

THE “FOLDING-METHOD”

A METHOD OF BILATERAL DEVELOPMENT BASED ON THE ART OF ORIGAMI

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The psychomotor development of children is closely connected to development of cognitive abilities. In the development of more and more fine and precise movements of the hands, development of conditional-reflex movements with various participation of fingers and palms reflects not only perfection of motor function of the hand, but also involves the analysis and synthesis of activity of the brain of the child [3; 6; 8]. Research which has been carried out in the laboratory of Koltsova[9] convincingly shows that the training of the fingers of a baby accelerates the process of the functional maturing of the brain. The degree of development of fine movements of the hands is correlated with the level of development of speech in children . Analysis of the structural and functional features of motor functions show that it has extremely rich communication coinciding with all structures of the central nervous system and take part in their activity. Analysis of the pulses of the motor functions are integrated with pulses from other systems of the analysis in a uniform image, in primary, secondary, and later in tertiary associative zones of the cortex of the brain. The essence of integration of impellent pulses is that they promote activation of associative zones. In the development of any movements, which represent a result of interaction of various structures of the brain, the frontal parts play a dominant role [1; 7; 9]. Told gives a reason to assume that the impellent analyzer has a special value in the development of brain activity.

At early stages of development of the child, both hands work together and the movements are bilateral. At about 18 months of age one hand becomes more passive in comparison with another [9; 23]. There is a problem of handedness, and the training of one of the hands considerably influences the further cerebral lateralization. In the process of development and perfection the function of one of the hands in an opposing hemisphere, it receives an increasing quantity of pulses. That hemisphere, which receives more pulses, becomes dominant. The training of movements of fingers of both hands really is a basis for bilateral development of the brain and advances intellectual development. The certain degree of a bilateralization can provide the large flexibility of cognitive processes [10; 12].

The plasticity of a child's brain and minimal domination of one hemisphere above another in childhood is very favorable ground for development of both halves of the

brain, for development of strategy of interaction of both hemispheres revealing abilities of the right and left hemispheres. It is known that the ability of logical thinking, number skills, reading, reasoning, speech, and scientific ability is connected to the activity of the left hemisphere. Functions of the right hemisphere include insight, three-dimensional perception(recognition), sensitivity to art, imagination, musical and art abilities [2; 4; 10; 12; 15; 17; 18; 24]. Activation and revealing abilities of the right and left hemispheres in childhood (when the brain has its greatest plasticity) will aid the child's mental development, more fully using mental resources.

Left Brain:

- Right-hand control
- Spoken language
- Written language
- Number skills
- Reasoning
- Scientific skills

Right Brain:

- Left-hand control
- Insight
- 3-D forms
- Imagination
- Art awareness
- Music awareness

During the activity of ORIGAMI:

- The functions of the Left hemisphere are made active
- The functions of the Right hemisphere are made active

The "Folding-Method" we developed allows development of psychomotor and cognitive abilities in children and adults based on various activities of the right and left hemispheres. The method is based on application of the art of origami (translated from the Japanese "ori" - folding, "kami" - paper), where the folding of a model using a square sheet of paper occurs without application of scissors and other tools [19; 20]. The coordinated work of both hands, active work of intelligence, and attention, is necessary for the development and employment of origami, for memory, imagination, and thinking. As both hands are actively involved in work, there is a natural massage of the tips of the fingers, that in turn positively affects the dynamic balance of the processes of excitation and braking in the cortical areas of the brain. The spectrum of movements of the palm and fingers also extends the impellent (motor) zones of the cortex of the large hemispheres and are made active. The visual control of the coordinated work of hands raises the activity of the appropriate areas of the cortex. The rich communications of the impellent analyzer with various structures of the brain, allows the transfer activity to last. The coordinated work of the hands requires sufficient activity of the brain and harmonious work of its various structures [21; 22].

The "Folding-Method" of bilateral development represents the specially organized employment of origami supposing:

- 1) dynamic development of methods of folding of a paper
- 2) fast transitions from simple to complex and three dimensional models
- 3) exercises developing creative skills in origami

- 4) inventing of own models
- 5) orientation to qualitative execution (performance) of model- its beauty
- 6) satisfaction from work.

Origami, by its nature is an art giving work to both hands (that in itself already has a certain effect) and also gives direct compensation (reinforcement) in satisfaction from a folded model (a certain creative condition). The successful result on initial employment of our "Folding-Method" is especially important. Therefore, first models offered for folding are selected to be rather easy and necessarily expressive. The modular designs are used where simple identical modules result in a rather impressive model. Further complexity of models is increased to keep up with a child's interest and to keep in a zone of nearest development. An additional plus to this method is that the assembled model can repeatedly be demonstrated both in and out of the classroom, causing certain satisfaction (reinforcement).

The "Folding-Method" combines in itself: a physiological basis of activation of the hemispheres, multimodal activation of mental opportunities, novelty, sense of activity, sensation of game, final product, satisfaction from work and an aesthetic experience.

Thus, the "Folding - Method" has a therapeutic and correctional application.

We investigated the psychological and psychophysiological characteristics of children in the process of the specially planned use of the "Folding-Method". The purpose of the work is the study of the dynamics of the parameters of the psychological and psychophysiological characteristics of children during the employment of our folding method.

THE CHARACTERISTIC OF THE SUBJECTS AND DURATION OF LESSONS

137 children participated in the research. The pupils were in the 1st, 2nd, 3rd, and 5th grades of the Rostov schools (55 boys and 66 girls), and children with speech impediments being treated in Province Hospitals (8 boys and 8 girls).

Experimental groups.

Healthy children:

Group 1: 19 students (7 girls and 12 boys), age 8-9 years. The lessons in origami were carried out once per one week, during the academic year. - only 25 lessons.

Groups 2,3,4 and 6: spent 25 hours learning origami during an additional vacation week, that is 5 days for 5 educational hours, in the absence of other educational disciplines.

Group 2: 8 girls and 8 boys, aged 7-8 years.

Group 3: 15 girls and 5 boys, aged 9-10 years.

Group 4: 8 girls and 8 boys, aged 9-10 years.

Group 6: 14 girls and 10 boys, aged 10-11 years.

Children with speech impediments :

Group 5: 8 girls and 8 boys, aged 10-15 who were taking treatment in Province Hospitals. The lessons in origami were carried out within two weeks (10 lessons- 45 educational hours).

Control Group

Healthy children:

Group 7: 26 students (14 girls and 12 boys), aged 10-11 years had no origami lessons. The tests were carried out parallel with 6 experimental groups (before and after educational week)

METHODICAL MAINTENANCE

The study of the structure of Interhemispheric Functional Asymmetry included: definition of a genetic and actual handedness, dominant leg, dominant eye and ear [13], and also asymmetry of thinking. The prevalence of activity of the right or the left hemisphere was defined under the Torrens test "a Choice of the Party ."

Activity of the left and right hemispheres, asymmetry of activity of hemispheres and the psycho-emotional condition were defined with the help of an activatiometer based on measurement of the Skin-Galvanic Reaction of the right and left hands.

The asymmetry of the dominance of an eye was defined by a method of a binocular competition with application of matrixes of digital stimulus (gaplosopia).

The asymmetry of hearing was defined by a method of stereo-listening [10; 13].

The parameter of intelligence was defined using a technique of Raven [14].

Deductive asymmetry - inductive processes of thinking, speed, flexibility and originality of thinking by results of the tests "Deduction" and "Induction", "What is this?" - interpretation of pictures developed by Guilford [16].

The three-dimensional imagination was estimated using the Barron Test[5], based on the principle of the number of parts of the figure, accuracy of the representation of figures, complexity of figure, detailed elaboration of its drawing also was estimated.

The psychomotor parameters were achieved with the help of a tapping test [14]. The technique is based on measurement of the maximal rate of movement of hands. Also the parameter of fine 'motor skills' was measured by the quality of the fold.

The precision of the eye's ability to visualize the perception of spatial parts was also studied. The average errors in the reproduction of a piece in mms was calculated. The level of uneasiness was defined with a technique of Lusher [14], which allows one to estimate the level of indemnification.

Creative achievements in origami come to life as students progress into inventing new models.

The processing of the received data was carried out by standard mathematical methods [5].

RESULTS

Using the "Folding-Method" raises the activity in the hemispheres of the brain, that is reflected in growth of cognitive abilities. The pulses from fingers activate structures of the brain. The activity of the right and left hemispheres actually grows from the beginning up to the middle of the course. Then, further activity of the hemispheres is reduced, but remains above the initial level (Tab. 1)

Tab. 1.

Activity of the hemispheres of 8 year old children during the course in the "Folding-Method".

Left hemisphere

	beginning	middle	ending
average	+44,8/-25,4	+59,4/-33,2	+49,5/-29,1
boys	+50,5/-26,9	+60/-30,9	+56,5/-27,5
girls	+39/-24,2	+58,8/-37,6	+42,5/-30,9

Actual growth from the beginning up to middle of the course
 $t=2,92$, $n=15$, $p<0,05$

Right hemisphere

	beginning	middle	ending
average	+49,6/-28,4	+62,8/-31,3	+49/-22,6
boys	+56,8/-31,4	+70/-32	+53/-22,3
girls	+42,5/-25,2	+55,5/-30,9	+45/-23,7

Actual growth from the beginning up to middle of the course
 $t=2,64$, $n=15$, $p<0,05$

In the dynamics of the activity of the hemispheres during the course in the "Folding-Method" the sexual and age distinctions have come to light. In 8 year old children, there are marked fluctuations of asymmetry of activity of the hemispheres during employment; in the girls the role of the right hemisphere, in the boys the left (Tab. 2) grows.

Tab. 2.

Factor of interhemispheric asymmetry in 8 year old children during the course in the "Folding-Method"

On the method of a binocular competition

	beginning	middle	ending
average	+1/-59,5	+45/-56,8	+39,7/-65,7
boys	+1,9/-66,9	+15/-56,6	+16,3/-76
girls	+0/-55,7	+75/-40,7	+63/-46,5

Actual growth from the beginning up to middle of the course $t=2,18$, $n=15$, $p<0,05$

On the Skin-Galvanic Reaction of the right and left hand

	beginning	middle	ending
average	+5,3/-10,7	+3,1/-11,3	+1,9/-11
boys	+5,7/-14,5	+8,1/-7,5	+2,3/-7,4
girls	+4,9/-6	+1,9/-12,7	+6/-13,3

In 9 year old children, the value of asymmetry of activity of the hemispheres were more homogeneous and, in general, the growth of asymmetry in the right hemisphere (Tab. 3) was marked.

Tab. 3.

Factor of interhemispheric asymmetry in 9 year old children during the course in the "Folding-Method".

On the method of a binocular competition

	before	after
average	+9,6/-67	+31,7/-44
boys	+3,5/-78	+42,4/-47
girls	+23,6/-34	+8,2/-26

Actual growth $t = -2,02$, $n = 15$, $p < 0,05$

It appears that the prevalence of activity of one or the other hemisphere during the course to a certain degree depends on the basis on which they will be carried out (Tab. 4). It will be coordinated to the idea of "adjustment" of the hemispheres as a result of the active coordinated work of both hands.

Tab. 4.

Asymmetry of hemispheres in 9 year old children during the course in the "Folding - Method" on a different basis.

Background: a lesson in the Russian language

	before	after
average	+5,9/-12,8	+7,7/-11,5
boys	+7,8/-13	+10,1/-12,2
girls	+1,8/-12,3	+2,4/-8,7

Background: a day-time dream

	before	after
average	+5,2/-7,2	+3/-13,7
boys	+5,1/-8,8	+4/-14
girls	+5,5/-3,3	+1,2/-14,2

In ten year old children, the distinction between the girls and boys was significant (Tab. 5). On asymmetry of a Skin-Galvanic Reaction of hands in the boys the growth of the right-hemispheric asymmetry, in the girls, left-hemispheric growth was observed. The change of the factor of the asymmetry of the domination of an eye

was more homogeneous, and as a whole, has reflected the growth of activity of visual zones of the left hemisphere.

Tab. 5.

Factor of hemispheric asymmetry in 10 year old children during the use of the "Folding-Method".

On the method of binocular competition

	beginning	middle	ending
average	20,5+/-62,7	+16/-72,9	+33,3/-63,7
boys	12+/-40,9	+16/-62,7	+38/-69,1
girls	23,3+/-69,5	+16/-78,1	+31,7/-64,2

On the Skin-Galvanic Reaction of the right and left hands

	beginning	middle	ending
average	+6,6/-24,1	+4,3/-22,7	+4,7/-16,7
boy	+13,6/-29,3	+5,7/-24,8	+6,1/-9,9
girl	+4,2/-22,8	+3,9/-22,8	+8,3/-17,2

In the group of children with speech difficulty, the activity of the right and left hemispheres authentically grows during the use of the "Folding-Method." (Tab. 6).

Tab. 6.

Activity of the hemispheres of 10-15 year old children with speech difficulty during lessons in the "Folding-Method."

Left hemisphere

	beginning	middle	ending
average	21,8+/-13,4	+35,2/-26,2	+38,8/-25,9
boys	21+/-15,3	+22,4/-11,3	+30/-28,7
girls	22,6+/-12,3	+48/-31,2	47,5/-21+

Authentic growth from the beginning up to the end of the course $t=4,29$, $n=15$, $p<0,05$

Right hemisphere

	beginning	middle	ending
average	+29/-15,5	+42,4/-23,8	+46,3/-27,7
boys	+23/-12,3	+37/-22,3	+42,6/-25,8
girls	+35/-16,7	+47,9/-25,6	+50/-30,7

Authentic growth from the beginning up to the end of the course $t=3,41$, $n=15$, $p<0,05$

In the girls the growth of the left-hemispheric asymmetry, in the boys, right-hemispheric (Tab. 7) asymmetry was observed. The large activity of the right hemisphere in children with speech difficulty during employment can be explained in that in this group everyone was right handed but in genetic attributes the majority are left-handed 25 % and ambidextrous 43.75%. Thus, the activation of a generically dominant hand strongly has affected activity of a contralateral hemisphere.

Tab. 7.

Factor of hemispheric asymmetry in 10-15 year old children with speech difficulty during the course in the "Folding-Method".

On the Skin-Galvanic Reaction of the right and left hands

	beginning	middle	ending
average	-13,8+/-18	+12,8/-22,1	+9,6/-26,8
boys	-4,7+/-15,4	+22,1/-27,4	+24,8/-20,9
girls	-23+/-16,4	+3,5/-10	+5,6/-23,9

It is interesting, that the boys and girls manifested themselves differently during the lessons: the girls, as a rule, will simulate, listen attentively and look; the boys more often try to construct models according to the diagrams, rush forward, and are noisier.

The motor abilities during the lessons change. In the beginning of the course, children awkwardly folded simple models of origami, with the minimal number of folds, and at the end of the course, the rather complex (rather difficult) models, with plenty of folds were being constructed which require a significant subtlety of motor skills.

Psychomotor parameters: the maximal rate of movement of hands and its asymmetry is appreciably varied during the course in the "Folding-Method" (Tab. 8)

In the 6 groups the maximal rate of movement of the right hand in the beginning was on the average 121 (boys 124, girls 118.8), in middle the parameters actually increased to 159.2, 163 and 154.4 respectively. At the end of the course, the maximal rate of movement of the right hand still increased to 166.2, 170.5, 162.9. The difference between first and last measurements is actual ($t=11.97$, $n=23$, $p<0.0$.)

Tab. 8.

The maximal rate of movement of the hands of 11 year old children during the course in the "Folding-Method".

Left hand

	beginning	middle	ending
average	102,3+/-15,4	+138/-20	+149,6/-17
boys	102,6+/-12	+137/-27,9	+148/-15
girls	102+/-17,8	+138,7/-13,6	+150,9/-19

Actual growth from the beginning to the end of the course $t=13,75$, $n=23$, $p<0,05$

Right hand

	beginning	middle	ending
average	+121/-17,8	+159,2/-20,2	+166,2/-17,3
boys	+124/-20,5	+163/-19,3	+170,5/-22,3
girls	+118,8/-16	+156,4/-21,4	+162,9/-12,2

Actual growth from the beginning to the end of the course $t=11,97$, $n=23$, $p<0,05$

The maximal rate of movement of the left hand had approximately the same dynamics as at the right hand. In the beginning of the course there was an average parameter of 102.3; for the boys 102.6; for the girls 102. In the middle of the course,

the rate of movement of the left hand actually increased and reached 138 on the average; 137 for the boys; 138.7 for the girls. At the end of the course, this parameter still increased up to 149.6, 148, 150.9 respectively, so the change from the first measurement to last is actual using the criterion of Student $t = 13.75$, $n = 23$, $p < 0.05$. The asymmetry of the maximal rate of movement of the hands initially reached 8.38 % average, 9.2 % compared with that of boys, 7.8 % compared to girls. In the middle of the course, the asymmetry moved in the left hand (i.e. right hemisphere) on the average up to 7.19 %; for the boys 9.19 %; for the girls 5.73%. At the end of the course in origami, growth of asymmetry in the right hemisphere 5.28 %; for the boys 6.92 %; for the girls 4.03% was obtained on the average. The asymmetry of the maximal rate of movement of the hands from the first measurements up to the last actually has changed in the right side of the hemisphere using the criterion of Student $t = -2.29$, $n = 23$, $p < 0.05$.

In the control group the maximal rate of movement of the right hand at the beginning of the educational week was on the average 155.3 (boys 155.9; girls 154.7) and in the end, the maximal rate of movement of the right hand has not really changed, accordingly 151, 157.8, 151.3. The maximal rate of movement of the left hand at the beginning of week was on the average 138.9; for the boys 148.8; for the girls 130.5. In a week this parameter changed as follows - 135.2, 139.6, 130.2 respectively (tab. 9). The change does not reach a level of reliability under the criterion of the Student. The asymmetry of the maximal rate of movement of the hands initially was 6.43 % - average, 4.91 % the average for girls, 8.12 % the average for boys. At the end of the educational week the asymmetry of the maximal rate of movement of the hands actually has not changed and was on the average 7.06 %, for the boys 4.82 %, for the girls 9.55%.

Tab. 9.

The maximal rate of movement of the hands in the control group of 11 year old children during the educational week.

Left hand

	before	after
average	138,9+/-32,8	+ 135,2/-28,1
boys	148,8+/-34,6	+ 139,6/-32,9
girls	130,5+/-29,9	+ 130,2/-22,6

Right hand

	before	after
average	+ 155,3/-22,3	+ 154,4/-22,6
boys	+ 155,9/-20,4	+ 151,3/-17,6
girls	+ 154,7/-24,5	+ 157,8/-27,9

The parameter of intelligence on Raven in 8-11 year old children actually increased (Tab. 10). During the course in the "Folding-Method", the average parameter made 61 items, after 75.5, a gain of 14.5 items ($t = 10.59$, $n = 68$, $p < 0.05$).

Tab. 10.

Parameter of intelligence in 8-11 year old children before and after the course in the "Folding-Method".

(on Raven)

	before	after
average	61+23	75,5+24,5
boys	57+21	72,7+22,7
girls	63+24	77,1+25,7

Actual growth $t = 10,59$, $n=68$, $p<0,05$

For boys $t = 7,62$, $n=25$, $p<0,05$

For girls $t = 7,51$, $n=42$, $p<0,05$

Age dynamics were observed. In 8 year old children, before the course in the "Folding-Method", the average parameter was 45.06 (for the boys 43.75, for the girls 46.38). After the course, the average parameter was already 59.19; for the boys it increased up to 55.13; for the girls up to 63.25. The average gain was 14 items (actual change using the criterion of Student, $t = 5,01$; $n = 15$; $p < 0,05$).

In group 3 (10 year olds) before the course, the average parameter was 76.5; for the boys 80.4; for the girls 75.2. After the course, the average parameter was 92.2; for the boys the parameter increased up to 93.4; for the girls up to 91.8. The average gain 15.7 items (actual change using the criterion of Student, $t = 9.56$; $n = 19$; $p < 0.05$).

In group 4(10 year olds) before the course, the average parameter was 58.15; for the boys 49.3; for the girls 65.71. After the course, the average parameter made was 81.91; for the boys the parameter increased up to 80; for the girls up to 83. The average gain 23.76 items (actual change using the criterion of Student, $t = 5.32$; $n = 9$; $p < 0.05$).

In the experimental group 6 (11 year olds) and in the control group (11 year olds) additionally, decision time was analyzed using the Raven tables .

In group 6 (11 year olds) before the course, the average parameter made was 57.96; for the boys 56; for the girls 59.36. After the course, the average parameter made was 70.38; for the boys 75.6; for the girls 66.64, an average gain of 12.4 items. The actual change using the criterion of the Student, $t = 4.18$; $n = 23$; $p < 0.05$.

The decision time using Raven matrixes decreased from 27 minutes to 17 minutes, the average actual change using the criterion of the Student, $t = -9.23$; $n = 23$; $p < 0.05$.

In the control group (5 classes), where the course in the "Folding-Method" was not carried out, the measurements of a parameter of intelligence has shown doubtful changes. The average parameter of the first measurement was 61.38; for the boys 57.5; for the girls 64.71. After the educational week the average parameter made was 56.77; for the boys 56.33; for the girls 57.14. In one week, the average parameter of intelligence decreased on 4.6 items, this change using the criterion of the Student is not authentic.

The decision time of Raven matrixes decreased from 17 minutes to 15 minutes on the average, the change using the criterion of the Student is not authentic. During the course in the "Folding-Method," the growth of originality, speed of thinking using the Guilford test of " Interpretation of pictures: what is this? ". The parameters actually have changed. Before the course in origami the average interpretations made was 13.88, comparison of boys 10.6, comparison of girls 15.25. After the course the average interpretations increased up to 18.71 (in the boys 15.6, in the girls 20). The change is actual using the criterion of the Student, $t = 4.27$, $n = 16$, $p < 0.05$. The originality of interpretations before the course in origami on the average was 5.9 (boys = 3.76, girl = 6.79). After origami, the parameter of originality increased and reached on the average 10.1; for the boys 5.87; for the girls 11.87. Using the criterion of the Student the change is actually, $t = 3.71$, $n = 16$, $p < 0.05$. It is interesting, that in verbal interpretation of a figure, the girls were ahead both on speed and on originality of thinking, and in the task to add to the figure on all parameters (three-dimensionality, figurativeness and complexity) they were ahead of the boys. It corresponds to the distinction in asymmetry of activity of the hemispheres in the boys (growth in the right hemisphere) and girls (in the left hemisphere).

The parameter of three-dimensional imagination under the Barron test considerably increased ($t = 2.4$, $n = 16$, $p < 0.05$). Before the course in the "Folding-Method." the third dimension was given to the figure by 29% of children, afterward 58.8%. The completion of the o figure was given up to a rate of 52.9 % of children, afterward 76.4% ($t = 2.22$, $n = 16$, $p < 0.05$, actually). The complexity of the figure, the carefulness on the average detailed elaboration of its drawing before the course 4.21 numbers (4.8 for the boys, 4 for the girls), the ambassador has made 7.41 average numbers (8.8 for the boys, 6.83 for the girls), this change is actually, $t = 2.4$, $n = 16$, $p < 0.05$.

The inventions by children of origami models has helped to open creative abilities. The tendency to make an aesthetic selection of colours and forms was observed here. The majority of children, using the learned skills of folding were involved in the creation of models, combining the base forms and separately engineering folds.

The accuracy of the eye's ability to visualize the perception of spatial parts improved. The average mistake in the reproduction of the parts in 8 year old children (group 2) decreased from 13 mm to 9 mm (in the girls from 13 mm up to 8 mm, in the boys from 13 mm up to 10 mm.)

During the course in the "Folding-Method." the growth of a psycho-emotional condition was observed which was at a more intensive rate in the first half of the week.

In the group of children with speech difficulties the psycho-emotional condition in the beginning of the course corresponded to age norms conditionally "a little" = 50.8 (in the boys borderline" very little " = 44; the girls " have not enough " = 57. In the middle, the psycho - emotional condition actually raised to " average optimum " (under the normative table) on the average = 77.63, it is "not enough for the boys = 59.38, (but borderline " below average "), for the girls "it was above the average 95.88. At the end of employment of origami, the parameter of the psycho-emotional condition still was raised and reached on the average = 85.06 - "optimum", for the boys = 72.63 - "optimum", for the girls = 97.5 - is "is above the average.

The parameter of uneasiness under the Lusher test before employment of origami. The average was 3.75, for the boys 4.5, for the girls 3. After the course an origami,

the uneasiness actually decreased $t = -5.83$, $n = 15$, $p < 0.05$, average 0.81; for the boys 1.5; for the girls 0.13.

The parameter of indemnification using the Lusher test before employment of origami on the average reached 2.56; in the boys 3.25; in the girls 1.88. After employment of origami adverse indemnification actually decreased $t = -4.05$, $n = 15$, $p < 0.05$, average 0; for the boys 1.25; for the girls 0.

Factors of the vegetative system using the of Lusher test before employment of origami reached on the average 0.9, the lack of power was noted; for the boys, it was especially low 0.69; for the girls a little more, 1.13. After employment of origami the factor increased on the average up to 1.18; in the boys up to 0.92; in the girls 1.43, that can testify to optimization of a functional condition.

In the group of children with speech difficulties employment of the "Folding-Method" has helped adaptation to hospital conditions .

CONCLUSION

The research carried out has shown, that the "Folding-Method" can be used as a means of:

1. activating the right and left hemispheres bilaterally
2. developing fine 'motor skills' of the hands
3. developing intelligence
4. developing creative thinking
5. developing spatial imagination
6. developing visual accuracy

The specially organized employment of origami will help the child to develop more fully, use more mental resources, and it provides an opportunity for the development of the right and left hemispheres. Also, the "Folding-Method " can be applied in correctional and therapeutic contexts, as a means to increase psycho-emotional conditions, decrease uneasiness and optimize the functional condition .

So, the "Folding-Method" of bilateral development combines a psychophysiological basis to activate both hemispheres, while involving the child with an activity that gives the sensation of a game. It results in satisfaction from work, paints a positive emotional experience, utilizes multimodal activation of mental abilities and provides a fun new experience.

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