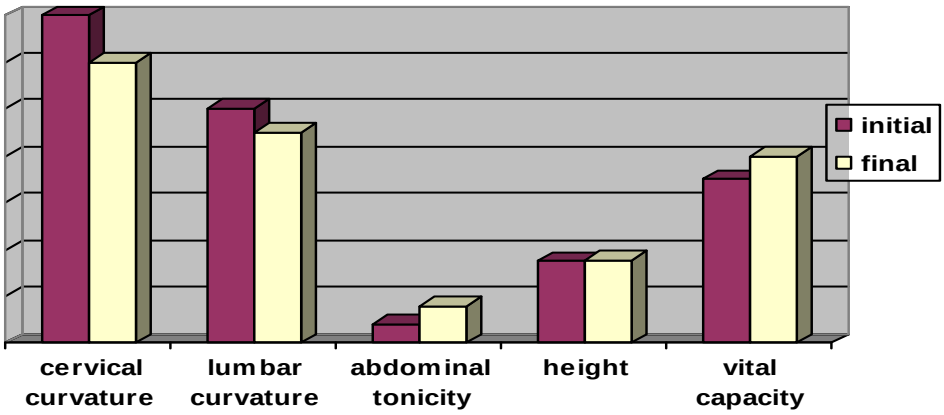
N.C. – ROUND BACK

In this case a slightly improvement of the kyphotic posture was observed, because the deficiency was sufficiently advanced. An important thing noticed by me and the subject was the gain of vertebral elasticity, as after the first 3 sittings of electrotherapy following the vertebral manipulation maneuvers vertebral decompression was not obtained, in the next sittings the vertebras had a better alignment, fact proved by the heard crepitations and through the values of the cervical and lumbar arrows.

The subject also observed an improvement of rest quality, the pain felt during maintaining a position wile studying started to disappear.

Other results can be observed in the following chart

Fig. 2.

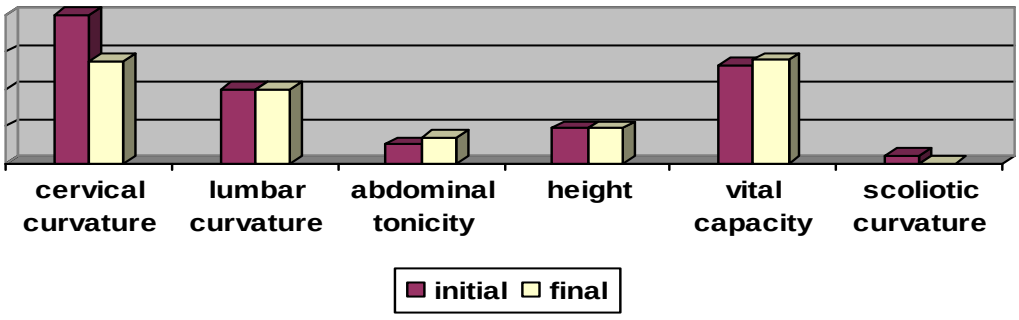


SECOND CASE

I.C. – DORSAL CYPHOSIS, RIGHT SCOLIOTIC ATITUDE

In this case the amelioration is obvious for the kyphosis as well as for the scoliosis. Other results can be observed in the following chart

Fig. 3.



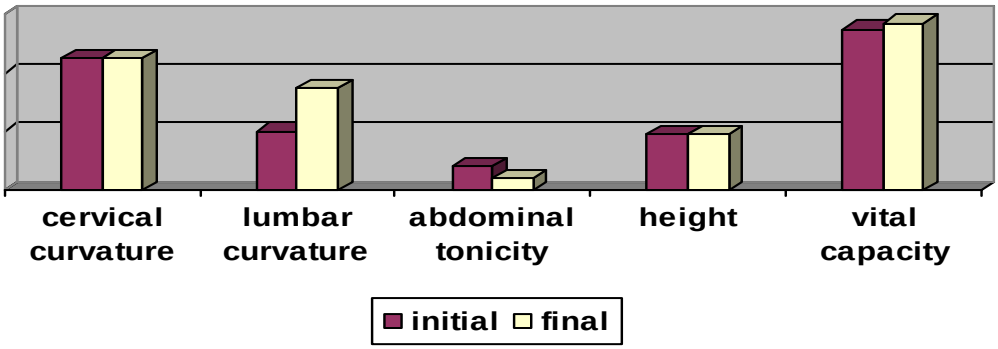
THIRD CASE

B.C. DORSOLUMBAR CYPHOSIS

Because of the job nature – driver, this subject hasn't had spectacular results concerning the kyphosis, but registered an evident improvement of the abdominal tonicity. Also the vertebral elasticity showed good improvement as a result of the osteopathic maneuvers.

Other results can be observed in the following chart.

Fig. 4.



FOURTH AND FIFTH CASE

P.A./S.C. – LUMBAR LORDOSIS

The registered results were good, as shown in the charts below.

Fig. 5. Case 4

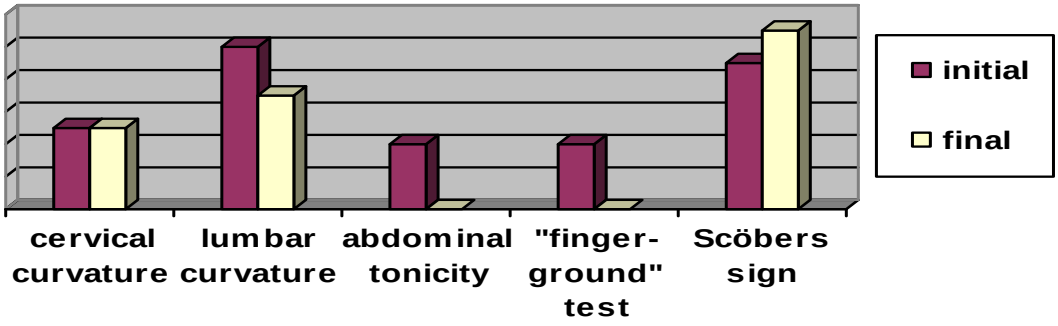
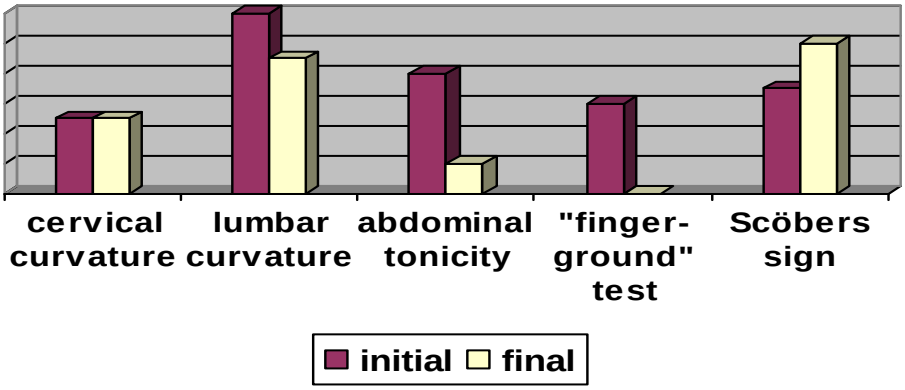


Fig. 6. Case 5



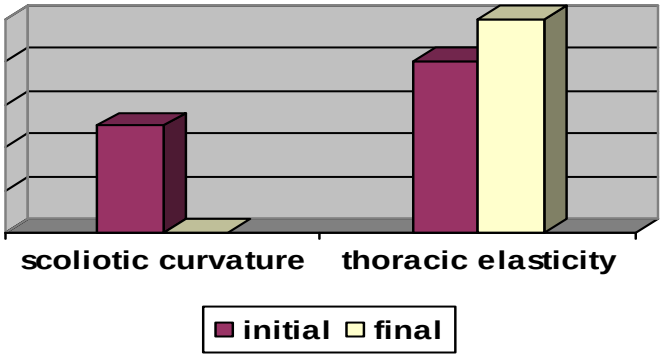
In the fifth case, at the final evaluation, I observed unfortunately, the appearance of a scoliotic curvature, because the subject adopted an incorrect posture during studying in the examination session. .

SIXTH CASE

S.L. – LEFT SCOLIOSIS

The electro stimulation treatment has given great results, thus it is shown below. Next to these values the final somatoscopic examination, revealed a better posture, a more symmetric shoulder and thorax line.

Fig. 7.



Conclusions

1. The hypothesis was confirmed
2. Through electrical gymnastics we can do a good work out for the normal innervated musculature with a low tonus, found in the spinal column low degree physical deficiencies.
3. Using this method the work out of the musculature can be dissociated so that only the affected musculature is tonified, thing almost impossible to realize through exercise programs.
4. Next to consolidation of the spinal column, other parameters are improved, depending on the case, such as: abdominal tonicity, intestinal transit, vital capacity.
5. In all cases the existent pain started to decrease, the rest had a better quality and after stopping the treatment some subjects complained about new discomforts.
6. Through the consolidation of the spinal column we can reduce the stress produced by incorrect postures and in this way preventing the appearance of new illnesses like dystrophic phenomena manifested at adult age through spondylosis, disc disease, epiphysitis, Scheuerman disease, etc.

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THE PHYSICAL, PSYCHICAL AND SOCIAL EFFECTS OF THE USE OF BOULDERING IN KINETIC ACTIVITIES

UGRON ÁGNES, ZAMORA ELENA, BOROŞ-BALINT IULIANA[1]

ABSRACT. Sport therapy is a complex activity that helps patients in associating different types of therapies for recovering as well as for leisure by using elements from certain sport branches. Bouldering is part of sport therapy and is based on the use of elements from free climbing. The practice of bouldering from an early age as well as its use as a type of therapy has beneficial effects on the organism such as physical, psychical, cognitive and social effects. These can be useful against various diseases.

Keywords: sport therapy, bouldering, effects.

REZUMAT. Terapia sportivă este o activitate complexă, care ajută pacienţii atât în asoceiera diferitelor tipuri de terapii în recuperare, cât şi în recreere prin folosirea elementelor din anumite ramuri sportive.Boulderul face parte din terapia sportivă şi se bazează pe folosirea elementelor din cățărare liberă.Practicarea boulderingului de la vârste fragede, precum şi utilizarea lui ca o formă de terapie are efecte benefice: fizice, psihice, cognitive, sociale asupra organismului, care pot fi de folos în diferite afecțiuni.

Cuvinte cheie: terapia sportivă, boulderul, efecte.

Introduction

Sport therapy is an activity that ensures the development of the existing physical abilities that persisted in the patients with different diseases in recovering and post-rehabilitation by using elements from certain sport branches. It is a complex activity that involves the following components: general and specific conditioning, learning and repeating the activities of daily living as well as clinical sport.

[1] " Babeş - Bolyai" University, Faculty of Physical Education and Sport, e-mail: uagi77@yahoo.com

Short history: It appeared at the beginning of the 20th century under the name of 'The Sport of the Handicapped'. Later on, the 'Sport Club of the Disabled' (Nyomorékok Sport Egyesülete) was found in 1929 in Hungary. In 1944, in Germany it was called the 'Sport of the Spinal Cord Injured', then, the Paralympics. In Romania, the 'Romanian Sport Federation for the Disabled People' was found in 1990 and it is known today as the National Paralympic Committee (2002). The Association of Locomotor Handicapped Persons from Romania was also followed by other associations of the people with special needs (physico-psychic, neuromotor, blind, deaf, cardiac).

Sport therapy includes the following elements: physical education, sport, kinetotherapy, sport pedagogy, conductive pedagogy and sport psychology.

The objectives of the therapy: to help the patient in psychical orientation, self-evaluation, self-confidence, analysis and acceptance of the unchanged condition (wheelchair, amputation), formation of new engrams, formation of new self-image, development of physical abilities, development of psychical and mental abilities, development of movement culture, to help regain working ability, socialization, improvement of life quality, leisure and returning to performance sport activity.

The aim of the sport therapy is to develop and train compensatorily the existent functions.

With the help of sport therapy during team work, according to the principle of the progression, physical ability and movement culture are developed at a more complex level.

Sport therapy is recommended for diseases of the locomotor apparatus, internal diseases, neurological diseases, psychiatric diseases, pediatric diseases, pedagogical problems and for the mentally and motor disabled.

The therapy is not recommended if the disease is a contraindication in this respect, in the absence of motivation and cooperation.

The therapy can be used in patients with asthma as a therapy in saline cave (active movement, climate), in patients with mental deficiencies in order to maintain health and physical condition, post-stroke, for disease of the spiral cord to develop strength, etc.

About Boulder

Boulder is a form of free climbing using basic elements of the natural climbing in sport therapy.

Pic. 1. Boulderul in geology

The word ‘boulder’ comes from the Middle East English term ‘bulder’ that was probably of Scandinavian origin, such as the Swedish dialect ‘bullstern’ meaning ‘noisy stone’ from ‘bullra’, Dutch ‘bulderen’, with the same meaning, and ‘Sten’ (stone) (8).

In geology it means ‘boulder’, that is, a grain of rock with a diameter bigger than 25 cm that was moved by the water or the ice from the original place as a result of the erosion (9).

There is also a place in the United States of America, situated at 25 miles (40 km) north-west from Denver. In Colorado, the municipality of Boulder City is an attractive community in the mountains with natural beauty, at an altitude of 1655 m (10,11).

Pic. 2. – Hiking trails and rock climbing in Boulder are very popular at Chautauqua park

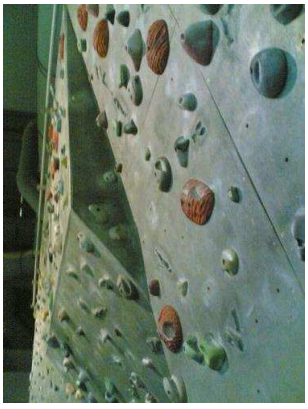
Pic. 3. - Boulder's iconic rock formations, the Flatirons

In sport therapy ‘boulder’ means climbing without rope at low altitudes, close to the ground so that an eventual fall might provoke no injury.

Pic. 4.- Climbing walls

Short history: It appeared in the 1960’s in Great Britain as interior walls. The first wall was built by Don Robinson (professor of physical education at the University of Leeds). In France different routes were built for climbing, world championships, world cups and it has become an Olympic sport branch. Later on, school Olympiads were organized with participants from the Czech Republic, Slovakia, Austria, Italy, etc.

In order to practice boulder, the following materials are necessary: wall/walls (internal, external, mobile, fix), equipment (sport shoes, tracksuit). There are holds built in the special walls used for boulder.



Pic. 5. Walls fix with holds

Pic. 6. Walls fix, transversal in Luckwell school

These are points used to support the feet or hands when climbing, crossing or descending.

Depending on the difficulty of the route, the following tools can be added to the above-mentioned elements: carabiners, ropes, harnesses.

The training starts with warming-up, followed by dry land training centered upon the transfer of body weight, increasing force, resistance, coordination and balance.

The initial phase in boulder starts with learning the technique of the steps that include movements, traversal steps on the wall (to the left and right).

Pic. 7 and 8. - The technique of the steps

It is followed by the development of the technique, climbing different routes using map, indicators of the route and polygons.

According to Suman and Babadag (1987): "the polygons built in are employed to acquire and form basic skills used in processes and simple actions on short distances and heights".

The following rules and principles must be respected in climbing:

- Study carefully the route;
- Know the approximate starting and finishing lines;
- Keep the body permanently close to the wall;
- Maintain permanently three points of support (both feet and one hand or both hands and one foot);
- Moving the hands while catching the hands must be done in a constantly controlled rhythm and with a minimum effort;
- Use the heel or the lateral edge of the foot just for a short time in order to avoid fatigue or trembling;
- Descending must be completed depending on the difficulty of the route (facing the wall with the body in one side).

Pic. 9. and 10. – Climbing in the boulder walls

Climbing therapy such as bouldering can be used in the rehabilitation of the locomotor apparatus (deficiencies and diseases of the spinal cord after fractures, surgical interventions at the level of the knee, elbow), in neurological diseases (post-stroke, after recuperation of peripheral paresis, in initial phase of sclerosis multiplex and Parkinson's disease), in psychiatry (depression, anxiety), in internal diseases (cardiovascular training, diabetes), in pediatrics (cyphotic attitudes, scoliosis, Scheuermann's disease, Down syndrome, hyperactivity), and in patients with different types of disability.

Scientists observed that the absence of movements from walking on all fours in the first year of life causes learning problems and behavioral disorder (correlated function of the hemispheres). Therefore, the scheme of movements is recommended from the age of 6 month, then, at the age of 1,5-3 years the use of the elements of climbing in the playground is suggested. From the age of 6 years climbing can be an activity organized at the school as well. It can also be practiced as a performance sport or as a therapy or just for leisure.

Bouldering can have the following beneficial effects:

- Physical effects: related to the development and increase of the following factors: maximum strength, general resistance, cardiovascular resistance, amplitude of movement, balance, coordination, muscle stretching as well as the improvement of body alignment, transfer of body weight, the patient notices the limits of his performance abilities and feels the improvement as well as ease in the ADLs;

- Psychical effects: overcome of fear, perseverance, modification of the threshold of pain, self-assessment;
- Effects related to the development of personality: recognition of situation, problem-solving ability, adoption of courage, discipline, perseverance, conscientiousness, ability of initiation, ability to accept risks, communication ability, analysis of success and failures;
- Social effects: communal active attitude (conduct), formation and improvement of interpersonal relations, cooperation with teammates, mutual confidence, asking and accepting help, team building (cohesion);
- Cognitive effects: short and long term memory, reverse mathematical thinking, concentration, orientation in space.

These effects have been pointed out in many studies (1, 2, 6, 8, 9).

Knowing these beneficial effects, please, try to use the therapy in recuperation!

Instead of conclusion

At the moment, in Romania bouldering is used for leisure and the training of alpinists, but in Great Britain, France, Hungary there are schools and centers where it is used not only for these purposes.

As our society faces difficulties in the education of the children, it would be useful if we could use bouldering first of all with them. This way we would help the formation of their personality and, depending on the possibilities, apply it to recuperation as well.

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OCCUPATIONAL THERAPY- POSITIVE INTERVENTION STRATEGY AMONG ELDERLY PEOPLE

PÁL ERIKA[1], MAROLICARU MARIANA

ABSTRACT. Elderly people show many problems of social and personal plan. It is the age at which serious existence problems may occur. A number of these people become dweller of homes for the elderly, most of which lacking the necessary conditions of existence for people who have worked throughout their lives.

The present study has as its main point of interest the daily activities of 5 elderly persons who are living in the elderly house named *Fratele Bun* in Cluj Napoca. The observations made have shown us that it is possible to organize better and more rationally the life of the elderly people so that they get involved in a series of activities which prompt the feeling of being useful.

Key words: elderly, occupational therapy, quality of life

REZUMAT. Terapie ocupațională- strategie de intervenție pozitivă în regimul de viață al persoanelor de vârsta a treia. Persoanele de vârsta a treia ridică multe probleme în plan social şi personal. Este vârsta la care apar serioase probleme de existență. Un număr dintre aceste persoane devin locuitori a unor case de bătrâni, majoritatea din acestea neavând condițiile necesare de existență pentru oameni care au muncit toată viața.Tema își propune să studieze factorii de care depinde calitatea vieții la vârsta a treia, care este rolul terapiei ocupaționale, privită în ansamblu; ce activități se recomandă a fi introduse în regimul de viață al persoanelor de vârsta a treia. Observațiile efectuate ne-au arătat că este posibil să se organizeze mai bine, mai rațional regimul de viață al persoanelor din casele de bătrâni, în așa fel încât acestea să fie implicate într-o serie de activități care să le insufle sentimentul utilității.

Cuvinte cheie: vârsta a treia, terapie ocupațională, calitatea vieții

[1] Rehabilitation Centre, DGASPC Cluj, 400124 Cluj- Napoca, P-ța A. Iancu 14, pal.erika@yahoo.com

1. Old age has always been in the attention of biologists, philosophers, sociologists, psychologists. Old age has also been a topic approached by literature, picture, sculpture.

In the XXth century the concepts of geriatrics and gerontology were introduced. Geriatrics is a medical branch which concerns the ageing diseases, and, gerontology represents the science which studies the social, biological and medical aspects of the ageing.

Romania has contributed, through its specialists to the development process of gerontology and geriatrics, remembering here, especiallly, the Ana Aslan's contribution.

Old age means the period that begins with 65 years old. For defining this period there are several approaches.

In gerontology, ageing is considered a general process that affects various tissues, organs and functions in a similar way.

It is said that there exists a cronological old age and a biological one; and we can talk about a psychologycal ageing. Scientists talk about „physiological old age" or natural that evolves in relation to cronological age and a „patological old age" caused by series of living conditions.

2. This study is based on the observations made at the „Fratele bun" Home for Elderly, considering activities of a daily programme. Although the physical exercises should not be left out from their daily programme, this is almost entirely absent due to the lack of both staff , able to carry it and minimal conditions to practice physical exercise. The goal of present study is to conclude how the physical exercise contributes to the quality of life improvement of the persons to whom we refer in this study.

The elderly are going through major changes, from a structurally and functionally point of view. It is considered that the old age body still posesses the adaptative capacity at a higher level and has the power to react positively if is required constantly and adequate.

Withdrawal from active life that corresponds with retirement creates many problems in the lives of elderly people. Suddenly, the person has no professional obligation, his daily programme changes and majority of his life is filled with a powerful feeling of uselessness.

The retirement can be perceived in a difficult manner. The lack of activity may lead to the loss of interest regarding their own person.

A pathology of elderly retiring from activity is known as „retirement illness". The complex of factors caused by withdrawal is called „retirement

psychological shock". Stefan Milcu defines this condition as „psychosomatic syndrome of valid aged", syndrome, frequently, occurs by recently retired persons, especially by the highly-qualified persons.

The retirement's impact would be lower if persons could benefit from a psychological training, called „retirement training", prophylactic method of morbidity generate by withdrawal from active life.

In developed societies, the quality of life concept was analyzed and extended, starting with the fact that material abundance cannot represent everything in such a way that people feel happy about their lives.

The most important factors of quality of life are: health, well-being and social relations. To the weak elderly the most important factor for the quality of their lives is: social relations while healthy elderly mentioned health (as the most important factor of quality life). The main objective of ocupational therapy is progressive and rational preparation of quotidian activities with a level of independency as high as possible, the patient's general education and, also, of his family for knowing how to behave with him. This objective may be divided in other objectives:

- gaining the independency regarding feeding
- gaining the independency regarding dressing
- gaining independency of moving - home arrangements
- the use of helping devices

We should take into consider the following factors when we choose the appropriate occupational therapy activities: age, sex, disease, injury extent and location, the aim, the effects over functionality, the patient concern for this type of therapy.

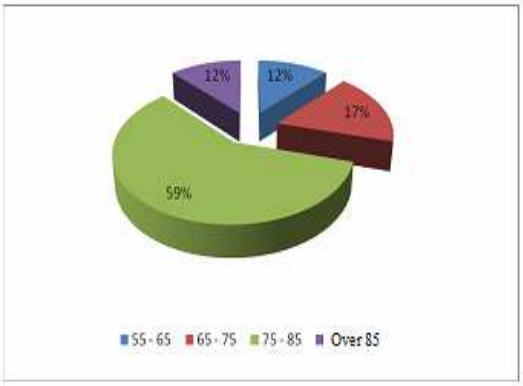
3. In implementation of this research we use the following methods: bibliographical study, observation, analyze of activity's results, case work, conversation.

4. The research was made in the elderly house called „Fratele bun", Cluj-Napoca, for 8 weeks' period, 2 times per week frequency.

Home for Elderly may provide care for about 17 elderly: 14 women and 3 men.

The age of elderly ranges between 58 and 88 years.

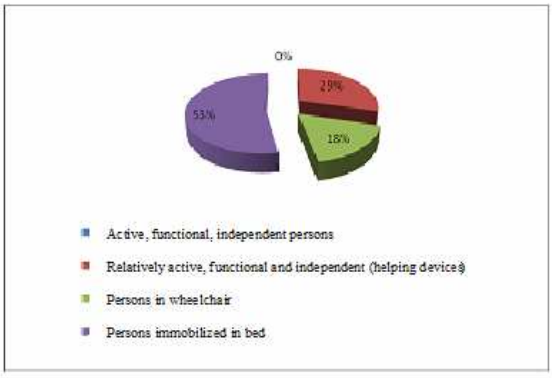
Age of eldery Graphic 1



Depending by functional capacity are:

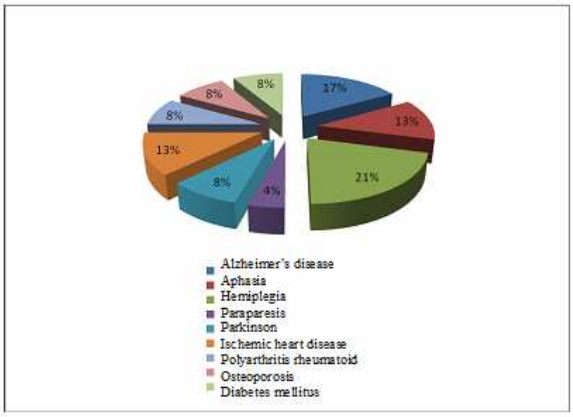
- active elderly, functional and independent: none
- relatively active, functional and independent, with helping devices: 5 persons;
- elderly in wheelchair: 3 persons;
- elderly immobilized in bed: 9 persons;

Functional capacity Graphic 2



The most frequent illnesses that may appear are: dementia, hemiplegia, Parkinson‘s disease, ischemic heart disease, hypertension, polyarthritis, osteoporosis, diabetes mellitus.

Illnesses of elders Graphic 3



During this stage we can easily identify the needs, the problems and also the environment in which they live.

There has been made an assessment, that used the conversational method, regarding: the level of satisfaction, the services provided in the institution, their opinion towards occupational therapy.

It has been noticed that the elderly have to face complex needs and different illnesses. They are also found in a physical and psychological situation that requires specialized services.

The elderly need to communicate, be appreciated, independent, listened to, to be involved in activities. All these needs are a result of the basic need to be useful to others.

5. Most of the elderly claim that they are feeling much better, that their life has improved since they started occupational therapy.

A patient, who focused on balance and mobility before some exercises and thus wouldn't take a walk because of fear to fall, started to make regular walks in the courtyard.

It has been noticed that using occupational therapy the physic and psychic wellness is increased, the need to be useful is fulfilled, the level of dependency is decreased and the quality of life is increased.

While I was making the observations I realized that with a minimum cost, but with high level of commitment and implication, the quality of life and the activities of the elderly in these type of institutions could be improved.

The psychological effects spread on a wide area: minimizing the unrest, increasing the attention, reinforcing the hope, keeping the daily activities routine and enhancing the self-confidence.

Taking into consideration the age of the participating elderly, the institution has an inadequate furniture. The chairs are too short increasing the effort needed to sit and get up off them. For example, L.T. fell while trying this, and broke one of the lower member's bones. If guard-rails were fixed on the hallway the elderly could have exercised while walking from one point to another, therefore fortifying their joints.

Some improvements in the surrounding environment of the institution would help the elderly greatly. These improvements may be focused on: height of the steps, ramps for wheel-chairs, lighting of the hallways.

It is necessary to make the daily activities as divers as possible to diminish the monotony of the daily routine. These activities should allow everyone to see the final result of their work; therefore they will understand that they can still be useful.

6. In the end, occupational therapy is an active functional therapy, its main target being to reach a high functional level for all the activities of the elderly. It adapts not only to their activities, but also to the environment, where they perform these. Occupational therapy doesn't target curing the illness, but the improvement of the way daily activities are performed, therefore spreading the wellness of everyday life.

The isolation the elderly face in the institution is caused by the age and the difficulty in walking. The reasons why a person decides to move into such an institution are: the loss of a loved-one, the loss of the home and the lack of relatives to help him through his illness.

Due to the fact that the elderly living in this institution lack interpersonal relationships, they found themselves without an identity and with the need for affection not fully satisfied.

Even though the way of life in these institutions is related to the financial support that the institution has another element that affects the well-being of the elderly is the level of interest they manifest the assistants towards the elders.

One of the worst problems that affects he behavior of the elderly the lack of communication that leads to isolation. The isolation has a snow-ball effect which materializes in amplifying the unrest.

The observations that were made showed us that it is possible to organize better in a rational way, the way of life of the elderly in the institution, in such a way that all persons may be involved in a wide range of activities so that, in the end, they will feel useful again.

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NEW IDEAS IN NEUROMOTRICAL REHABILITATION

PÁSZTAI ZOLTÁN[1]

ABSTRACT. ABR is a unique biomechanically based rehabilitation approach for children and young adults with brain injury that brings predictable recovery of musculoskeletal structure and motor functions. **ABR** is the method of structural correction of musculoskeletal deformities. It is a hands-on method performed by the parents who learn the **ABR** technique and receive individual prescription of applications from the **ABR** professional staff. **ABR** is a method that re-builds even the most severely distorted musculoskeletal structure. ABR OBJECTIVE Restoration of motor functions in a spontaneous way through the rebuilding of the musculoskeletal structure and the restoration of bio-electrical signals flowing between the muscles and the brain. **ABR** technique origins - modelling the respiratory mechanics of a healthy infant.

Keywords: Advanced **B**ioMechanical **R**ehabilitation Metod, Concept, Tehnich, normalization of the musculoskeletar system.

REZUMAT. Noutăti in reabilitarea neuromotorie copii cu disabiltăți (studiu de metoda). Ce reprezintă RBA, o metodă sau un concept? RBA (Reabilitarea Biomecanică Avansată) ridică următoarea problemă: "Care sunt modalitățile de normalizare a sistemului neuromuscular?" RBA este o strategie de reabilitare biomecanică unică pentru copiii şi tinerii cu traumatisme craniene, care oferă posibilitatea unei recuperări predictibile a structurii musculo-scheletale şi a funcțiilor motorii. **Obiectivele RBA**: recuperarea funcțiilor motorii printr-o modalitate spontană de reconstrucție a structurii musculo-scheletice şi restaurare a semnalelor bio-electrice transmise de creier la muşchi. **Conceptul RBA**: are în vedere faptul că muşchii fini(neted) sunt primii afectați de traumatismele cerebrale. Pe măsură ce tonul muscular scade, este afectată şi structura sistemului musculo-scheletic, care se prăbuşeşte – modificând aliniamentul normal al muşchilor şi oaselor, schimbând distanța dintre punctele de insertie a ligamentelor si musculor. O asemenea modificare cauzează, la rândul ei, un dezechilibru: spasticitate şi contracturi. În fine, acest dezechilibru face mişcările normale imposibil de realizat. Diagnosticul patologic rezultat este

[1] Conf. Univ. Dr., Universitatea Oradea, FEFS, Specializarea Kinetoterapie şi motricitate specială

pareza cerebrală, o condiție ce afectează controlul postural şi muscular. **Din această cauză RBA propune o tehnică unică de acțiune kinetică directă asupra muşchilor fini (netezi). RBA este prima şi unica abordare care recunoaşte rolul fundamental al musculaturii fine (netede) în dezvoltarea sistemului musculo-scheletic**. Din păcate, în practica medicinală tradițională, organele interne sunt abordate doar din punctul de vedere al metabolismului chimic, în timp ce, pe de altă parte, abordarea biomecanică nu se concentrează pe nimic altceva decât pe clasicul sistem scheletic compus din „muşchi şi oase". Întărirea musculaturii fine (netede) induce gradual creşterea capacității pneumatice interne, care într-un efect de cascadă, restaurează: volumul, forma şi tonusul gâtului şi trunchiului, aliniamentul normal al articulațiilor, eliminând spasticitatea şi contractura, creste volumul normal şi forța muşchilor scheletici slăbiți- hipotoni, se regleaza aliniamentul normal al umerilor şi brațelor, precum şi al pelvisului şi membrelor inferioare – permițând „inserția normală" a membrelor superioare şi membrelor inferioare, făcând astfel posibile mişcările adecvate. Mai mult, restaurarea structurii musculare scheletice restabileşte metabolismul normal (circuitul sanguin şi oxigenarea) al muşchilor atrofiați, deficienți, hipotoni şi în plus, activitatea electrică ascendentă a creierului, făcând astfel loc funcțiilor normale.

Cuvinte cheie: RBA -Reabilitarea Biomecanică Avansată, metodă, concept, tehnică, normalizarea sistemului musculoscheletar.

WHAT IS ABR?

ABR stands for **A**dvanced **B**ioMechanical **R**ehabilitation.

ABR is a unique biomechanically based rehabilitation approach for children and young adults with brain injury that brings predictable recovery of musculoskeletal structure and motor functions. **ABR** is the method of structural correction of musculoskeletal deformities. It is a hands-on method performed by the parents who learn the **ABR** technique and receive individual prescription of applications from the **ABR** professional staff.

ABR is a method that re-builds even the most severely distorted musculoskeletal structure.

ABR redefines "rehabilitation" – **ABR** improves musculoskeletal structure so significantly that normal motor functions recover spontaneously, making special training and management for "motor disabled" unnecessary.

We use no pharmaceuticals, no electrical instruments and no surgeries - **ABR** is a hands-on method of manual applications to the child's body, based purely on biomechanical principles. **ABR** biomechanical reconstruction of the musculoskeletal system follows the path of normal motor development -

starting from the neck and trunk and later descending to the periphery (arms and legs). **ABR** provides planned progress of the musculoskeletal structure and function through predictable stages. Results are predicted in numbers of hours of exercises done and changes in the alignment, mobility, size, tone and strength of the child's body – specifically in the chest, abdomen and the pelvis. **ABR** is more than just a new rehabilitation method; **ABR** is a comprehensive philosophy of the child's recovery. The cornerstones of the **ABR** philosophy are fundamental biomechanical principles of the human body's growth and development. Respectively **ABR** takes bio-electrical and bio-chemical factors into account only through their biomechanical manifestations. This biomechanical approach allows us to have exact guidance for every single movement. Every single **ABR** application to a child's body is precisely calculated and adjusted for each individual patient. **ABR** opens a new dimension in the treatment of the mildest to the most severe motor dysfunctions in the sense that it gradually brings changes to the mechanical and electrical structure of the muscles, thus allowing spontaneous developments of motor function.

- ABR OBJECTIVE Restoration of motor functions in a spontaneous way through the rebuilding of the musculoskeletal structure and the restoration of bio-electrical signals flowing between the muscles and the brain.

ABR's main objective is to restore motor functions in brain injured people. However, **ABR** distinguishes itself from all other approaches, conventional as well as alternative ones, by one critical factor: While all tend to focus on the functional training of a brain injured person - attempting to achieve the optimal function despite the poor structural qualities of the musculoskeletal system - **ABR** asks an altogether different question: *"How to normalize the musculoskeletal system?"* **ABR** is the only approach that does not focus on "managing" the child's limitations. Its aim is "reversing" poor mechanical integration in order to permit spontaneous development of movement. While it is commonly believed that a brain injured person needs specific training of his/her motor function - trying to make "better use" of a structurally deficient musculoskeletal system - **ABR** shows that true biomechanical structural improvement of the musculoskeletal system automatically converts into motor function progress, eliminating any need of specific training to perform motor tasks. Motor function develops as a "spontaneous" result of structural normalization. **ABR** considers that the information necessary for biomechanical rehabilitation is "written" on the musculoskeletal system directly, and therefore the instrumental methods of

diagnostics (MRI, X-rays, EEG, EMG etc.) are only of supplementary value compared with the physical assessment.

ABR CONCEPT **ABR** emphasises 3 essential concepts in describing the functional role of smooth muscles or internal myofascia with respect to the body's biomechanical structure: • **Hydraulic (or hydraulic/pneumatic) skeleton.** This concept highlights the structural roll of the smooth muscles - in comparison to the classical definition of the «hard», bony skeleton as being that which carries the sole responsibility for the body's structure. Smooth muscles and other structures of internal myofascia are the membranes that maintain the shape of the body, with an effect similar to the whitish-coloured membranes within a grapefruit. These tissues envelop and ensheath the major bodily cavities (cranial, thoracic, abdominal etc.), enwrap each of the bodies individual organs (lungs, liver, stomach etc.) and sustain the smallest compartments within each of the bodies system. It is the hydraulic quality of the smooth muscles that administers inner strength and form. The term 'hydraulic skeleton' is used most frequently by **ABR** for convenience.

• A normal "hydraulic skeleton" provides normal alignment of the bony skeleton and normality of skeletal muscles - allowing normal motor function.

• Am abnormal, weakened "hydraulic skeleton" results in the collapse of the musculoskeletal system and impossibility of motor function.

• **Visceral skeleton (visceral core)** is the name used for the observation and discovery that the structures comprising the hydraulic skeleton serve as the body's core and define the mechanical foundation of the internal organs for the body's structure.

• **Hydraulic/pneumatic capacity** characterizes the "strength" and volume of the hydraulic/ pneumatic skeleton and the quality of «hydraulic support» that it gives to the musculoskeletal system. The term ***pneumatic capacity*** summarizes several main characteristics:

• The level of pressure necessary for the development of sufficient internal volumes.

• The size of internal volumes.

• The level of strength of the myofascial membranes that is necessary to achieve the normal internal pressure/volume ratio. This is in turn required to sustain the challenges of gravity and of the external atmospheric pressure.

The objective of **ABR** is to restore proper tone to the smooth muscles/internal myofascia, which in a cascade effect restores proportions and alignment of the skeleton. During this process, the muscle tone is normalized and the arms and legs develop increasing muscle mass, normal

range of mobility, and finally: sufficient strength - so that the children can develop their movements in normal spontaneous ways. All other approaches address the skeletal muscles directly. Nevertheless, such a direct approach proves to give limited results. **ABR** sees the direct approaches as the ones addressing the "tip of the iceberg". The underwater part is the smooth muscles.

What are the smooth muscles?

The smooth muscles are the ones that make up the internal organs, such as the liver, lungs, kidneys, intestines, etc.

Why address the smooth muscles?

ABR considers the smooth muscles as the "primary victims" of the brain injury. As their tone significantly drops, following brain injury, the secondary victims are the structures of musculoskeletal system, which distort as a result causing cerebral palsy as the disorder of posture and movement.

The total surface of the lining of internal organs is enormous in comparison to their respective volumes. For example the total active surface of the lungs is about 900 sq. feet (80 sq.m.) in relation to a volume that is approximately 3 litres. This huge surface is necessary for efficient metabolism. On the other hand, it seals the internal hydraulic volume that composes the walls that hold the shape of the bodily cavities.

ABR recognizes the importance of the strength of this lining made of smooth muscles (internal myofascia) for the proper development of a human body and, particularly of the musculoskeletal system, which is supported by this internal "hydraulic skeleton".

ABR considers the smooth muscles to be the primary victims of a brain injury. As their tone drops following a brain injury, the secondary victims are the structure of the musculo-skeletal system, which in turn collapses - changing the normal alignment of muscles and bones and shifting the distances between points of muscular attachments. Such shift of attachments in turn causes the skeletal muscles imbalance: i.e. spasticity and contractures. Finally, such muscular imbalance makes normal movements impossible. The resulting pathological diagnosis is cerebral palsy, as a disorder of posture and muscle control. *This is why **ABR** proposes a unique technique to administer kinetic input directly to smooth muscles.* **ABR is the first and the only approach that recognizes the fundamental role of smooth muscles in the development of the musculoskeletal system.** Unfortunately, in traditional medicinal practice the internal organs are looked upon only from the viewpoint of chemical metabolism, while, on the other hand, the biomechanical approach does not normally focus on anything

other than the classical skeleton comprised of «muscles and bones». Strengthening of the smooth muscles induces gradual growth of internal pneumatic capacity, which in a cascade effect restores:

- volume, shape and strength of the neck and trunk,
- normal alignment of the joints of the limbs, eliminating spasticity and contractures,
- normal volume and then strength of weakened skeletal muscles, normal alignment of the shoulder girdle and arms as well as pelvis and legs - allowing normal "insertion" of arms and legs and thus making proper movements possible. Moreover, restoration of muscular skeletal structure re-establishes normal metabolism (flow of blood and oxygen supply) of 'defective', atrophied muscles and, in addition, normal electrical ascending activity to the brain, **opening wide the "back door" to function**.

ABR STRATEGY

ABR targets the core structures of human body: the smooth muscles of internal organs. To be precise we target the entire complex of internal myofascia (mucosa, smooth muscles, serosa etc. and their sublevels). that are directly related to the quality of the general metabolism - regulating proper breathing, swallowing, digestion, evacuation, etc. and being responsible for the general health of a child.

That we call the hydraulic skeleton of the human body - providing essential "hydraulic support" to the superficial structures of a "classically" defined musculoskeletal system (muscles, ligaments, bones etc.). **ABR** states that this "hydraulic skeleton" defines the proportions and the alignment of the bony skeleton and the quality of the skeletal muscles

Normalization of the musculoskeletal system must come first.

Nervous activity flowing from the muscular skeletal system «ascending» to the brain plays a vital role in the development of normal signals emanating from the central nervous system «descending» to the musculoskeletal system.

When the musculoskeletal structure is profoundly distorted, any training is narrowed down to quite a limited scope: *"trying to put poor structure to some better functional use".*

Without normalization of the musculoskeletal structure, any functional progress of a brain-injured person would always remain significantly limited and largely unpredictable.

Bio-electrical plasticity of the brain **ABR** shows evidence that irreversibility of initial structural brain damage does not make motor function

recovery intrinsically hopeless. The brain damage is not a critical obstacle for successful biomechanical reconstruction, as long as the musculoskeletal system is addressed in an effective biomechanical manner. There is no critical need to «repair» the brain before initiating the restoration of the biomechanical system. The brain damage is not a critical obstacle for successful bio-mechanical reconstruction as long as the musculoskeletal system is addressed in a bio-mechanical proper way. There is no critical need to "repair" the brain first. **ABR** approach makes restoring the mechanical structure of the musculoskeletal system its first and primary goal. Why? We support the following concept:

Mechanical transformation of the musculoskeletal elements (muscles, joints, etc.) by **ABR** automatically changes the parameters of their electrical charge. This respectively, changes the electrical activity of these elements (for instance, the skeletal muscles) and then translates into a transformation of the ascending signals sent to the brain, which in turn creates an adequate base for forthcoming descending signals to the muscles. **ABR** states that even an injured brain still has enough reserves to rearrange its electrical connections in order to integrate biomechanical structural improvements of the musculoskeletal system, provided that the structural improvements are significant enough. **ABR in a nutshell** Everyone believes that a CP child has poor functions because his/her brain is too damaged to be able to control normal movements. Respectively CP children are considered incurable because the brain damage is irreversible. **ABR** has a different philosophy. We believe that even the badly injured brain has enough electrical plasticity to allow control of normal motor functions, however, for this plasticity to become activated, a child's musculoskeletal structure has to be improved to a sufficient level - to the so-called plasticity threshold. Existing treatment methods fail to achieve recovery of motor functions. This failure is then blamed on the brain damage. We believe that the answer lies differently. Existing treatment methods fail, not because of insufficient «reserves» of the damaged brain, but because they fail to provide sufficient structural improvements to the musculoskeletal system. As a result, the injured brain has "too little of a good musculoskeletal structure to work with" and cannot utilize its remaining plasticity (reserves) for control of motor functions. **Musculoskeletal structure reconstruction must come first! ABR** approach makes restoring the mechanical structure of the musculoskeletal system its first and primary goal: full range of movements (ex.? the head being able to move unrestrictedly in all directions) proper alignment (ex.: legs in respect

to the pelvis; arms in respect to the shoulders, etc.) ,muscular mechanical response (proper muscular balance)

In turn, «quality of mechanical performance» requires «bio-mechanical capacity» of the musculoskeletal system, which implies:

- Proper volume, tone and strength of the skeletal muscles
- Proper volume, mobility and alignment of the joints
- Equilibrium of strength and length between reciprocal muscular groups (ex: biceps, triceps)
- Adequate proportions between size and strength of centre (head, neck, trunk) and periphery (arms and legs)
- Cascade of muscular interactions (centre to periphery)
- **ABR** re-establishes - unit-by-unit - proper skeletal and muscular structure to permit proper unrestricted performance of movement.

ABR METHOD, TECHNIQUE CONCEPT?

ABR technique origins - modelling the respiratory mechanics of a healthy infant.

To a great extent, the **ABR** technique imitates the naturally occurring mode of strengthening of internal respiratory muscles that takes place during the child's first year of life. In the first months of life, prior to the unfolding of the gross-motor development, the child lies primarily on his/her back or stomach - essentially unable to use the arms and legs.

At the same time the infant possesses specific bodily proportions: a large trunk and short limbs; and a specific bodily structure: a soft, pliable skeleton, with a great percentage of cartilage which has not yet undergone the hardening process or full ossification.

Due to these specific proportions, almost the entire bodily weight of an infant is supported by the rib cage alone (without the help of the arms). On the other hand, because of the softness of the skeleton, a significant portion of this required body weight support is provided directly by the internal muscles of the respiratory system, utilising their intrinsic sustaining tension in order to maintain the shape of the body. Because of this substantial underlying tensional force, it is the active breathing that brings the strengthening and effective growth of the respiratory muscles with a much greater efficiency than later in life.

The reasons for this are as follows: First of all, because there is a by far greater involvement of the deep smooth respiratory muscles in the breathing excursions. Later in life the primary role belongs to the superficial

intercostals muscles and the diaphragm. Secondly, because the respiratory muscles then have to work with maximum effort during inhalation in order to expand the chest against this tension and against the body weight. Thirdly - because the deep, smooth, respiratory muscles have to work «full time», including during the exhalation phase, controlling the chest deflation in the so-called eccentric mode. Later in life the exhalation happens as a relatively passive deflation.

- As the child matures, the skeleton - in this case the rib cage - hardens and then the body weight is passively absorbed by the emerging tensile strength or hardness of the ribs themselves. As a result, little to no extra effort is necessary from the side of the smooth respiratory muscles, and therefore the opportunity for their «supercharged» strengthening and growth disappears.

In the first 3-4 months a child executes this breathing against its own weight 24 hours / 7 days a week, but even later - for the next 3-4 months - the infant further spends a good 18-20 hours a day lying down, continually building the respiratory system and the strength of the trunk, that then becomes the «nucleus» of the body's biomechanical structure - its' strongest core. Only when this core has formed properly, the control of the arms and legs becomes possible, and, in addition, we see that a tremendous acceleration in the acquirement of mobility and motor skills occurs from the age of 7-8 months and onwards. Even a rough calculation shows us that the healthy child spends 4-5 thousand hours developing the internal structures (smooth muscles in particular) before gaining strength and stability enough to control the arms and legs.

A brain-injured infant is deprived of this natural advantage. The respiratory muscles are sufficiently weaker than those of a healthy child's and lack sufficient strength to overcome the body's weight in breathing. As a result, the only option left for the CP child is excessive use of the diaphragm, which provides the suction necessary for drawing air into the lungs by bulging downwards into the abdominal cavity and spreading the lower ribs sideways.

This is a so-called «paradoxical» type of breathing, which affects all CP children. As a result the CP child fails to achieve the formation of the strong biomechanical «core» or «nucleus» of the smooth muscles of the thoracic and abdominal cavities, which the healthy child develops via respiration over the first months of life. Without this «core», a CP child is then unable to meet the challenges presented by the growth of the arms and legs, which get proportionally larger and heavier later in life. As the result

the imbalance between the weak trunk and enlarging limbs becomes more and more pronounced as a CP child gets older, eventually leading to a complete distortion of the muscular-skeletal system, resulting in spasticity, rigidity, contractures, etc. This situation increases dramatically as the child gets older.

Unfortunately, this window of opportunity for spontaneous development of proper strength and growth of the smooth muscles of the respiratory system is very narrow - and as the CP child gets older it closes completely. The challenge that led to the development of the **ABR** technique was the re-creation of a similar effect of smooth muscle strengthening which is otherwise naturally present in the healthy child - regardless of the age of or severity of the child's condition. This unusual challenge resulted in the development of an unusual technique.

Essentials of ABR Technique:

- ***The child as passive recipient of the ABR treatment - why the therapist does all the work and not the child himself/herself?*** Smooth muscles are involuntary muscles. This means that they are beyond control of the conscious mind or will, and therefore a child cannot exercise them by his or herself.

In so far as the **ABR** technique is a hands-on application performed by the parent as the therapy provider, the child's body is a recipient of kinetic impact delivered by the application of the hand of the parent (provider). The mode of application causes an automatic reaction from the smooth muscles, gradually building their strength through the absorption of kinetic energy delivered by the parent's compression movement. This is the same way in which the smooth muscles strengthen naturally when the small child breathes against the body's weight.

- ***Towels under the working hand - A soft air cushion as transmitter of the ABR movement*** The **ABR** technique aims at internal layers of myofascia (smooth muscles) rather than the external skeletal muscles. Pressure delivered directly by a bare hand, causes only elastic rebound of external muscles and bones, whereby all the kinetic energy of the movement is «wasted» and lost on the body's surface. The task faced by **ABR** was to find a method of transmitting the external input of kinetic energy to the deeper layers of the body. The solution was found - unexpectedly enough - through the placement of an «air cushion» between the working hand of the therapy provider and the child's body.

At first, this is quite surprising- one expects t he 'air cushion' to reduce the impact as a pillow would, by simply absorbing the kinetic energy of the hand movement. The thicker the pillow, the greater the energy loss would be.

However, the reality is quite the opposite: If such an air cushion is properly shaped (in the lens form) and compression is done very slowly, then this air cushion maintains near constant thickness throughout the movement. The impact of the hand movement reaches the deep internal smooth muscles and all the kinetic energy of a movement works towards their strengthening, instead of being wasted at body's surface.

Everyone who experiences **ABR** Technique is always amazed how the increase and proper build-up of this air cushion actually magnifies the impact very, very clearly.

- ***The optimal shape and density - Pneumatic Lens™*** Nothing can arise out of nowhere. The strengthening of the smooth muscles of internal organs requires a source of energy other than the body's own metabolism. This energy comes in kinetic form from the movement of **ABR** therapist's hand. But how do we «trap» this kinetic energy, and how do we have it delivered to the deep internal structures of the body ensuring that it is absorbed there in the form of new biochemical bonds in the tissues? - This is the essence of **ABR** Technique.

The shape, form and density of the build-up of **ABR** air-cushion each has an effect upon the ability of the air-cushion to transmit the kinetic energy from the moving hand of **ABR** therapist to the target of the smooth muscles in the underlying compartments of the body's volume.

After experimenting with a variety of sponge- and foam-like materials to build an air cushion between the hand and the body the surprising «optimal material» was discovered: towels.

Optimal magnification of kinetic input of a working hand was found to be obtainable through constructing a dome shape out of thick, soft towels. This dome shaped towel build-up - which is most recently being supplemented with quilting lining material - is called by the **ABR** therapy the «Pneumatic Lens™». The towels allow for endless adjustments in constructing an air cushion in a variety of thicknesses and shapes, corresponding to the individual child's body and to the area of application.

Just as an architectonically designed dome shape of acoustic speakers minimizes the «waste» of sound and projects it, so does our pneumatic lens

magnify the movement of the hand from the apex or top of the dome-shaped towel construction to the target - here being the underlying bodily volumes.

- ***The optimal movement - quasi-static - why the hand of ABR therapist does not seem to be moving?*** Equally important to the shape and density of the air cushion, is the quality of the applied movement. If the movement of the hand is too fast, the hand sinks through the towels and the air cushion thus reacts as an ordinary pillow would, absorbing the impact and not creating a Pneumatic Lens^{TM} effect.

Here we arrive at the second essential feature of the **ABR** technique, which is the «quasi-static movement». The quasi-static movement is a movement so smooth and slow, that it has almost no acceleration. The movement begins at an indiscernible speed and proceeds in that mode. (A superficial observer might conclude that the hand is still.) This ensures that the towels themselves are not compressed, but that the «lens» moves as one entire volume - complete with the air in the towels - achieving thereby the desired effect of transmission of movement simultaneously to greater internal bodily volumes.

WHO ARE ABR PATIENTS?

The largest patient group currently being treated with the **ABR** method consists of children with cerebral palsy or other birth (brain injury) related illnesses. In addition children and adults are being treated for a large variety of severe chronic disorders, for example: Down's Syndrome; Rett Syndrome; Spinal Injuries; Micropcephalis, Premature babies; Hyperactivity; Developmental disorders .

Children and adults with milder disorders also have the possibility of being treated with **ABR**.

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BIOLOGICAL CHANGES OF STRENGTH AND SPEED IN RUGBY DEPENDING ON TRAINING PROGRAM

CHIHAIA OCTAVIAN[1], POP SERGIU

ABSTRACT. This approach endeavors to observe the biological changes of strength and speed in rugby performance following training workouts. The experiment was conducted between July 10 2007 and June 20 2009 on the forwards of the "U Cluj-Napoca" rugby team who took part in the following tests: Ruffier (to assess general physical capacity), fat tissue values, Quetelet index (to assess the physical development and the values of the active mass and body weight.). As the results of the eight tests show, the values of the test samples under experimental approach were positive, despite the small changes that took place during the transition period.

Key words: rugby, tests, analysis of variant, strength and speed, changes.

REZUMAT. Modificările biologice ale forței şi vitezei în rugby în funcție de programul de pregătire. Întregul demers este de a observa modificările biologice ale forței şi vitezei în rugby-ul de performanță în urma antrenamentelor de pregătire. Experimentul s-a desfăşurat în perioada 10 iulie 2007-20 iunie 2009 cu jucătorii înaintaşi componenți ai echipei divizionare "U" Cluj-Napoca, care au fost supuşi următoarelor teste: Ruffier (pentru evaluarea capacității fizice generale), valorile tesutului adipos, indicele Quetelet care evaluează dezvoltarea fizică şi valorile masei active precum şi greutatea corporală. În urma celor opt testări valorile eşantionului supus demersului experimental au fost pozitive, mici modificări având loc în perioada de tranziție.

Cuvinte cheie: rugby, teste, analiză de varianță, forță şi viteză, modificări.

The **purpose** of the whole theoretical approach method is to create conditions for improving sports benefits for the rugby players of the "U" Cluj Napoca team, namely the strength and speed development.

[1] Facultatea de Educație Fizică şi Sport, Universitatea "Babeş-Bolyai" Cluj-Napoca, e-mail: tavichihaia@yahoo.com

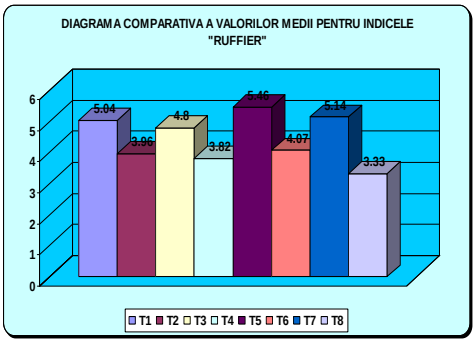
Hypothesis: finding out whether the planning and scheduling of training for players produces biological changes during all periods of training.

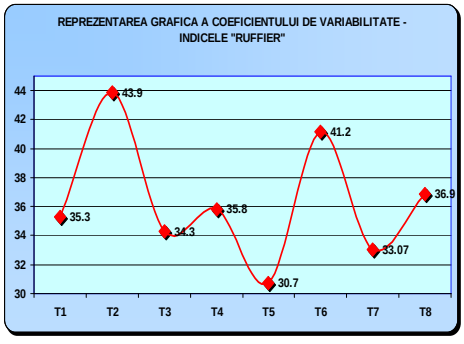
The **experimental research** was conducted between July 10 2007 and June 20 2009 and was comprised of two annual macrocycles: two national championships - the First Division first leg (autumn) and second leg(spring).

(T_1)-10-16 July 2007
(PP_1)-17 July-2 September 2007
(T_2)-September -7 September 2007
(T_3)-6-10 January 2008
(PP_2) 11 January -12 March 2008
(T_4)- 13-17 March 2008
(T_5)-10-16 July 2008
(PP_1) 17 July-2 September 2008
(T_6)-3 September-7 September 2008
(T_7)-6-10 January 2009
(PP_2) 11 January -12 March 2009
(T_8)-13-17 March 2009

Data collection was made by means of the analytical method, the coefficient of variance and analysis of variance (ANOVA)

THE RUFFIER TEST





The Ruffier tests the ability to appreciate the effort. By applying the specific formula, we obtained a value that can be converted into assessments, as specified in the subsection "evidence and tests applied".

Conclusions:

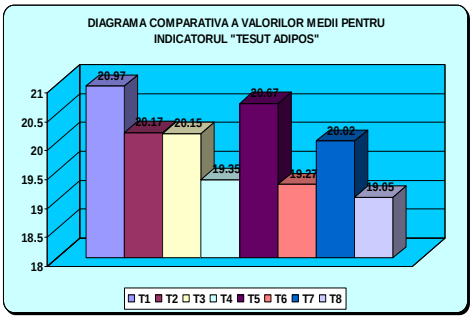
- arithmetic average of "Ruffier score" varied throughout the approach, between the values of 5.46 in T5 and 4.07 in T6. According to these values, we have assessed the effort capacity as "average" and "good".

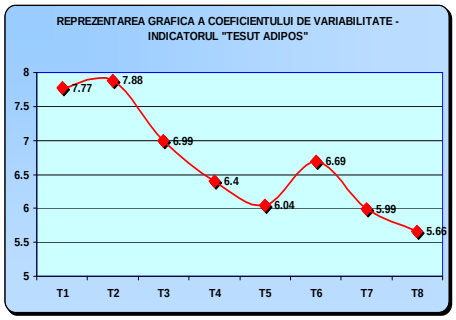
So the subjects of the study have evolved from an average effort capacity (in T1), to a good effort capacity (in T8).

- The variability coefficient has values between 30.7% and 43.9% indicating a scattering phenomenon; the most obvious state of dispersion was noticed in T1, T4, T6 and T8.
- The analysis of variance (ANOVA) statistically reveals significant differences between tests except T4 and T8. We note that the subjects have progressed between tests, each at a particular rate, which led to a positive assessment of the capacity effort.

On the whole, if non-homogeneous, the sample under the experimental approach showed values ranging from "average" to "good".

THE FAT TISSUE



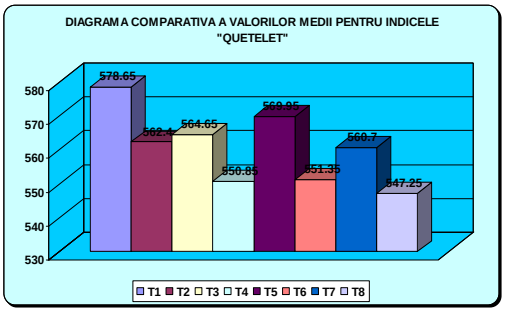


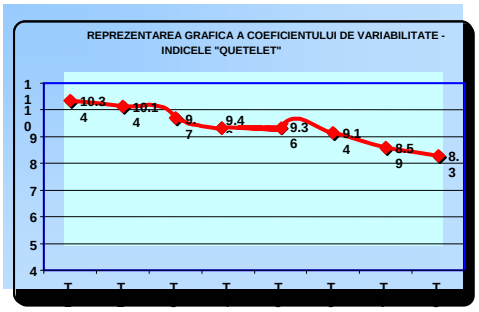
The **values** of body fat, a structure that is part (along with active mass) of body composition, were statistically processed, yielding the following:

- The arithmetic mean values, in the eight tests, decreased in the first year of training; the value T1 = 20.97%, thickness of body fat, reached T4, 19.35%. This reinforces the facts already reported previously, referring to active muscle mass increase, with decreased body fat. As regards the second year, the average development also indicates low fat envelopes, despite a test (T7) showing significantly higher percentage of body fat, but statistically insignificant.
- The variability coefficient shows values that indicate the homogeneity of the sample studied, almost throughout the entire period of training, ranging from 7.77% (T1) to 5.66% (T8).
- The analysis of variance (ANOVA) reveals statistically significant differences, despite one, and understandable exception, namely between T4 and T8.

All in all, the fact that the average values of the indicator "fat" decreased significantly during the two-year preparation.

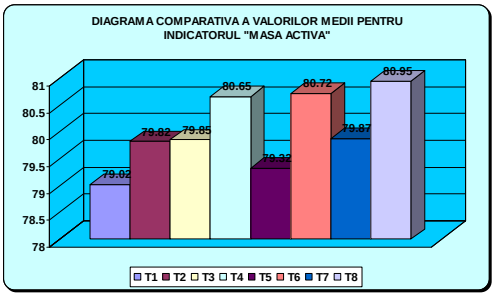
THE QUETELET INDEX

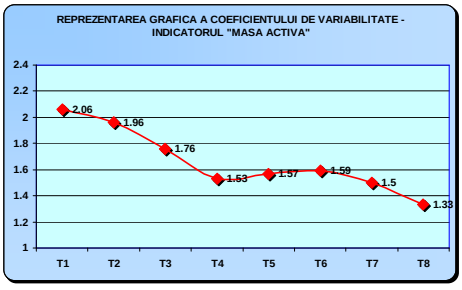




- The arithmetic means was varied slightly between 578.65 g/cm and 547.25g/cm, with very small changes from the beginning to the end of the experiment.
- The variability coefficient varies slightly in the eight series of tests, but overall the values are situated between 10.34% and 9.14%, thus certifies the homogeneity of the group throughout the experimental approach.
- The analysis of variance (ANOVA) indicates that there are statistically insignificant differences.

THE ACTIVE MASS INDEX

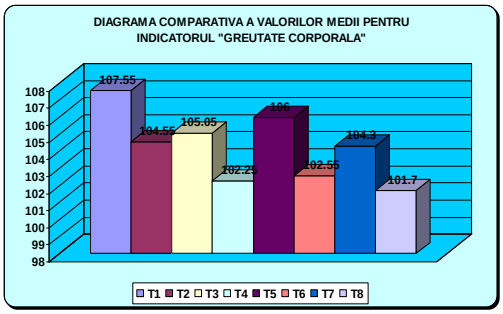


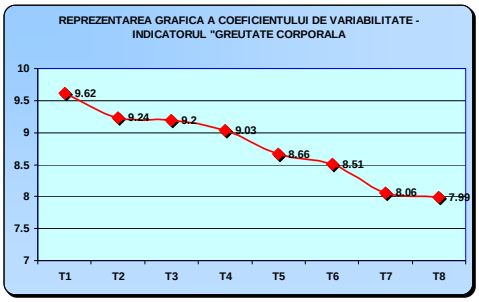


- The medium values gradually increase from the first to the last test each year (from 79.02 to 80.65% and 79.32 to 80.95%).

- The coefficient of variability presents values decreasing progressively, from the first test (2.06%) to the last test (1.33%), which shows increasing homogeneity in the group studied.
- The analysis of variance (ANOVA) shows that there are statistically significant differences, throughout the experimental approach, apart from one exception, noted between tests T4 and T8; that is explained by the fact that subjects were substantially equal in terms of "active mass" with slight increase (insignificant) before the second leg of the second year competition.

THE BODY WEIGHT





The average values vary between 107.55 kilograms (T1) and 101.10 kilograms (T8), according to the position and job requirements;

- The coefficient of variability for all tests has a value below 10%, thus proving the homogeneity of the sample.
- The analysis of variance (ANOVA) shows no significant differences in body weight throughout the experimental approach.

Small changes are observed between test 1 and 4, between 5 and 8 and almost significant between test 1 and 8. This is explained by the weight put on during transition periods when the sportsman is not subjected to a rigorous and supervised training.

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STREAMLINING TRAINING TO IMPROVE SPEED TO SPORTS CLUBS, SCHOOL-LEVEL TRAINING STAGE II-JUN. III ATHLETICS

MONEA DAN[1], BONDOC IONESCU DRAGOS[2], MONEA GHEORGHE[1], BONDOC-IONESCU ALEXANDRU

ABSTRACT. The theme chosen aims to explore the most effective exercises and methodical processes of development speed, and if they will prove their effectiveness can be the source of material composition information specialist technicians. By choosing the theme "Efficient training to improve speed to sports clubs, school-level training stage II-jun. III athletics, "he tried to deepen knowledge in the field and verify the correctness and effectiveness of methods, such as training plans used to date. It presents the views of specialists known, with reference to the role of specific means for improving speed in the training stage II-III junior. Thus, G. Schmolinsky states: "The speed, the principle of a systematic effort not develops only execution of exercises is produced with maximum speed and under a rested nervous system. In the same vein, D. Harri stated: "because of the speed excitations are most effective when the nervous system are able to optimum excitability, training the rate must not precede it any other strenuous activity.

Keywords: speed, complex formative stage II training, junior III control sample.

REZUMAT. **Eficientizarea pregatirii pentru ameliorarea vitezei la nivelul cluburilor sportive şcolare-stadiul II de pregatire-jun. III atletism.** Tema aleasă îşi propune să studieze cele mai eficiente execiţii şi procedee metodice de dezvoltare a vitezei, iar daca acestea îşi vor dovedi eficienţa să poată constitui sursa alcătuirii unui material pentru informarea tehnicienilor de specialitate. Alegând tema “Eficientizarea pregatirii pentru ameliorarea vitezei la nivelul cluburilor sportive şcolare-stadiul II de pregatire-jun. III atletism”, s-a încercat să aprofundeze cunoştinţele in domeniu şi să se verifice justeţea şi eficacitatea metodelor, precum a planurilor de antrenament folosite până la această dată .

Cuvinte cheie: viteza maxima, complex formativ, stadiul II de antrenament, juniori III, probe de control.

[1] Univ. Babes-Bolyai, Cluj-Napoca
[2] Univ. Transilvania Brasov

There are concerns and to develop advanced training that affect the development of many forms of manifestation of speed. We present such a complex formative applicable in school physical education lesson with some adjustments, useful for the development of running speed:

a) "to prepare the signal" - running light at maximum speed beep 6 running steps;

b) Continue effort "- running the 40 meters with 2-3 sequences per 3.4 speed steps;

c) "Options" - running with controllable speed, intensity 90-95%, the distance of 20-40 m.

d) "Maximum" - running with maximum speed over distances of 20-40 m; e) "Running the same tempo" - constantly running on 60-80 meters, tempo submaximal; f) "enhanced Running" - running the distance of 60-80 m accelerată;

g) "Running constant" - the maximum speed of 20-40 m. Preparedness planning. Key indicators. Structure of the yearly cycle of training in athletes jun III, is determined by the structure of the school year. Preparation begins in September and a recommendation is strictly necessary to use intensive winter and spring holidays.

Dividing the annual training in three basic periods (preparatory, competitive, and transition) can not find the reason because at this age current contest is a training tool and should not be "ready" in time.

The competitions take place throughout the year (in room or outdoor), except during summer vacation.

Weekly training cycles consist of 3-4 training classes. Duration of training lesson should not exceed half past one.

Experiment data held in the study group

The study was made during the 2008-2009 competitive year in preparation for competitions and outdoor room.

The study was conducted on two groups - girls and boys. - Aged 14-15 years in the athletics department of LPS Brasov.

Study subjects were switched in the following tables:

GR. 1 STUDIU

Nr.crt.	Subiectul	Data naşterii	Şcoala
1	C. M.	1994	L.P.S. BV
2	M. A.	1993	L.P.S. BV
3	G. A.	1994	L.P.S. BV
4	S. M.	1994	L.P.S. BV
5	I. L.	1994	L.P.S. BV
6	S. R.	1993	L.P.S. BV

GR.2 STUDIU (GR.MARTOR)

Nr.crt.	Subiectul	Data naşterii	Şcoala
1	C. C.	1990	L.P.S. BV
2	M. E.	1990	L.P.S. BV
3	M. I.	1990	L.P.S. BV
4	R. G.	1994	L.P.S. BV
5	N. L.	1993	L.P.S. BV
6	D. A.	1993	L.P.S. BV

CONTROL RESULTS

1. Running speed 50m SP
2. Jump from place
3. Throwing balls away Oina
4. 20m Running speed. SL
5. Running 300m. SP
6. 20 PS
7. Trunk lifting of "lying" in sitting (abdomen) 30
8. 600m
9. Of facial bed support arms. Bending and extent of successive arms elements).

RESULTS RECORDED IN CONTROL SAMPLES AND THEIR INTERPRETATION

GR. 1 E Grupă studiu Probe 1-4

Nr.crt	Subiectul	1	2	3	4
		50m SP	LFE	OINĂ	600m
1	C.M.	5"86	2,50	37	1'42"20
2	M.A.	6"20	2,30	36	1'45"30
3	G.A.	6"94	2,10	29	1'48"20
4	S.M.	7"00	2,01	32	1'49"30
5	I.L.	7"12	2,10	34	1'53"30
6	S.R.	6"90	2,08	36	1'48"40
TOTAL		39"12	13,13	204	10'47"70
MEDIA		6"52	2,19	34	1'47"78

GR.2 M Grupa martor Probe 1-4

Nr.crt	Subiectul	1	2	3	4
		50m SP	LFE	OINĂ	600m
1	C.C	6"20	2,20	35	1'46"50
2	M.I.	6"30	2,10	34	1'48"60
3	M.E.	7"12	2,00	27	1'55"
4	R.G	7"30	1,93	28	1'57"50
5	N.L	7"35	1,96	27	1'53"
6	D.A	7"40	2,00	27	1'57"50
TOTAL		41"67	12,19	178	11'20"10
MEDIA		6"95	2,03	29,6	1'53"35

GR.1 Grupa studiu Proba 5-9

Nr.crt	Subiectul	1	2	3	4	5
		20m SP	300M	20PS	ABD 30"	Flotări
1	C.M.	1"95	37"70	48	32	25
2	M.A.	2"15	41"50	46	30	20
3	G.A.	2"25	45"50	43	29	12
4	S.M.	2"35	46"50	43	29	12
5	I.L.	2"30	44"50	44	28	14
6	S.R.	2"20	43"50	44	28	14
TOTAL		13"20	259"20	268	174	95
MEDIA		2"20	43"20	44,66	29	15,83

GR.2 M Grupa martor Probe 5-9

Nr.crt	Subiectul	1	2	3	4	5
		20m SP	300M	20PS	ABD 30"	Flotări
1	C.C.	2"10	42"50	44	30	22
2	M.I.	2"15	44"50	43	29	20
3	M.E.	2"30	47"20	40	26	10
4	R.G.	2"35	48"30	40	26	10
5	N.L.	2"40	47"50	42	26	10
6	D.A.	2"40	47"20	40	26	10
TOTAL		13"70	277"20	249	163	82
MEDIA		2"283	46"20	41,5	27,16	13,66

COEFICIENT DE VARIABILITATE

Teste efectuate	C.V. %	Grad de omogenitate la Gr.Exp.	C.V. %	Grad de omogenitate la Gr.M
50m. SP	4,60	Mare	4,86	Mare
LFE	5,1	Mare	6,25	Mare
Oină	5,25	Mare	7,20	Mare
600m.	4,32	Mare	6,27	Mare
20m. ASL	2,95	Mare	3,30	Mare
300m. ASP	5,72	Mare	7,30	Mare
20 PS	3,36	Mare	4,86	Mare
Abd 30"	4,65	Mare	5,30	Mare
Flotări	6,30	Mare	7,25	Mare

We can observe a high degree of homogeneity in both groups, but with higher values in the experimental group, which shows that athletes in this group may engage in athletic performance with superior results.

INTERPRETATION OF RESULTS

Comparing the results between the two groups (experimental group and control group) highlighted the following results: - The test of 50m. Gr.Exp media. is 6 "52 to 6" 95 Gr.M. - To jump from the average is 2.19 m Gr.Exp place. to 2.03 m. Gr.M. throwing balls Oina Gr.Exp distance. has an average of 34m to Gr.M. which has an average of 29.6 m. - 600m Gr.Exp sample. has an average of 1 '47 "78 to Gr.M. whose value is 1'53 '35.

The values are listed in Tables 1 and 2 samples 1 -4.

It states that the two groups (experimental and control) are mixed (girls and boys), players born in years 1993 to 1994, corresponding to the junior class III, the first year and final year of Stage II training.

Next I present the average between the two groups for samples 5 to 9, in Tables 3 and 4. - Sample of 20m. SL, has the following average Gr.Exp. 2 "20 and Gr.M. 2 '28. - To test the 300m. recorded in Gr.Exp. an average of 43 "20 and Gr.M has an average 46 '20. - 20 step test jumped Gr.Exp. recorded an average of 44.66 m from Gr.M. which has an average of 41.5 m. - The evidence of the abdomen and push-ups, there were the following results: Gr.Exp. has an average of 29 repetitions, from 27.16 to Gr.M., push-ups and the average is 15.83 to Gr.Exp. to 13.66 Gr.M.

The last two samples of 5.9 are those with sensitive values close between the two groups, significant differences are recorded in the following samples (50m., SL 20m, 300m., 20 step jump, long without enthusiasm, 600m., Throwing balls Oina distance) which proves the effectiveness of exercises to develop speed.

DYNAMICS OF RESULTS IN COMPETITIONS IN THEGROUPING OF EXPERIMENT

Efficacy exercises used to develop speed were found in subjects of experimental group from the results in both competitions in the hall and outdoor in 2002 and 2003.

Example 1: Subject C.M. - Competition hall: 60m., 200m.

Subiectul	Proba	Rezultate		
C.M.	60m	7``56	7``43	7``36
C.M	200m	24``60	24``22	24``38

Subject: CM-air competitions: 100m, 200m, 300m

Example 2: Girls - competition hall - 60 m, 200m

Subiectul	Proba	Rezultate		
G.A.	60m	8``56	8``43	8``27
G.A.	200m	28``60	28``10	27``90

I.L.	60m	8``77	8``65	8``30
I.L.	200m	28``80	28``45	28``30
S.M	60m	8``83	8``68	8``40
S.M	200m	28``90	28``60	28``45

Subiectul I.L. – competiție în aer liber: 300m

Subiectul	Proba	Rezultate	
I.L.	300m	44``20	43``80

It mentions that girls who are first year juniors III, were ranked the top 12 places in the national junior championship final III In conclusion:

♦ Experimental results have revealed, first, that the development of quality drivers - speed is an important contribution to the establishment and development of other motor qualities, which shows the results obtained from control samples as well as learning new techniques.

♦ The results of the tests applied were far superior, reaching the conclusion that the development of quality driving - speeding, designed and conducted with exemplary continuity throughout the training course, means efficient, ie higher anthropometric indices, functional and driving.

♦ The speed can be developed in all lessons, in all seasons, regardless of the material, having as a prerequisite for its development in tempo maximal complete recovery.

♦ Using more races, relay and games, except that they are more affordable, create a feeling of emulation, develop coordination Sensors - driving and coordinating the overall motive.

♦ Drive systems used in this experiment significantly favored the development of quality drivers - speed. Therefore, we can say that for schools with curriculum sport athletics program can be improved by introducing other modern and effective exercises.

♦ The experiment proved that, at the age of 14 to 15 years, boys and girls can improve speed, confirming the hypothesis of the paper.

♦ It is recommended to maintain a versatile training at the age of 14 to 15 years without a specialization too early on a single sample.

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IMPLEMENTATION PROJECT OF PHYSICAL EDUCATION TO PRESCHOOL EDUCATIONAL LEVEL

PRODEA COSMIN[1], VĂIDĂHĂZAN REMUS-CRISTIAN[1], RADU ANCA[2], POP NELU IOAN[3]

ABSTRACT. The new curriculum for early education of children aged between birth and 6/7 years, appeared in 2008, promotes a strategy for early child development conducted in cooperation with representative of UNICEF in Romania. Physical education is found in all areas of development promoted by this strategy. The idea to implement physical activity in kindergartens was triggered by the emergence of new curricula that promote the formation of multiple intelligences in children and the desire to equip students of specific faculties with specific skills for the children aged between 2 and 6 years. Within this project, started by 9th of November, physical education activities are held at four locations in Kindergarten "Aşchiuţă", all located in Cluj-Napoca: 2-4 Pascaly Street, 55 Fabricii Street, 9 Nirajului Street and 26 Jiului Street. Physical education program was included in the daily program of children, being allocated between 30 and 45 minutes for each group (depending on their age), with a frequency of one lesson per week. The content of physical education activities was planned for the first week by dynamic games. It was intended by this content to accommodate students with specific groups of children, and, also, the children and students. We intend to build a battery of tests that will be tailored to age of children involved in physical education activities and we want to realize periodic testing for the next period of time.

Key words: physical education, preschool, kindergarten, implementation, early education, physical activity

REZUMAT. Proiect de implementare a educaţiei fizice la preşcolari. Noul Curriculum pentru educaţia timpurie a copiilor cu vârsta cuprinsă între naştere şi 6/7 ani, apărut în 2008, promovează o strategie pentru dezvoltarea timpurie a copilului realizată în colaborare cu reprezentanţa UNICEF din România. În cadrul acestei strategii pentru educaţie timpurie educaţia fizică se regăseşte în toate domeniile de dezvoltare promovate,

[1] Cluj-Napoca, "Babeş-Bolyai" University, Faculty of Psychology and Science of Education, E-mail: prodeacosmin@yahoo.com
[2] Cluj-Napoca, "Aşchiuţă" Kindergarten
[3] Cluj-Napoca, "Babeş-Bolyai" University, Faculty of Physical Education and Sport

fiind vizată ca arie curriculară în cadrul noului curriculum.Ideea pentru implementarea activității fizice la grădinițe a fost declanşată de apariția noului curriculum care promovează formarea inteligențelor multiple la copii şi dorința de a-i înzestra pe studenții facultății de profil cu competențe specifice segmentului de vârstă 2-6 ani. Activitățile de educație fizică se desfăşoară la cele patru locații ale Grădiniței „Aşchiuță", toate situate în Cluj-Napoca: str. Pascaly 2-4, str. Fabricii 55, str. Nirajului 9 şi str. Jiului 26. Programul de educație fizică a fost inclus în programul zilnic al copiilor, fiindu-le alocate între 30 şi 45 de minute pentru fiecare grupă (în funcție de vârsta acestora), cu o frecvență de o lecție pe săptămână. Conținutul activităților de educație fizică a fost planificat pentru primele săptămâni din jocuri de mişcare. S-a urmărit, astfel, un conținut care să permit acomodarea studenților cu specificul grupelor de copii, dar şi a copiilor cu studenții. Ne propunem în continuare construirea unei baterii de teste care va fi adaptată vârstei copiilor implicați în activitățile de educație fizică şi testarea periodică a acestora.

Cuvinte cheie: educație fizică, preşcolari, grădiniță, implementare, educație timpurie, activitate fizică

The idea to implement physical activity was triggered by the emergence of new curricula that promote the formation of multiple intelligences in children and the desire to equip the students from The Faculty of Physical Education and Sport with specific skills for a better practice of physical education to children between 3 and 6 years.

The new curriculum for early education of children aged between birth and 6/7 years, appeared in 2008, promotes a strategy for early child development conducted in cooperation with representative of UNICEF in Romania. Physical education is found in all areas of development promoted by this strategy.

We present below the areas of development with the framework and the objectives of reference which are linked by the new curricula with physical education (taken from the curriculum in force, for the period 3-6/7 years, M.E.C.T. – The Ministry of Education, Culture and Tourism, 2008, p. 45 - 62). We want to point out that there are subdomains of this curriculum in which physical education is not related with the objectives imposed although they can be achieved by physical education (we'll return to this discussion in subsequent articles).

A. Domain - PHYSICAL DEVELOPMENT, HEALTH AND PERSONAL HYGIENE

Framework objective 1: Development of large muscle coordination of the body in order to move free (rough motility)

Reference's objectives - The child will be able:

1. To perform basic motor skills: walking, running, jumping, climbing
2. To climb and descend stairs with alternating feet
3. To represent their body schema
4. To move the body and various body parts in isolation or in coordination

Framework objective 2: Developing the ability to use hands and fingers for different purposes (fine motility)

Reference's objectives - The child will be able:

1. To handle small objects easily
2. To copy geometric designs or various other forms (objects, beings, letters)
3. To use different materials to paint, design or mould
4. To write letters and numbers

Framework objective 3: Developing the ability to properly use the senses (sight, hearing, smell, etc.) to interact with the environment

Reference's objectives - The child will be able:

1. To react physically, properly, according to environmental stimuli
2. To demonstrate a good eye-hand coordination
3. To be aware of his/her senses while performing physical acts

Framework objective 4: Stimulating interest to participate in various physical activities in order to maintain health and harmonious physical development

Reference's objectives - The child will be able:

1. To participate in various physical activities: running, climbing, throwing, rolling, dancing, age-appropriate sports, etc.
2. To practice basic skills in order to improve qualities such as: speed, coordination, stamina, strength (depending on personal physical ability)
3. To participate in domestic activities involving movement (arrangement of toys, gathering laundry, moving objects, etc.).

Framework objective 5: Developing the ability to use a healthy eating range

Reference's objectives - The child will be able:

1. To choose, with adult foods that are considered healthy
2. To correctly assess their portion of food
3. To explain the functions of beneficial/harmful of certain foods for human beings

Framework objective 6: Developing skills for keeping health and personal hygiene

Reference's objectives - The child will be able:

1. To demonstrate independence in personal hygiene

Framework objective 7: Developing skills of protection from dangerous objects and situations

Reference's objectives - The child will be able:

1. To understand the difference between safe and dangerous touch
2. To recognize symbols indicating danger and to avoid
3. To identify adults who may be useful in dangerous situations

Framework objective 8: Developing the capacity to become aware and understand the rules of personal security

Reference's objectives - The child will be able:

1. Respect the rules of behavior on the streets, public transport and other public spaces
2. To understand and anticipate the consequences of not respecting the rules
3. To cross the street safely

B. Domain - SOCIO-EMOTIONAL DEVELOPMENT

B1. Subdomain - Psychosocial development

Framework objective 1: Developing the ability to interact with known adults

Reference's objectives - The child will be able:

1. To separate easily by known adults when this is a normal situation (when he/her goes to kindergarten, when they go to a school camp, when parents are missing with a motive for a given period, etc.).
2. To express affection to adults that they are used with
3. To respond to the formulas of greeting used by adults
4. To interact easily with familiar adults in the community
5. To show confidence and positive relationships with known adults
6. To ask for help to an adult when needed

Framework objective 4: Developing the ability to follow the rules and understand their effects

Reference's objectives - The child will be able:
1. To have the initiative to follow simple rules
2. To wait for his/her turn in different situations
3. To be able to use the game to explore, practice and understand the social roles
4. To anticipate what follows in the daily program
5. To adapt their behavior according to situational rules
6. To participate in group activities organized by adults

Framework objective 6: Developing the ability to cooperate with other

Reference's objectives - The child will be able:
1. To join a group of children performing a play or learning activity
2. To comply with group decision
3. To help volunteer someone
4. To finalize a task that contributes for achieving a common goal

C. Domain - DEVELOPMENT OF LANGUAGE, COMMUNICATION AND BASES OF READ-WRITE

C.1. Subdomain - Language and communication development

Framework objective 1: Developing the ability to listen in order to understand

Reference's objectives - The child will be able:
1. To demonstrate understanding of common vocabulary by responding adequate
2. To acquire information by listening carefully to the message
3. To listen stories told or recorded on different magnetic

4. To participate actively in a group discussion, listening and intervening in conversation

Framework objective 2: Developing the ability to understand the meaning of spoken language

Reference's objectives - The child will be able:

1. To demonstrate a high degree of understanding and participation in conversations
2. To demonstrate understanding of a simple sequence of instructions and to apply them
3. To answer questions using verbal language
4. To tell a story or an event known respecting the sequence of events

Framework objective 3: Developing the ability to communicate effectively

Reference's objectives - The child will be able:

1. To report occurrences of daily experience
2. To respond with explanations to the question "Why?"
3. To use developed sentences to communicate needs, ideas, actions, feelings
4. To send a message correctly
5. To express an idea through many ways
6. To ask questions for clarify information received and to answer questions

Framework objective 4: Developing the ability to express themselves grammatically correct

Reference's objectives - The child will be able:

1. To use the plural correctly and consistently in normal speech
2. To use properly the personal pronoun
3. To use adverbs of time
4. To use developed sentences to describe actions, current events, people, places
5. To use prepositions in everyday language
6. To use speech gender agreement, number, person, time

Framework objective 5: Developing the ability to progressively expand vocabulary

Reference's objectives - The child will be able:

1. To use frequently the questions “Why?, Where?, When?”
2. To use keywords to assess the actions or situations
3. To use a wide range of words and phrases to express feelings and emotions of self and others
4. To use gradually synonyms, antonyms, homonyms
5. To designate objects which are not in sight
6. To use new words in speech, verbal creations built by them

D. Domain - COGNITIVE DEVELOPMENT AND KNOWLEDGE OF THE WORLD

Framework objective 2: Developing the ability to observe, compare and evaluate experiences, actions, events

Reference’s objectives - The child will be able:

1. To demonstrate understanding of concepts "just" and "different"
2. To group the objects by at least one feature
3. To use words that indicate a comparison
4. To identify features by which comparisons can be made (size, shape, color, etc.)

Framework objective 4: Developing the ability to find multiple answers / solutions to questions, situations, problems and challenges

Reference’s objectives - The child will be able:

1. To try different ways of solving a problem and choose one of them
2. To change the solution to a problem when a new item occurs, if necessary
3. To work in groups to solve a problem, using strategies developed by the group

Framework objective 12: Developing the ability to observe and describe characteristics of Earth and Cosmos

Reference’s objectives - The child will be able:

1. To describe characteristics of the environment
2. To describe the importance of water, air for life and the importance of ways to prevent the pollution
3. To observe the movement of heavenly bodies (sun, moon)
4. To use correct units for the moments of the day, days of the week, season

5. To describe the characteristics of the seasons
6. To identify and distinguish landforms, types of water
7. To know and use correct days of the week in succession, to know the months of the year

E. Domain - CAPACITY AND ATTITUDES OF LEARNING

Framework objective 1: Development of interest and curiosity towards new things

Reference's objectives - The child will be able:
1. To address questions in order to learn new things
2. To experience new materials and new combinations of materials
3. To frequently make the question "Why?" to understand the world around
4. To outline areas of interest
5. To seek new related information related with interested areas

Framework objective 2: Development initiative in interactions and activities

Reference's objectives - The child will be able:
1. To find and use materials to implement an idea
2. To select an activity appropriate to his/hers interests
3. To initiate games and activities with others, children and adults

Framework objective 3: Developing the ability to continue achieving a task, even if difficult

Reference's objectives - The child will be able:
1. To focus on tasks that are interesting for him/her
2. To persist in carrying a task even if failed
3. To plan an activity of 3-4 steps and to achieve
4. To work on a task in different time periods

The present project, actually launched on 9th of November, 2009, is achieved through the participation of students from the Faculty of Physical Education and Sport of the Babeş-Bolyai University, Cluj-Napoca, coordinated by Lecturer Prodea Cosmin Ph.D. and Assistent Văidăhăzan

Remus in collaboration with Mrs. Anca Radu (manager of the Kindergarten "Aşchiuţă" from Cluj-Napoca).

The activities are held at four locations in Kindergarten "Aşchiuţă", all located in Cluj-Napoca: 2-4 Pascaly Street, 55 Fabricii Street, 9 Nirajului Street and 26 Jiului Street.

Physical education program was included in the daily program of children, being allocated between 30 and 45 minutes for each group (depending on their age), with a frequency of one lesson per week.

This project has been given the status of voluntary activity. So, we promoted the idea of the specific activity to students from Faculty of Physical Education and Sport.

The following week we assigned students to form teams of two persons for each group or subgroup of children.

The target group of this project is the children from Kindergarten "Aşchiuţă", aged between two and seven years.

We present now the structure of the groups from Kindergarten "Aşchiuţă".

Location: 2-4 Pascaly Street

CODE	AGE	No. of CHILDREN (max.)	POSSIBLE HOURS	DAY / HOUR ASSIGNED
gr. zero	2-3	12	Tu, We, Fr / 9.30-11.30 Mo-Fr / 15.30-17	Wednesday 9.30-10.15
gr. small	3-4	15		Friday 9.30-10.15
gr. middle	4-5	15		Friday 10.15-11.00
gr. big	5-7	20	Mo, We, Fr / 9.30-11.30 Mo-Fr / 15.30-17	Wednesday 9.30-10.15
gr. Hungarian	3-7	20	Tu, We, Fr / 9.30-11.30 Mo-Fr / 15.30-17	Friday 9.30-10.15

Location: 55 Fabricii Street

CODE	AGE	No. of CHILDREN (max.)	POSSIBLE HOURS	DAY / HOUR ASSIGNED
gr. Romanian	3-7	30	Mo-Fr 9.30-12 15.30-17	Friday 11.00-11.45
gr. Hungarian	3-7	30		Friday 15.30-16.15

Location: 9 Nirajului Street

CODE	AGE	No. of CHILDREN (max.)	POSSIBLE HOURS	DAY / HOUR ASSIGNED
gr. middle	4-5	20	Mo-Th 9-11.30 15.30-17	Wednesday 9-9.45
gr. big	5-6	20		Thursday 10-10.45
gr. preparatory	7	20		Thursday 10.45-11.30

Location: 26 Jiului Street

CODE	AGE	No. of CHILDREN (max.)	POSSIBLE HOURS	DAY / HOUR ASSIGNED
gr. small	3	10	Mo-Th 8.30-10 10.30-12	Monday 8.30-9.15
gr. middle	4-5	15		Wednesday 9-9.45
gr. big	6-7	15		Wednesday 9-9.45

The content of physical education activities was planned for the first week by games. It was intended, by the content planned, to help the students to accommodate with specific groups of children, and also to help children to accommodate with students.

We conducted a seminar with students involved in this project, asking them to respect the physical education lesson structure imposed by special didactic and to tailor the dynamic effort to preschool children particularities.

Students were asked to prepare an outline regarding the content of lessons and to send them to the coordinators before the activity.

The communication with students is done through a web site (www.prodea.ro, the section 'practică pedagogică - teaching practice '). Also, students are using the same way (www.prodea.ro, the section 'comunicări între studenți - communication between the students') to resolve any problems (ex. if they are unable to be present at the day and date planned). Through this forum students can quickly find colleagues to replace.

We planned one workshop every second week. These seminars are open to all participants in this project and aim to discuss issues that students encounter during their activity and to find solutions to problems they face.

We are working to a battery of tests that will be tailored to age of children involved in physical education activities and we intend to test them periodically.

In addenda can be found the names of students involved in this project.

ADDENDA – Students involved in volunteer project "Physical activity with preschool children'

Name

1. Andreica Tulia
2. Balint Rareş
3. Berar Ioana
4. Boboş Roxana
5. Borhan Andreea
6. Bortan Ioana
7. Bratu Cristina
8. Brie Paul
9. Chioran Liana
10. Coloman Jan
11. Corb Andreea
12. Cordea Mădălina
13. Cosma Vlad
14. Doboş Mircea
15. Felecan Adela
16. Gal Gabriella
17. Giurgiu Cristian
18. Grosu Vlad
19. Hossu Amina
20. Jurj Florin
21. Lupu cosmina
22. Magyari Melinda
23. Moldovan Koppany
24. Muntean Simona
25. Nicolae Bogdan
26. Păcurariu Camelia
27. Pop Sergiu
28. Pop Tudor
29. Rad Andrei
30. Răileanu Dan

31. Someşan Camelia
32. Supuran Edina
33. Szakacs Melinda
34. Tanțău Felicia
35. Tomai Nicoleta
36. Torje Amalia
37. Toth Agota
38. Trif Bogdan

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STUDIA UNIVERSITATIS BABES-BOLYAI, EDUCATIO ARTIS GYMNASTICAE, LIV, 4, 2009

LATERAL BALANCE

ŞTEFĂNESCU HOREA[1], KONSTANTINOS FAMISSIS[2], CREȚU AURICA[1]

ABSTRACT. A good way to become a good skier is to learn to make those fundamental movements in isolation. Once you can make them cleanly and independently of the other movements, you're prepared to produce the turn of the movement. In technical terms, the fundamental movements of skiing are about controlling the magnitude the force the snow exerts on us, the direction it pushes us, and how we arrange our bodies to balance against it.

Key words: Alpine ski, technique, balance, increase level skiing

REZUMAT. Balansul lateral. Calea optimă pentru a deveni un schior tehnic este accea de a aprofunda mișcările esențiale individualizat în ordinea importanței. Odată ce aceste mecanisme primare sunt executate cu acuratețe, se poate trece la executarea globală a mișcării (virajului). Aceste mecanisme esențiale se referă la controlul forțelor cere acționează asupra sistemului schior-schi, și la modul practic de răspuns pentru a le contracara.

Cuvinte cheie: schi alpin, tehnică, echilibru, perfecționarea tehnicii în schi

If I were to pick one aspect of ski technique that, more than any other, differentiates skiers of different abilities, it would be how they balance against the lateral force from the snow, and in particular the component that makes them turn. Novices ski with their feet apart because their lateral balance is uncertain. At the other end of the spectrum are experts who can vary the width of their stance at will, and balance entirely on one ski at a time when necessarily. Many skiers who fall between these

[1] FEFS Cluj-Napoca - **extensia Bistrița**
[2] Trikala University, Greece

two skills levels want nothing more than to ski with their feet glued together, because they sense that doing so required skills they don`t have, which is true. The ability to ski in a narrow stance depends on good lateral balance skills. One of skiing ironies is that focusing on your feet together isn`t likely to help you develop those skills. Rather, developing an effective, functional technique in which your feet are separately by at least a hand`s width and your leg work independently is one of the most reliable ways to develop your lateral balance skills and thereby increase your overall level skiing.

1. Balancing against centrifugal force-if your stance is wide, you have a lot of leeway. it`s easy to keep the resultant within your base of support. Skiing in a narrower stance, your base of support is smaller. As a result, you have to estimated more accurately how much centrifugal force you`ll encounter and more accurately incline your body into the turn so that your center of gravity and feet are precisely aligned with the resultant.

2. Balancing on the inside and outside ski- one of the most important fundamental skills of skiing is balancing predominantly on the outside ski, to the tune of 90 to 100.

3. Modern shaped skis have made it possible to use the inside ski in ways we seldom could before, primarily because making the outside ski bend into reverse camber and shape a turn, especially a carved one, doesn`t require us to put all our weight on it. It`s important to understand, however, that the inside and outside ski are often most useful when used for separate functions, trying to do same thing with both of them all the time is a limiting approach to skiing.

Benefits of using the inside ski are:

- Stabilizing and supporting the hips, putting some force as little as 5 to 10 percent of your weight, on the inside ski significantly stabilizes the hips in all directions, enabling you to control the outside ski and the force against it with much more precision and finesse. Pressure on the inside ski also helps wits hip alignment and angulations. Supporting the inside half of the pelvis with the inside leg can help control of the alignment.
- Support going into the fall line. A common use of the inside ski seen in competition is as a support going into the turn while the skier waits for the right moment to commit to the outside ski. The skier`s center of gravity moves toward the inside of the new turn while the new outside ski tracks toward the outside so that the skier will have sufficient inclination and edge angle when the time comes to carve. During that time the skier may need some support to keep from falling too far to the inside, and uses the inside ski for that support.
- Support in high load carved turns. Modern skis enable us to carve very sharp turns with great centrifugal forces. Expert skiers will regularly carve turns that require 45 degrees of inclination, subjecting them to 1,4Gs, or total forces 40 percent greater than their body weight.
- Radius control. Varying the proportion of the skier`s weight that`s placed on the inside ski can be used to adjust the radius of the turn.
- Trigger mechanism. Some experts and competitors describe actively turning the inside leg at the start of the turn as a useful technique. The beneficial effect is probably not that this turns the inside ski but rather

that it triggers a chain of movements that helps the skier establish proper inclination, edge angles, and forward pressure early in the turn.

4. The importance of hand and arm position- one of most common technical errors in skiing is dropping the inside hand, which pulls the skier`s balance away from the outside ski. Another common problem, raising the outside hand, usually has the same effect. The inside hand is at least as high as the outside hand, and reaching the same directions.

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PILATES METHOD AND ITS BENEFITS ON THE BODY

NUȚ RAMONA ANCUTA[1]

ABSTRACT. Through this work they wish to present the importance of practicing Pilates exercise method and its benefits on physical and mental and spiritual level. Pilates Method is taking shape around several key principles. Pilates combines a series of exercises that are connected in a specific circulatory system, with flexibility and strength characteristics of human body parts. Routine exercises lead body to a state of harmony, so that parts of the body works as a whole. Unlike the rest of the exercises, Pilates method does not focus on quantity or how much to be asked, but they must make you aware that your entire body while working.

Keywords: Pilates, breathing, relaxation, concentration power, control, fluidity, freedom and control

REZUMAT. Prin această lucrare doresc să prezint importanța practicării exercițiilor fizice prin metoda Pilates şi beneficiile acesteia asupra fizicului cât şi la nivel mintal şi spiritual. Metoda Pilates se conturează în jurul câtorva principii fundamentale. Pilates combină o serie de exerciții care sunt conectate într-o manieră specifică cu sistemul circulator, cu flexibilitatea şi puterea unor zone caracteristice trupului uman. Rutina exercițiilor conduce organismul către o stare de armonie, astfel încât părțile corpului lucrează ca un tot. Spre deosebire de restul exercițiilor, metoda Pilates nu pune accentul pe cantitate sau pe cât de mult să fi solicitat, ci ele trebuie să te facă să fi conştient că întregul tău corp lucrează concomitent.

Cuvinte cheie: Pilates, respirația, relaxarea, puterea de concentrare, controlul, fluiditatea, libertate şi control

Since the beginning of human life there was a struggle for a healthy body and healthy mind. Over time we tried to separate the mind body and soul.

Recently, the concept has changed and many contemporary research supporting the idea there is a deep connection between body and soul.

[1] FEFS, Cluj-Napoca

Physically, this relation can be explained by the fact that exercise produces changes in blood chemicals that affect the brain functions and body parts.

Today, many psychologists believe that physical activity or fitness is not only a means to remove tensions, but and stimulating creativity, strengthening self-esteem and independence. This attitude has changed significantly persons participating in Pilates classes. Comes a dynamic process involving thinking, breathing, isolation and creating stronger muscles. Concepts such as "stability" have appeared in our popular culture, and fitness classes - such as Pilates, taught principles relaxation, concentration, alignment, breathing, centering, coordination, fluidity of motion and strength of mind.

Who is the promoter Pilates method?

Method was created by Joseph Pilates, who was born in 1880 near Dasseldorf, Germany. Joseph was a frail child, suffering from asthma and rheumatism. Determined to overcome their weaknesses, has spent his life trying to become stronger. He studied yoga, martial arts, Zen meditation and exercises, Greek and Roman. Exceeded the physical limitations by years of gymnastics and body building, becoming, at 14 years of physical development pattern. He practiced many sports, including skiing, diving and gymnastics. Pilates said "The mind is one that builds the body". Pilates program is only this: is a mental and physical improvement which aims to train the mind to function in balance, economy and grace in order to achieve a high degree of harmony and physical and mental health. (J. Pilates 2008).

Pilates - a common term

In October 2000, a U.S. judge ruled that the word "Pilates" identify with one type of physical activity such as yoga or karate, and that no one should reserve the exclusive use of the name. Being a registered trademark method has no body. With its growing popularity, Pilates instructors are proliferating without that power them are guaranteed. Therefore should manifest a certain caution.

However, students who received instructions from Joseph Pilates have been trademark "Authentic Pilates" and created a group for its accredited instructors - The Pilates Guild. Members of this group pay an annual fee and must meet the continuing education requirements, a code of ethics and a code of practice.

Basic Principles

Pilates Method is taking shape around several key principles current principles are easily understandable. Pilates combines a series of exercises that are connected in a specific manner with the circulatory system, with flexibility and strength characteristics of human body parts. Routine exercises lead body to a state of harmony, so that parts of the body works as a whole. Unlike the rest of the exercises, Pilates method does not focus on quantity or how much to be asked, but they must make you aware that your entire body while working.

Breath

Breathing is a vital function of any body, whether satisfied or not we are aware. One of the key points of these exercises focus on how you breathe. Each movement is connected with a specific method of breathing. A proper breathing allows oxygen through the circulatory system, muscles that are used to irrigate and to release an amount of harmful chemicals stored in the muscles. The chemicals released are connected with pain and fatigue are substances which our body attempts to escape. That should take a deep breath as a large quantity of oxygen and expire deeply, releasing lungs of chemicals.

For Pilates exercises to learn to breathe in a specific manner. When the draw, we expand the chest. Do you believe that this is a form of deep inspiration, but actually it is a false deep inspiration. Instead to draw us increasing us chest and belly to expire increasing us, we need to focus to the lower air-filled lungs. This form of deep breathing allows us to lie down and we move without restrict the amount of oxygen that a draw. The amount of oxygen allows nutrients to travel to the muscles to which the work. While power expired, all gases and harmful substances the body has a way out. When these harmful elements are removed, the head becomes more clear, increase energy, lactic acid is released from the musculature and become more relaxed.

Relaxation

One of the things they need to learn as quickly relate to how running drills without creating tension in the body areas that are not worked. Parts not worked, is engaged in action movements, but not kept in tension. After you finish routine exercises, you will notice that you removed at both mental stress and physical level.

Power of concentration

In many contexts, when we move, we do so without an acknowledge. The brain receives information with what we are going to do, and, without a November to center very carefully executed body movement commanded by the brain. As the exercise, the ability to focus attention on the pieces that work increases. Such gain quality movements we make. The movement you do is characteristic of a certain part of the body, is essential to focus your attention on it to make sure that area is modeled correctly. When we are aware of our movement, body and mind work together effectively and harmoniously.

Control

Control is the centerpiece for the achievement of the movement. The Pilates exercises you should not go beyond what, you trying to do as much and as well. You should not argue for the wrong exercises, it is necessary to move with the grace of a dancer, as you focus more body parts move simultaneously in harmony. Pilates exercises are executed with an appropriate breathing by focusing attention on the area in which work and the movement itself. When you first experience this Pilates method may be more clumsy movements are executed with clumsiness. Do not be scared! In time you will be able to move with grace, continuing the exercises themselves. Once you understand the basic movements, you will perform with grace and harmony.

Fluidity

The quality of being graceful fluidity while execute is based on fluidity of movement exercises under one another. Running through exercises involving, in fact, a high accuracy. Each moving part has a precise point where a good place to start and finish. Anyway you've run, it depends on you, how to combine these exercises flows naturally without the feel of opening paragraphs and the closing. Even if you are instructed to stop at a certain point of each movement to run multiple times, stopping is not a break, but a place where the scope or the movement continues, although a viewer could not observe this in outside. Each year is a starting point for the next move. In reality, the movement does not stop for a moment, the end of a movement actually represents the beginning of another.

Interior - exterior

Conceptually, Pilates method is based on assumptions that seem at first glance diametrically opposed. While execute Pilates movements, working both inside and outside your body. For example, work on some small muscles that the whole musculature of the body to bear extensive movements. During

exercises work for you free your mind and you use your brain to coordinate body movements. At year end there will be a close connection between the two aspects of your person: you will feel full of energy and mental power in terms of physique.

When exercises are performed correctly, is the root of each movement within the party. With this method you feel profound changes in how sit, walk, move up to how they perceive those around you. Working both the physical and psychic, you get to have a mental clarity, confidence and energy will increase, creating a sense of balance and a sense of inner peace.

Freedom and control

You maintain spine in proper position, you must strengthen your abdominal muscles. If you work your abdominal muscles, shoulders down, neck and spine rises behind the increasingly right. If they learn to control your abdominal region, while a new state will feel the physical and mental. If you can concentrate on each movement separately, you will reveal a great mood. To get here to view the mind watching every move that you execute.

Power of concentration will give the control needed for each exercise. Movements must be quick or sporadic. The focus is primarily on control Pilates method is actually a series of controlled exercises and executed for each body part. Slow and fluid movements require great precision that calls itself a physical inspection of the body. Like Tai Chi, these movements are not shaken and inflexible, but rather very fluid. Movements alternate between a good breath, an appropriate stretching and strengthening the body. Routine exercises is more active than it appears, can be executed without risk of boredom.

Benefits of Pilates Method

Benefits of Pilates exercises are obvious at first sight and were used over time practitioners, physiotherapists and fitness trainers.

- Method Pilates helps to get rid of cellulite and a slender body.
- It is true that Pilates method tends to sculpt the body and shape, but not in a meticulous way or the supernatural. Changes occur naturally. Paste
- These exercises oxygenate the body muscles and increase flexibility. The exercises are designed for abdominal area, muscle development and improve blood circulation and internal muscles of the pelvic area, with beneficial results on sexual life.

- After several hours of Pilates you will notice a pleasant remodeling of the body - abdominal toning, improving overall foot shape and improve the appearance of areas with problems - buttocks and thighs.
- Exercises and Pilates are perfect for people with respiratory or heart problems. Movement and breath control helps a lot to maintain the same pace throughout the period of exercise, so do not tire and did not need to stop to regain your breath.

On a physical level, Pilates method contributes to things such as:

- Raising the physical form of the body;
- Improve the health of joints, increase mobility and agility of the whole body;
- Increase physical strength and endurance and prevents possible damage;
- Improves mind control the body, increase consistency and confidence;
- Correct and correct back position, reducing pain caused by poor position to office.

Some of these results offers benefits and mental and spiritual level, and their constant practice is a great way to relax, putting the spotlight on the attitude and value of each individual.

Pilates technique includes a series of 36 exercises that guarantee a toning the body, the harmonious development of body, bringing the overall good body condition, health. Another advantage of this method is that it has no age limit. In other sports you are required movements of the body which, from a number of years, no longer so easy to do because of loss of mobility. Pilates is excellent for people suffering from joint pain and damage to the spine.

How to perform movements

Exercises are simple movements, running slowly, focusing on awareness of all movements and breathing. A proper breathing allows oxygen flowing through the blood to remove toxic substances that cause fatigue and pain. It is a tiring workout, whether it is recognized for its energy. And if Speaking of breathing, should be advised that it is very important in Pilates exercises.

The way in which breathing is very important throughout the year ongoing process. The basic rule is to exhale on the most difficult of the year (when deposit effort) and inhale when you relax. Also, when you do Pilates workout, you have to tense all the muscles of the body.

Tips to be taken into account:

- No matter how difficult the exercise itself, not to feel tense and rigid
- During the year do not hold your breath, because the body tension. Breath trying not to raise the chest, abdomen pulling to expire column. Can be counted during the breath for 3 to 5 times
- Exercises should be done with precision, viewed the body working area and concentration is on breathing
- Posture and implementation exercise requires maximum fairness.
- You have control over body movements and to get a deep domination of the body and mind. Entire body is connected to the effort and work unit.
- The center of the body going all the movements. The belt should be maintained strong and active.
- Using the mind as an exercise of imagination.
- Method execution and the exercise to be conducted in a continuous manner as a choreographer.

Pilates exercises can be practiced with and without equipment and the emphasis is on his abdomen and strengthening. You can use all sorts of ancillary devices such as fixed and flexible hoops, balls, spheres, discs, ropes, various elastic bands, pillows, special mats, walking sticks, to keep you in shape as well. Of course, all this in addition to more or less the usual fitness equipment.

Appliances used for Pilates exercises are specialized in certain movements and muscle groups. These devices are such that a main motion, wide, can be divided into several components, using the device and body movement and gravity. Such may be isolated exercises for different muscle groups, depending on individual needs. Base Pilates exercises is convinced that, by controlling the center of the body to obtain control of whole body movement. Also, the machines are designed to increase the efficiency of movement and increase performance.

These things are done by placing contractor in a position that minimizes muscle activity Junk, which is usually responsible for the ineffective exercises and rapid development of fatigue, often leading to injuries. Excellent results were obtained with the Pilates method in pregnant women, by running light exercise, both during pregnancy to ease childbirth, and thereafter, to recover faster and return to form.

In conclusion, taking into account current driving theories, principles biomechanics, neuromuscular physiology, anthropometry and other such sciences, Pilates exercises can be perceived as a viable method for both recovery and neuromuscular maintenance.

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