



Science, Movement and Health, Vol. XIV, ISSUE 2 Supplement, 2014
September 2014, 14 (2, Supplement): 410-416
Original article

THE ROLE OF EXERCISE IN INCREASING MOTRIC PERFORMANCE IN CHILDREN WITH PHYSICAL – KYPHOSIS

GEORGESCU ADRIAN¹, RIZESCU CONSTANTIN¹, CAZAN FLORIN¹

Abstract

Objective. Physical development is related to body growth in ontogenesis, but takes place in an uneven pace. The Romanian system of physical education, ensuring harmonious physical development is focused on specific objectives to all his sub, depending on levels of age or profession. Society through specified activities (such as physical education). can interfere, meaning, acceleration "and, harmonize" (in periods when possible) body growth. This development intervention is thought to be so called, and development"(Fozza, 2001).

Methodes. The methodological basis of the work is the applied research methods: literature review, pedagogical observation, testing method, teaching experiment, comparative method, statistical and mathematical method of processing and interpretation of data.

Results. The results of each subject were presented with arithmetic mean, standard deviation and coefficient of variation. Comparison was made between the results of the two testing made.

Conclusions. Medium physical deficiencies can be corrected partially or remain unchanged by performing functional tests. They are segmentation (located in different parts of the body).

Key words: correction, deficiencies, students, kyphosis.

Introduction

Physical development, as part of optimal health status of the individual is emphasized much by ancient thinkers. This concept is outlined clearly in ancient Athens formula, KAI KALOS hanging ", ie, nice and good man", specifically: bodily health, manhood, strength and dexterity, physical beauty, harmonic proportionality, attire and more. Harmonic ideal antique Renaissance acquires new valences, resulted in preserved unaltered today dictum expressed by Juvenal, 'Mens Sana in corpore SANO ". In this synthesis is distinguished important bodily health, mental health which together form the optimal health of man.

In physical education systems formed in the second half of the nineteenth century, the ideal harmonic is present in a high gear. The Swedish system of Hevrik Per Ling, as in the expected in France by Georges Herbert. Harmonious physical development is defined as a fundamental objective of physical education process (Badiu, 2004)

The Romanian system of physical education, ensuring harmonious physical development is focused on specific objectives to all his sub, depending on levels of age or profession.

Physical development is related to body growth in ontogenesis, but takes place in an uneven pace. There is, in this respect, some periods of acceleration, deceleration or others maintaining slow etc. But there is a relationship between body growth and development. Growth is a process that takes place after the so-called specific legitimate and accepted, by many specialists, increasing age "(considered to be up

around 18 to 20 years or by other specialists 25 years). Society through specified activities (such as physical education). can interfere, meaning, acceleration "and, harmonize" (in periods when possible) body growth.

This development intervention is thought to be so called, and development".

Development is a phenomenon both quantitative and especially qualitative addressed not only to the body (in-morphological functional), but also to aspects, that are extracorporeal "(the intellectual, emotional and social).(Fozza, 2001)

There are several classifications of stages of growth and body development. What can be observed in these classifications is the appearance, in one form or another, the criterion of schooling. The synthetic classification is proposed by Andrew Antal in 1975:

- Ante stage (up to 3 years);
- Preschool (4-7 year three groups of kindergarten);
- Stage school (small, medium and large).

Under normal conditions, the body growth and development take place continued until adulthood, but the intensity of the processes and phenomena that characterize it gradually decreases as we get closer to the end of the evolution.

As discussed previously, the rate processes and phenomena of this period is uneven, with a variable increase in intensity and duration, more or less active, accelerations and slowdowns.

Most intense growth and development occurs in the womb, where the body finds the most favorable conditions of life. In the evolution of ectopic first months and early years of rapid developments remain

¹ Ovidius University of Constanta, Faculty of Physical Education and Sports, ROMANIA
Email address: rizescu_costi@yahoo.com
Received 21.03.2014 / Accepted 06.05.2014



positive but over time, it gradually decreases.(Docu Axelerad, 2009)

In modern auxological, growth and development laws are grouped by different criteria. The most comprehensive grouping seems to be following:

January. Law unequal and asymmetric growth of tissues and organs;

February. Law different pace of growth and development;

Three. Law change proportions and the relationship between the body and its parts;

April. Law of large alterations in growth and development;

May. Law on gender differentiated growth and development.

As a component of optimal health, harmonious physical development is represented by the growth indices of body size, according to age and sex, and a number of indicators such as:

optimal proportionality between the size and shape of segments, state optimal weighted segments between size and shape, condition and optimum weighted fairness attitude that shows each segment and body completely.

Research has proven that physical development is the result of several factors of the body (internal and external) and its definition is achieved by optimum process logically. Among the factors that condition the physical development can be mentioned, hereditary predispositions, and neuroendocrine stimuli that act inside the body, and other external factors, of which the most important are: the economic and social (living conditions, nutrition, hygiene conditions), geo (climate, microclimate) and physical exercise.(Docu Axelerad, 2009)

Materian & Methods

The problem of detecting, preventing and correcting physical deficiencies existing in children, is an ongoing concern for both parents and all the teachers in charge of raising and educating them.

During medical examinations that are in school to determine health status and to assess growth and physical development, students found that only some of them show the right attitude of the body. Therefore, one can not overlook the percentage of students who are carriers of morphological and functional defects, localized to the musculoskeletal system.

Musculoskeletal defects are called physical impairments.

Physical deficiencies are defined as deviations from normal physical shape and function of the body that disrupt normal growth and harmonious development of the body, changing appearance, reducing skills and the power of adaptation to physical effort, reducing the ability of productive work.

High frequency of deficiencies and their diversity caused analyzing this definition.

Physical deficiencies are characterized by morphological changes more or less pronounced, occurring in the first place, in the form and structure of the body and it is manifested by a slowdown or an excessive increase through a growth disorder or a disproportionate development through deviations, deformities or other structural defects preceded or followed by functional disorders.(Docu Axelerad, 2009)

Careful study can differentiate by their evolution, especially after correction possibilities through exercise: physical impairments mild, medium and sharp.(Docu Axelerad, 2009)

The first group of deficiencies, mild deficiencies, include small deviations from normal shape and function of the body, deficiencies caught in the early stage. They are considered deficient attitudes that may interest the body entirely or only certain parts of the body and, by executing corrective motion - functional test - Correct and hipercorectea. In this category falls attitudes overall deficiencies: cifotica, plane rigid asymmetric and segmental deficiencies mild form: head and neck leaning forward or sideways, forward or asymmetric gathered shoulders, torso flexion, attitudes cifotice, lordotic and scoliotic spinal cord or valgum knees bent, feet abducted or Addu. (Badiu, 2004)

Caught early, pending changes in tissue structure, light physical deficiencies are corrected, in most cases, under normal school activity.

The second group comprises medium deficiencies, defects embedded morphological and functional stationary or slow progress, which corrects partially or remain unchanged performing functional tests. Most environments are deficient segmentation, is localized in different regions of the body such as the spine deficiencies (kyphosis, lordosis, cifolordoze, scoliosis, kyphoscoliosis, back round cifotic and plan), thorax and abdomen deformations, knees and feet.

It also encountered and average global defects such as hiposomii, etc. disproportions between segments. Students will follow a medium deficient diet very life that comes first will lie with corrective exercise. Following, both in school and at home, the recommendations prescribed by doctors and physical education teachers, regarding the education of a correct attitude of the body, the rational alternation of work (research, teaching) and rest, and by performing daily exercises These deficiencies may be partially correct, you can stop evolution or even improve, up to their complete correction. (Docu Axelerad, 2009)

The main element used in medical gymnastics for preventing and correcting deficiencies is physical exercise, grouped and systematized the procedures and methods of medical gymnastics.

Exercise is defined as a static and dynamic attitude, framed in one of the forms of habitual exercise. This activity is made after technical rules and methods hinstabilite representing general anatomical,



biochemical, physiological, hygienic and educational requirements.

Rectification by practicing physical exercise is possible only because of their impact on the study of body tissues, the body functions, the organic and psychic functions.

The static and dynamic exercise, exert positive influences on the human body. Therefore, one can not speak of a single classification. Thus, it appears that after practicing systematic exercise, local or general changes appear in the organism, transient or long lasting, fast or slow, that alter the structure and function of tissues, organs and aspects of the human body. (Docu Axelerad, 2009)

Prophylactic effects, especially those corrective physical exercised, results in morphogenetic effects (plastic), physiological and education, which is seen in those who practice for long and methodical physical exercise, with proper purpose.

Exercise is an important morphogenetic factor, especially for musculoskeletal elements. Bones and periosteum, joints and muscles, tendons and fascia have a functional structure so obvious that they mean the end of a graphical representation of the mechanical forces that they run static and dynamic actions on them. (Circiumaru, Docu Axelerad, 2007)

Corrective exercise dynamic

Dynamic exercises can be performed in medical gymnastics as active movement, free or bound, active resistance movement. Dynamic corrective exercises can systematize this:

1 Active exercises of the head and neck, torso, upper and lower limbs - made free or overcharged. So, in this group are deficient segment active exercises and active exercises with neighboring segments, which amplifies primary deficiency corrective movements.

Active exercises will be located only deficient segment to create other defects not compensatory. Example: lumbar lordosis correction will be executed only torso flexion movements in the lumbar region, the thoracic spine is fixed or maintained in the correct positions. These movements can be executed overcharged - medicine balls, sticks, etc dumbbells. or against a strong opposing force manual or weight. (Docu Axelerad, 2009)

The main deficiency neighboring segments exercises will complete the exercises mainly breast. The upper limbs in lumbar lordosis plan will work in the rear, to avoid compensation cifotica dorsal spine, while the legs are moved, maintained or established in the previous plan to correct pelvic position. Also, these exercises will be performed free or overcharged different. (Circiumaru, Docu Axelerad, 2007)

In the corrective exercises, movement can be performed analytically, but the best results are obtained when performing exercises combined.

2. Corrective breathing exercises to run in stable positions. It can run freely or during exercise for torso and upper limbs in positions symmetrical or asymmetrical chest not moving master.

In general, breathing exercises will be introduced at the end of the beginning and not a lesson after corrective exercises harder.

3. Applied corrective exercises. The application exercises are used for education or retraining basic driving skills. Among the best exercises are exercises of walking, crawling exercises, balance and suspension.

Walking corrective exercises are introduced in the introductory and final medical gymnastics lessons. Use only those exercises that go with the correct structure for deficiency.

primary. For example, walking tips for correcting kyphosis, walk on your knees bent to correct lordosis (walking squat with the torso straight) etc..

Crawling exercises - are performed in positions with large base of support and center of gravity very close to the base of support. These positions allow precise location of the exercises in the segment engaged in poor work and large muscle groups. Crawling exercises are performed in basic positions lying on knees, sitting, and of their derivatives positions, made symmetrical or asymmetrical.

Balance exercises can be simple or associated with wearing light objects, causing a symmetrical muscles antagonists request.

Clarifications physical education programs on preventing and correcting physical deficiencies attitudes among students

Specific competencies

Contents

1.1 Appropriate use of specific methods and means of physical development. - Programs influencing the analytic body segments;

- Complex physical development: the free exercise with portable objects musical background;

- Programs tailored for:

bodybuilding, fitness, sports, aerobics, stretching.

1.2 Self physical development and prevention, removal of specific disharmony puberty -Specific measures: height, weight, perimeter, diameter, scale;

- Indicators: nutrition, proportionality;

- Functional indices and their determination;

- The harmonious physical development;

- Attitudes physical impairments: kyphosis, lordosis, scoliosis, flat foot asymmetries;

- Prevention and correction of deficiencies body attitudes each. (5)

Organizing and conducting study

Where the National School Evaluation System did not provide evidence for evaluating development indicators of any of the major muscle groups, we used the samples to another year of study: any back muscles in grade boys and girls, for which turned to face trial extensions lying on the bench 30 °; Sample-conditions, sample consisted of students who were found in attitudes impairments and physical, of the several classes. As noted above, their number may be much higher, but some of them did not want to



participate in this action, although they were known to these deficiencies, others may not have said those things. Mentioned that they were still enrolled in the school office medical records, but having no restrictions or special recommendations regarding physical education, so everyone attending lessons.(3)

NO. CRT.	Name	DATE OF BIRTH	CLASS	DIAGNOSTIC
1	VA	11/03/1992	VA	Dorsal scoliosis "C" right lateral convexity
2	RC	04/04/1992	VB	Cifi-dorsal scoliosis
3	AC	04/25/1992	VC	Scoliosis in "S" right and left lumbar dorsal
4	OA	13.11.1991	VI A	Cifo - Lordosis
5	VA	14.12.1991	VI A	Dorsal scoliosis "C" left side
6	DO	08/17/1991	VIB	Kyphosis - dorsal
7	VC	24/09/1991	VII A	Splay foot
8	JC	15.08.1991	VII B	Dorsal scoliosis "C" left lateral convexity
9	MS	12.09.1991	VII B	Dorsal scoliosis in "S" left lumbar dorsal right
10	TP	10/13/1990	VII C	Cifo scoliosis
11	MM	11/02/1990	VIII A	Dorsal scoliosis Cifo

After starting business subjects' age was 10years. Imortal experiment was understood by students who have tried to present as often as possible in these meetings.

They claimed control samples and their engagement effort was outstanding.

School No. 18 "Yulia Hașdeu" in Constanta, has at present only the sporty interior - modern equipped sports hall with dimensions of 36 x 18m, with lockers fitted bathrooms, storage of materials and the boardroom.

Fitness has the following features:

- 4 stairways
- 2 goats;
- 1 box ;
- 10 mattresses;
- Low beam;

Were used as materials: light weightlifting (10 kg), improvised weightlifting (4 kg). medicine ball (2-5 kg) sizes balls, extendable batons gymnastics flexible sticks, stopwatch, roulette.

Research tasks

At the beginning of the research we established several tasks.

These were:

- 1.Extensive information in order to draw an age bibliographies;
- 2.Studying general bibliography for documentation and retention the essential aspects of preparation work;
- 3 . Stating working hypothesis;
- 4.Choosing the school and request management unit and physical education department for receipt agreement work;
- 5.Detection deciente students attitudes and physical (training group);
6. Setting complex anthropometric measurements and "b aterial" driving test;
7. Preparing the "tools" work: timer, roulette as grounding, metric tape, summary tables, etc..

Absolutely all those involved in the intent to solve tasks presented themes had signed the minutes of protection in physical education classes, protocol signed at the beginning of the school year.

8.Initial Supporting evidence;

Results

Ways Drive's exercises and proposals to correct kyphosis, below are a few exercises.

- 1.Walking with a cane tips back, carrying torso arched back.
 - 2.Same exercise with left-right twisting torso.
 - 3.Walking with a cane sat diagonal peaks at the back, left hand down, right hand up trunk extension at each step.
 - 4.Same exercise with lateral tilt.
 - 5.Sitting side lunge, left hand on hip, right hand on the crown, torso bend to the left, with s carrying arm straight up inspirational comeback breath.
 6. Sitting high lunge on the left leg with twist torso to the right while simultaneously carrying arms asymmetrically-right, above the bottom left- oblique, comeback.
 7. Sitting with the legs spread -slow and ample inspiration, with the rise of the left arm, while twisting the torso to the right, right hand on hip - Back to expiration.
 8. On the knees, the right hand above the head, left hand behind the back or hip, torso extension, lateral bending of the torso to the left.
 9. On the right knee, the left leg side-stretched, hands behind the head, carrying the pelvis to the right, and the left inclination of the torso.
 10. On the knees, the right hand supporting a medicine ball on the head, left hand on hip, stretching the sides of the torso to the left.
 11. On the knees, leaning on hands, rotating the torso horizontally.
 12. Hanging on a fixed scale, legs swinging left-right
 13. Lying with the torso off the support surface, right hand behind the head, left hand back, torso extension, bending.
- Exercise programs
- SP1. Ex. 1 - 2 - 3 - 4 - 5
- SP2. Ex. 2 - 4 - 5 - 6 - 9



SP3. Ex. 3 – 6 – 7 – 9 – 10
SP4. Ex. 5 – 6 – 7 – 8 – 11
SP5. Ex. 6 – 9 – 10 – 12 – 14
SP6. Ex. 7 – 11 – 13 – 14 – 15
SP7. Ex. 13 – 14 – 15 – 16 – 17
SP8. Ex. 16 – 17 – 18 – 19 – 20

Fifth grade, C class- girls- Table no 1, Annex no 1.

Anthropometric measurements revealed the following: weight 44 kg, height 1.62 m, Pt 79 , Erismann index, (Pt I/2)=4,50 is relatively higher than the rate (3.8)

Crate 5x10 cm. The values of the arithmetic averages were: 19''20 (T.I.) and 18''31 (T.F.). It was an increase of 0''89. The standard deviation had the next evaluation: $\pm 0,90$ (T.I.) and $\pm 0,51$ (T.F.), so the central value is more representative of the final results (low dispersion). On both tests, the variability coefficient indicates that there is greater homogeneity of the final results in favour of the first ones (4,69 - T.I.si 2,79 - T.F.).

The results of the subject were: 20''17 (T.I.), with 1''50 more than the initial average and 18''72 (T.I.), with 0''41 more than the average of the final results. She achieved a progress of 1''46.

Running resistance on 800 m. The arithmetic averages were: 4'36''(T.I.) and 4'31''(T.F.)." Growth rate of 0'05''. The standard deviation shows that the final results have a smaller dispersion and the coefficient of variation reveals high homogeneity in both tests, but with lower value to final testing, where the dispersion of results is less.

The results obtained by the subject: 4'41''(T.I.) with 0'06'' more than the average 4'36'' and 4'31''(T.F.), with 0'05'' more than the average 4'31'' and achieved a progress of 0'05'.

Pushups with hands on the bench. The students' results revealed the following average: 5,42 (T.I.) and 6,23 (T.F.), a general progress of 0'81 executions. The final results had a smaller dispersion revealed by the standard deviation $\pm 1,48$. The Coefficient of variation indicated in both tests, the lack of homogeneity of results.

The investigated student had the following results: 5 (T.I.), with 0'42 smaller than the average and 6 (T.F.), with 0'23 smaller than the average.

Raising knees to chest from hanging position.

The results had the following arithmetic averages: 11,47 (T.I.) and 14,76 (T.F.), progress of 3.29 executions. The final results have a lower dispersion revealed from calculating the standard deviation $\pm 1,71$, opposed to ± 2.60 , the one from the initial results .the Coefficient of variation indicates a lack of homogeneity in the initial results and an average homogeneity in the final results.

The student under observation made 8 executions on (T.I) and 13 on (T.F), distinguishing herself with a progress of 5 executions. Both values are below average.

Extensions on the bench with face lying, 30°.

The arithmetic averages of the results were: 14,17

(T.I.) and 16.29 (T.F.). the dispersion between them reveals progress of 2,12 executions. The final results found better dispersion revealed by the standard with $\pm 1,76$ smaller than the one calculated in the initial results; Uniformity average results in both tests.

As opposed to the average, the student had the following results: 17 on (T.I.) – with 2,83 more than the average of the initial results and 19 on (T.F.) with 3,61 more than the average of the final results.

Pushing with one foot, resting on fixed scale.

The values of arithmetic averages were: 13,58 (T.I.) and 16,17 (T.F.), general progress of 2,59. Lower dispersion of the final results ascertained by calculating indices: the standard deviation and coefficient of variability that reveals an average homogeneity in both datasets.

Subject results are below average, so in the initial testing: 13.58 average, the result of the subject 10 , as well as in final testing: 16.17 average, th result of subject 14.

Fifth grade –class C-boys

Subject investigated: Radea M. Cristian

Anthropometric measurements revealed the following: weight 43 kg, height 1.59 m, Pt 78 , Erismann index, (Pt I/2)=4,50, below than the rate 5,8. Crate 5x10 m. Values of arithmetic averages 18''20 (T.I.) and 17''11 (T.F.) highlighted a general improvement of 1''09; there is a Smaller dispersion at the final data string: ± 0.32 compared to the baseline, ± 0.90 by the standard deviation and the coefficient of variation reveals high homogeneity of the final results. The subject of the research had below-average results at both initial testing 17 ''79 with 0'' 41, and the final testing 16 ''87 with 0'' 26.

Running resistance. The average of the results 4'36''(T.I.) and 4'30''(T.F.) revealed progress of 0'06''. The final results have better dispersion observed by calculating the standard deviation $\pm 0,05$ -(T.F.) $< \pm 0,06$ – (T.I.) and calculating the coefficient of variation - high homogeneity $0,72 < 1,58$. The subject's results 4'41''(T.I.) sand 4'32''(T.F.) were both over the medium.

Pushups with feet on the bench. The averages were 6,70 (T.I) and 9,70 (T.F.). Lower dispersion in the final testing: ± 0.94 standard deviation and coefficient of variability that indicates high homogeneity (9,78). The results are below average in both subject tests: at(T.I.) $6 < 6,7$ average, at (T.F) $7 < 10,6$ average.

Simultaneous raising of the torso and legs. Averages were 10,6 (T.I.) and 14,5 (T.F.) and showed progress of 3,9 executions. . The final results have a smaller, better dispersion: ± 1.84 standard deviation(T.F.) $< \pm 2,00$ (T.I.). Coefficient of variation: the average homogeneity of the final results, compared to the initial results that are not homogeneous. The student has performed below average on both tests: $7 < 10,6$ (average T.I.) and $12 < 14,50$ (T.F.).

Extensions on the bench with face lying, 30°. There were better results on the final testing. Averages were 14,30 (T.I.) and 17,60 (T.F.) with progress of 3,30

executions. The calculation of the standard deviation of the results reveals lower dispersion ± 1.84 (T.F.) $< \pm 2,00$ (T.I.). The coefficient of variation indicates medium homogeneity of the results of both tests. The student has performed below average: $12 < 14,30$ (average T.I.) and $17 < 17.60$ (average T.F.).

Side lunges. The averages were 14,70 (T.I.) and 19,40 (T.F.). there was a better dispersion on the final results, revealed by the standard deviation $\pm 1,28$ (T.F.) $< 2,35$ (T.I.) and by the coefficient of variation 6,52 (T.I.) high homogeneity and 16,05 (T.I)-medium homogeneity the subject had below average results : $12 < 14,70$ (average T.I.) and $18 < 19,40$ (average T.F.).

Conclusions

1. Physical deficiencies are defined as deviations from normal in shape and physical functions of the body that disrupt normal growth and harmonious development of the body by changing its appearance, reducing skills and adaptation to exercise power, decreasing their ability to work.
2. With careful study, they can differentiate by their evolution, especially by their possibility

Tables

Evolution of the average values of performance during the control of schoolgirls from fifth grade,class A; evolution of the average values of Varga M. Alexandra

Chart 1

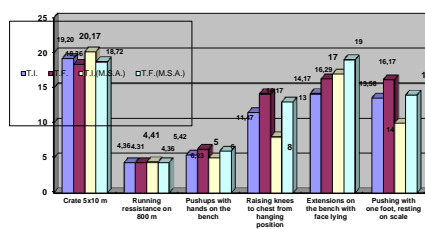
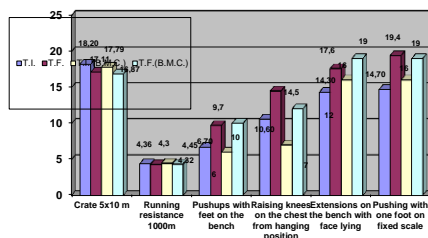


Chart 2

Evolution of the average values of performance during the control of schoolgirls from fifth grade,class B; evolution of the average values of Badea M. Cristian



References

Badiu T, 2004, "Bazele teoretice ale exercitiului fizic in Kinetoterapie", Editura Fundatiei Uneversitare "Dunarea de jos", Galati.
 Circiumaru N, Docu Axelerad A, 2007 - Neurologie Clinica, Editura Ex Ponto, Constanta.
 Docu Axelerad D, Docu Axelerad A, 2009, Kinetoterapie in cifoza, Editura Fundatia Saguna, Constanta.
 Docu Axelerad D, Docu Axelerad A, 2009, Notiuni de biomecanica a coloanei vertebrale, Editura Fundatia Saguna, Constanta.

- of improvement through physical exercises in : mild, medium and sharp.
3. Detected on time, until the change in tissue structure occurs, light physical deficiencies are corrected in most cases, under normal school activity, they are considered deficient attitudes.
 4. Medium physical deficiencies can be corrected partially or remain unchanged by performing functional tests. They are segmentation (located in different parts of the body).

Recommendations

1. In such cases, the physical education teacher must know these deficiencies from students, parents, the medical staff of the school, and organizing an action as a predictive evaluation of the collective of students.
2. Knowing the different characteristics of the groups of physical deficiencies by the sport teacher is very, very important, also for the correct assessment of the biological value of a team.

Fozza C, 2002, „Indrumator pentru corectarea deficientelor fizice”, Universitatea „Spiru Haret”, Facultatea de Educaie Fizica si Sport, Editura Fundatiei „România de Maine”, Bucuresti.
 Fozza C, 2001, „Curs de Kinetoterapie in afectiunile neurologice”, A.N.E.F.S., Sectia Kinetoterapie, Bucuresti.
 Miroiu N, Ionescu A, Mazicu V, 1968, „Cresterea normala si dezvoltarea armonioasa a corpului”, Editura C.N.E.F.S.

Table 1

The results from exercises of students from fifth grade, class A

Nr	E xercises First and last name	Crate 5X10 m		Running resistance 800 m		Pushups with hands on the bench		Pushing knees to chest from hanging position		Extensions on the bench with face lying		Pushing one foot	
		T.I	T.F	T.I	T.F	T.I	T.F	T.I	T.F	T.I	T.F	T.I	T.F
1	B.S.A.	20,10	18,91	4,45	4,37	4	6	12	14	16	18	14	16
2	B.C.M.	19,11	18,02	4,27	4,26	7	8	10	14	10	13	16	17
3	B.A.T.	18,37	17,90	4,30	4,28	3	4	14	16	12	15	10	14
4	C.M.A.	18,79	18,01	4,35	4,30	6	6	8	13	17	18	15	17
5	C.V.I.	20,37	18,99	4,44	4,35	4	5	12	15	13	15	14	16
6	F.D.D.	18,10	17,86	4,31	4,29	7	7	15	18	15	17	16	17
7	F.I.G.	20,14	18,95	4,39	4,33	3	4	14	17	12	15	10	13
8	IM.K.	19,22	18,72	4,43	4,35	6	7	8	12	17	18	15	16
9	L.R.	18,35	17,88	4,32	4,28	4	4	13	16	13	17	13	15
10	N.P.C.	20,71	18,94	4,38	4,31	7	7	9	13	15	16	16	17
11	P.C.E.	18,17	17,56	4,37	4,30	7	5	15	16	14	17	10	13
12	P.S.M.	18,37	18,20	4,42	4,36	6	7	8	13	17	18	15	18
13	S.N.A.	19,04	18,33	4,33	4,28	4	5	13	15	13	15	14	18
14	S.M.	20,33	18,79	4,36	4,31	7	7	10	14	15	18	12	16
15	S.R.	18,44	18,01	4,34	4,29	6	7	14	17	12	13	16	18
16	V.M.A.	20,17	18,72	4,41	4,36	5	6	8	13	17	19	10	14
17	V.I.M.	18,71	17,54	4,35	4,28	6	7	12	15	13	16	15	20
Suma		326,47	311,33	74,22	73,30	92	106	195	251	241	277	231	275
Average	Average	19,20	18,31	4,36	4,31	5,42	6,23	11,47	14,76	14,17	16,29	13,58	16,17
	General Progress		0,89		0,05		0,81		3,29		2,12		2,59
	Standard deviation	±0,90	±0,51	±0,05	±0,03	±1,48	±1,23	±2,60	±1,71	±2,15	±1,76	±2,31	±1,91
	Coefficient of variation	4,69	2,79	1,19	0,80	27,30	20,07	22,67	11,61	15,21	11,01	17,07	11,81