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ЕЖЕМЕСЯЧНЫЙ НАУЧНЫЙ ЖУРНАЛ

Медицинские новости Грузии საქართველოს სამედიცინო სიახლენი

GEORGIAN MEDICAL NEWS

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GMN: Georgian Medical News is peer-reviewed, published monthly journal committed to promoting the science and art of medicine and the betterment of public health, published by the GMN Editorial Board since 1994. GMN carries original scientific articles on medicine, biology and pharmacy, which are of experimental, theoretical and practical character; publishes original research, reviews, commentaries, editorials, essays, medical news, and correspondence in English and Russian.

GMN is indexed in MEDLINE, SCOPUS, PubMed and VINITI Russian Academy of Sciences. The full text content is available through EBSCO databases.

GMN: Медицинские новости Грузии - ежемесячный рецензируемый научный журнал, издаётся Редакционной коллегией с 1994 года на русском и английском языках в целях поддержки медицинской науки и улучшения здравоохранения. В журнале публикуются оригинальные научные статьи в области медицины, биологии и фармации, статьи обзорного характера, научные сообщения, новости медицины и здравоохранения. Журнал индексируется в MEDLINE, отражён в базе данных SCOPUS, PubMed и ВИНИТИ РАН. Полнотекстовые статьи журнала доступны через БД EBSCO.

GMN: Georgian Medical News – საქართველოს სამედიცინო სიახლენი – არის ყოველთვიური სამეცნიერო სამედიცინო რეცენზირებადი ჟურნალი, გამოიცემა 1994 წლიდან, წარმოადგენს სარედაქციო კოლეგიისა და აშშ-ის მეცნიერების, განათლების, ინდუსტრიის, ხელოვნებისა და ბუნებისმეტყველების საერთაშორისო აკადემიის ერთობლივ გამოცემას. GMN-ში რუსულ და ინგლისურ ენებზე ქვეყნდება ექსპერიმენტული, თეორიული და პრაქტიკული ხასიათის ორიგინალური სამეცნიერო სტატიები მედიცინის, ბიოლოგიისა და ფარმაციის სფეროში, მიმოხილვითი ხასიათის სტატიები.

ჟურნალი ინდექსირებულია MEDLINE-ის საერთაშორისო სისტემაში, ასახულია SCOPUS-ის, PubMed-ის და ВИНИТИ РАН-ის მონაცემთა ბაზებში. სტატიების სრული ტექსტი ხელმისაწვდომია EBSCO-ს მონაცემთა ბაზებიდან.

WEBSITE www.geomednews.com

к сведению авторов!

При направлении статьи в редакцию необходимо соблюдать следующие правила:

1. Статья должна быть представлена в двух экземплярах, на русском или английском языках, напечатанная через полтора интервала на одной стороне стандартного листа с шириной левого поля в три сантиметра. Используемый компьютерный шрифт для текста на русском и английском языках - Times New Roman (Кириллица), для текста на грузинском языке следует использовать AcadNusx. Размер шрифта - 12. К рукописи, напечатанной на компьютере, должен быть приложен CD со статьей.

2. Размер статьи должен быть не менее десяти и не более двадцати страниц машинописи, включая указатель литературы и резюме на английском, русском и грузинском языках.

3. В статье должны быть освещены актуальность данного материала, методы и результаты исследования и их обсуждение.

При представлении в печать научных экспериментальных работ авторы должны указывать вид и количество экспериментальных животных, применявшиеся методы обезболивания и усыпления (в ходе острых опытов).

4. К статье должны быть приложены краткое (на полстраницы) резюме на английском, русском и грузинском языках (включающее следующие разделы: цель исследования, материал и методы, результаты и заключение) и список ключевых слов (key words).

5. Таблицы необходимо представлять в печатной форме. Фотокопии не принимаются. Все цифровые, итоговые и процентные данные в таблицах должны соответствовать таковым в тексте статьи. Таблицы и графики должны быть озаглавлены.

6. Фотографии должны быть контрастными, фотокопии с рентгенограмм - в позитивном изображении. Рисунки, чертежи и диаграммы следует озаглавить, пронумеровать и вставить в соответствующее место текста в tiff формате.

В подписях к микрофотографиям следует указывать степень увеличения через окуляр или объектив и метод окраски или импрегнации срезов.

7. Фамилии отечественных авторов приводятся в оригинальной транскрипции.

8. При оформлении и направлении статей в журнал МНГ просим авторов соблюдать правила, изложенные в «Единых требованиях к рукописям, представляемым в биомедицинские журналы», принятых Международным комитетом редакторов медицинских журналов -

http://www.spinesurgery.ru/files/publish.pdf и http://www.nlm.nih.gov/bsd/uniform_requirements.html В конце каждой оригинальной статьи приводится библиографический список. В список литературы включаются все материалы, на которые имеются ссылки в тексте. Список составляется в алфавитном порядке и нумеруется. Литературный источник приводится на языке оригинала. В списке литературы сначала приводятся работы, написанные знаками грузинского алфавита, затем кириллицей и латиницей. Ссылки на цитируемые работы в тексте статьи даются в квадратных скобках в виде номера, соответствующего номеру данной работы в списке литературы. Большинство цитированных источников должны быть за последние 5-7 лет.

9. Для получения права на публикацию статья должна иметь от руководителя работы или учреждения визу и сопроводительное отношение, написанные или напечатанные на бланке и заверенные подписью и печатью.

10. В конце статьи должны быть подписи всех авторов, полностью приведены их фамилии, имена и отчества, указаны служебный и домашний номера телефонов и адреса или иные координаты. Количество авторов (соавторов) не должно превышать пяти человек.

11. Редакция оставляет за собой право сокращать и исправлять статьи. Корректура авторам не высылается, вся работа и сверка проводится по авторскому оригиналу.

12. Недопустимо направление в редакцию работ, представленных к печати в иных издательствах или опубликованных в других изданиях.

При нарушении указанных правил статьи не рассматриваются.

REQUIREMENTS

Please note, materials submitted to the Editorial Office Staff are supposed to meet the following requirements:

1. Articles must be provided with a double copy, in English or Russian languages and typed or compu-ter-printed on a single side of standard typing paper, with the left margin of 3 centimeters width, and 1.5 spacing between the lines, typeface - Times New Roman (Cyrillic), print size - 12 (referring to Georgian and Russian materials). With computer-printed texts please enclose a CD carrying the same file titled with Latin symbols.

2. Size of the article, including index and resume in English, Russian and Georgian languages must be at least 10 pages and not exceed the limit of 20 pages of typed or computer-printed text.

3. Submitted material must include a coverage of a topical subject, research methods, results, and review.

Authors of the scientific-research works must indicate the number of experimental biological species drawn in, list the employed methods of anesthetization and soporific means used during acute tests.

4. Articles must have a short (half page) abstract in English, Russian and Georgian (including the following sections: aim of study, material and methods, results and conclusions) and a list of key words.

5. Tables must be presented in an original typed or computer-printed form, instead of a photocopied version. Numbers, totals, percentile data on the tables must coincide with those in the texts of the articles. Tables and graphs must be headed.

6. Photographs are required to be contrasted and must be submitted with doubles. Please number each photograph with a pencil on its back, indicate author's name, title of the article (short version), and mark out its top and bottom parts. Drawings must be accurate, drafts and diagrams drawn in Indian ink (or black ink). Photocopies of the X-ray photographs must be presented in a positive image in **tiff format**.

Accurately numbered subtitles for each illustration must be listed on a separate sheet of paper. In the subtitles for the microphotographs please indicate the ocular and objective lens magnification power, method of coloring or impregnation of the microscopic sections (preparations).

7. Please indicate last names, first and middle initials of the native authors, present names and initials of the foreign authors in the transcription of the original language, enclose in parenthesis corresponding number under which the author is listed in the reference materials.

8. Please follow guidance offered to authors by The International Committee of Medical Journal Editors guidance in its Uniform Requirements for Manuscripts Submitted to Biomedical Journals publication available online at: http://www.nlm.nih.gov/bsd/uniform_requirements.html http://www.icmje.org/urm_full.pdf

In GMN style for each work cited in the text, a bibliographic reference is given, and this is located at the end of the article under the title "References". All references cited in the text must be listed. The list of references should be arranged alphabetically and then numbered. References are numbered in the text [numbers in square brackets] and in the reference list and numbers are repeated throughout the text as needed. The bibliographic description is given in the language of publication (citations in Georgian script are followed by Cyrillic and Latin).

9. To obtain the rights of publication articles must be accompanied by a visa from the project instructor or the establishment, where the work has been performed, and a reference letter, both written or typed on a special signed form, certified by a stamp or a seal.

10. Articles must be signed by all of the authors at the end, and they must be provided with a list of full names, office and home phone numbers and addresses or other non-office locations where the authors could be reached. The number of the authors (co-authors) must not exceed the limit of 5 people.

11. Editorial Staff reserves the rights to cut down in size and correct the articles. Proof-sheets are not sent out to the authors. The entire editorial and collation work is performed according to the author's original text.

12. Sending in the works that have already been assigned to the press by other Editorial Staffs or have been printed by other publishers is not permissible.

Articles that Fail to Meet the Aforementioned Requirements are not Assigned to be Reviewed.

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რედაქციაში სტატიის წარმოდგენისას საჭიროა დავიცვათ შემდეგი წესები:

1. სტატია უნდა წარმოადგინოთ 2 ცალად, რუსულ ან ინგლისურ ენებზე,დაბეჭდილი სტანდარტული ფურცლის 1 გვერდზე, 3 სმ სიგანის მარცხენა ველისა და სტრიქონებს შორის 1,5 ინტერვალის დაცვით. გამოყენებული კომპიუტერული შრიფტი რუსულ და ინგლისურენოვან ტექსტებში - Times New Roman (Кириллица), ხოლო ქართულენოვან ტექსტში საჭიროა გამოვიყენოთ AcadNusx. შრიფტის ზომა – 12. სტატიას თან უნდა ახლდეს CD სტატიით.

2. სტატიის მოცულობა არ უნდა შეადგენდეს 10 გვერდზე ნაკლებს და 20 გვერდზე მეტს ლიტერატურის სიის და რეზიუმეების (ინგლისურ, რუსულ და ქართულ ენებზე) ჩათვლით.

3. სტატიაში საჭიროა გაშუქდეს: საკითხის აქტუალობა; კვლევის მიზანი; საკვლევი მასალა და გამოყენებული მეთოდები; მიღებული შედეგები და მათი განსჯა. ექსპერიმენტული ხასიათის სტატიების წარმოდგენისას ავტორებმა უნდა მიუთითონ საექსპერიმენტო ცხოველების სახეობა და რაოდენობა; გაუტკივარებისა და დაძინების მეთოდები (მწვავე ცდების პირობებში).

4. სტატიას თან უნდა ახლდეს რეზიუმე ინგლისურ, რუსულ და ქართულ ენებზე არანაკლებ ნახევარი გვერდის მოცულობისა (სათაურის, ავტორების, დაწესებულების მითითებით და უნდა შეიცავდეს შემდეგ განყოფილებებს: მიზანი, მასალა და მეთოდები, შედეგები და დასკვნები; ტექსტუალური ნაწილი არ უნდა იყოს 15 სტრიქონზე ნაკლები) და საკვანძო სიტყვების ჩამონათვალი (key words).

5. ცხრილები საჭიროა წარმოადგინოთ ნაბეჭდი სახით. ყველა ციფრული, შემაჯამებელი და პროცენტული მონაცემები უნდა შეესაბამებოდეს ტექსტში მოყვანილს.

6. ფოტოსურათები უნდა იყოს კონტრასტული; სურათები, ნახაზები, დიაგრამები - დასათაურებული, დანომრილი და სათანადო ადგილას ჩასმული. რენტგენოგრამების ფოტოასლები წარმოადგინეთ პოზიტიური გამოსახულებით tiff ფორმატში. მიკროფოტოსურათების წარწერებში საჭიროა მიუთითოთ ოკულარის ან ობიექტივის საშუალებით გადიდების ხარისხი, ანათალების შეღებვის ან იმპრეგნაციის მეთოდი და აღნიშნოთ სურათის ზედა და ქვედა ნაწილები.

7. სამამულო ავტორების გვარები სტატიაში აღინიშნება ინიციალების თანდართვით, უცხოურისა – უცხოური ტრანსკრიპციით.

8. სტატიას თან უნდა ახლდეს ავტორის მიერ გამოყენებული სამამულო და უცხოური შრომების ბიბლიოგრაფიული სია (ბოლო 5-8 წლის სიღრმით). ანბანური წყობით წარმოდგენილ ბიბლიოგრაფიულ სიაში მიუთითეთ ჯერ სამამულო, შემდეგ უცხოელი ავტორები (გვარი, ინიციალები, სტატიის სათაური, ჟურნალის დასახელება, გამოცემის ადგილი, წელი, ჟურნალის №, პირველი და ბოლო გვერდები). მონოგრაფიის შემთხვევაში მიუთითეთ გამოცემის წელი, ადგილი და გვერდების საერთო რაოდენობა. ტექსტში კვადრატულ ფჩხილებში უნდა მიუთითოთ ავტორის შესაბამისი N ლიტერატურის სიის მიხედვით. მიზანშეწონილია, რომ ციტირებული წყაროების უმეტესი ნაწილი იყოს 5-6 წლის სიღრმის.

9. სტატიას თან უნდა ახლდეს: ა) დაწესებულების ან სამეცნიერო ხელმძღვანელის წარდგინება, დამოწმებული ხელმოწერითა და ბეჭდით; ბ) დარგის სპეციალისტის დამოწმებული რეცენზია, რომელშიც მითითებული იქნება საკითხის აქტუალობა, მასალის საკმაობა, მეთოდის სანდოობა, შედეგების სამეცნიერო-პრაქტიკული მნიშვნელობა.

10. სტატიის პოლოს საჭიროა ყველა ავტორის ხელმოწერა, რომელთა რაოდენოპა არ უნდა აღემატეპოდეს 5-ს.

11. რედაქცია იტოვებს უფლებას შეასწოროს სტატია. ტექსტზე მუშაობა და შეჯერება ხდება საავტორო ორიგინალის მიხედვით.

12. დაუშვებელია რედაქციაში ისეთი სტატიის წარდგენა, რომელიც დასაბეჭდად წარდგენილი იყო სხვა რედაქციაში ან გამოქვეყნებული იყო სხვა გამოცემებში.

აღნიშნული წესების დარღვევის შემთხვევაში სტატიები არ განიხილება.

Содержание:

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OPPORTUNITIES

ANALYSIS OF THE RESEARCH STUDY OF THE PECULIARITIES OF INTERHEMISPHERIC ASYMMETRY AND INTERHEMISPHERIC INTERACTION OF NORMAL AND CHILDREN WITH INTELLECTUAL DISABILITIES

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Abstract.

Background: The data obtained indicate a significant mosaic characteristic, variability in the pace and quality of development of different people in the inter-hemispheric and interhemispheric interaction in the motor sphere in ambidextrous and left-handed children in the norm. Probably, this is where the role of the brain hemispheres functional disconnection in left-handedness is played.

Material and methods: The methodological basis was the work of a number of authors devoted to the study of nervous functions in children with mental development disorders and interhemispheric asymmetry of the brain, regulation of these functions, identifying difficulties, and modeling the system of work with these children.

From the above, it follows that teaching children with mental development disabilities of 8-11 years under the developmental program of Corballis, Elkonin- Davydov activates to a greater extent the right hemispheric brain systems. Education of children with ID disorders of 8-11 years old according to the developmental program of Zankov activates left hemispheric brain systems to a greater extent. Further it follows that the correlation between the type of functional asymmetry of the cerebral hemispheres and the features of the training program will determine the level of mental development in these children studying in different developmental programs. Children with mental development disorders of 8-11 years old with a right hemispheric thinking style who study according to the developmental program of Elkonin- Davydov, and with the left hemispheric style, studying according to the developmental program of Zankov, will have a relatively higher level of intellectual development as compared to other types of functional asymmetry of the cerebral hemispheres. And also it is necessary to note individual features of functional asymmetry of cerebral hemispheres in younger schoolchildren, caused by features of interhemispheric interaction at the differences in the structure of mental development in them will be formed by teaching them different developmental programs.

Results: In children with ID, the differences from the norm are primarily quantitative in nature. The development of different types of practice, stabilization of hemispheric specialization in movements, including complex, and hierarchically organized functional system of interhemispheric relations are going through the same stages in children with ID as in normal, but only at a slower and more irregular pace. For most of them, disorders of muscle tone, oculomotor reactions, tactile sensuality, kinetic (proprioceptive) components of praxis, sensorimotor sphere are not characteristic. This indicates to the subcortical functioning of brain and subcortical formations, which are responsible for "background" components of involuntary movements and are the functional substrate of the basic components of interstitial asymmetry and interstitial interaction.

Conclusion: It should be noted that the right hemisphere of the brain, which forms and functions in the motor sphere in left-handed children as the dominant one, cannot always cope with the successful implementation of this role. The analysis of our results shows that ambidexters and children with signs of left-handedness in most cases worse perform many motor tests with the left hand. A similar pattern is observed in left-handed children with a mild degree of intellectual disabilities.

Key words. Asymmetry, right-hand, left-hand, ambidexters, children with intellectual disabilities.

Introduction.

Neurophysical and psychological research of some peculiarities of interhemispheric asymmetry and interhemispheric interaction in the motor sphere in children with different forms of mental developmental disorders is of undoubted interest. It can show a number of new aspects of the problem of formation of interhemispheric asymmetry and interhemispheric interactions in ontogenesis. Children with intellectual disabilities (ID) were chosen as "clinical models" for this study. Such a choice was due to a number of reasons. First of all, this group of children represent different variants of ID [1-3].

ID of different degrees is one of the most striking examples of genetic pathology, which determines the symptoms of mental retardation [4]. In the modern psycho-psychology of abnormal development, there are presumptions about the fact, that this underdevelopment has a total character and mainly affects the formation of the highest levels of all mental functions, particularly the right one. Children with ID have poor accuracy of movements, inability to plan and control them in advance, deficiency of pro-translational representations and pro-translational-motor coordination [5-7]. In mental retardation, the thresholds of tactile sensitivity are reduced, which may lead to changes in the work of the of kinetic component of movements [2,8,9].

Intellectual disabilities in development are of an ethnoparticular nature and is reversible with the use of psychological, pedagogical and psychological correctional interventions [10-12]. Despite the fact that a large number of studies are devoted to various forms of ID, the nuances of development of interhemispheric connections in the motor sphere of such children have not yet attracted the attention of physiologists, neuropsychologists and pedagogues. However, it is known that in this type of dysfunction of cerebral cortical formations of the brain, and they play a fundamental role in the development of interhemispheric relations at the stage of early development [5,13-15].

Aim of the work.

The article presents the results of our own research on the features of interhemispheric asymmetry and interhemispheric interaction in normal and children with intellectual disabilities.

Materials and Methods.

Our study involved 131 children of 8-11 years old, who attended different educational institutions. Among them there were 73 healthy or normally developing children and 58 children with ID. All children underwent a comprehensive medical (including neuropsychiatric) examination. In this age the child is usually already studying at school, and the influence of mental state is not yet noticeable. In addition, it is from this very age that a battery of neuropsychological methods can be adequately applied for children's observation.

Frequencies of all the meetings, the variants of the answers to the questions of the test for determining the motor (manual) asymmetry in the group of healthy children are presented in Table 1.

Table 1. Frequency of occurrence of answer variants to the questions of the test-questionnaire for determining motor (manual) asymmetry in the group of healthy children.

Ν	Leading nand (%)		
test question	Right	Left	Both hands
1	83,8	16,2	0
2	83,8	16,2	0
3	73	10,8	16,2
4	75,7	16,2	8,1
5	75,7	16,2	8,1
6	83,8	13,5	2,7
7	75,7	13,5	10,8
8	75,7	18,9	5,4
9	82,8	14,3	2,9
10	85,3	11,8	2,9
11	56,8	43,2	0
12	54,1	45,9	0
13	86,5	13,5	0
14	85,3	14,7	0

As follows from the data given in Table 1, in the group of healthy children (normally developing) the majority of actions were performed by pupils with the right hand.

In the first subject (writing) children's right hand dominated in 83.8% of cases, left hand - in 16.2%.

According to the results of the second test, the number of children who prefer to draw with the right hand, as well as in the first case, was 83.8%, with the left hand - 16.2%.

We got some variety according to the results of the third test. When throwing the ball, 73% of children were using the right hand, and 10.8% - the left hand; also, we found a small number of children using both hands (16.2%).

According to the results of the analysis of the answers to the fourth and fifth questions, it was found that 75. 7% of children prefer to hold scissors and toothbrush in the right hand, 7% of

children, in the left - 16.2%, and the number of children who can perform this action with both hands was 8.1%.

When asked about the use of a spoon, the majority of children answered that they hold it in the right hand (83.8%), 13.5% in the left hand, 2.7% of children are able to hold a spoon in both the right and left hands.

In the next test, the number of children using the left hand when opening the lid of the box increased to 18.9%, which exceeds the number of left-handed children in the previous tests. The right hand is dominant in 75.7% of cases, also the number of children using both hands is insignificant - 5.4%.

When using the right hand, the right hand dominates in 82.8% of cases, the left hand - in 14.3%; there are also children who can use both hands to hold the mocha in both hands. The number of such children was detected in 2.9%.

In the "lock" test, the right hand was dominant in 56.8% of cases, the left hand - in 43.2%.

In the test "Napoleon's pose" 54.1% of children had the right hand, and 45.9% - the left hand.

In the "clap" test, in which the students were asked to clap their hands, the right hand dominates in 86.5% of children, and the left hand - only in 13.5%. 85.3% of pupils lift an object from the floor with the right hand, 14.7% do it with the left hand.

Table 2 shows the results of determining the motor (manual) asymmetry in the group of children with ID.

Table 2. Frequency of occurrence of answer variants to the questions of the test-questionnaire for determining motor (manual) asymmetry in the group of children with ID.

Ν	Leading hand (%)		
Test question	Right	Left	Both hands
1	73,2	26,8	0
2	68,9	25,9	5,2
3	74,4	18,9	6,7
4	73,8	23,1	3,1
5	91,8	8,2	0
6	76,8	18,6	4,6
7	88,9	6,3	4,8
8	93,6	6,4	0
9	38,6	36,8	24,6
10	86,3	13,7	0
11	65,8	34,2	0
12	56,6	43,4	0
13	43,8	56,2	0
14	40,9	44,8	14,3

A somewhat different picture was obtained by the results of the seventh test. The number of children able to master the skill in both right and left hands increases (up to 10.8%) compared to the previous tests, although the majority of children are still right-handed - 75.7%, 13.5% - left-handed.

As it follows from the data given in Table 2, as well as in the previous study, the majority of activities are performed by pupils with the right hand (tests 1-10).

In the first test (writing) children's right hand dominated in 73.2% of cases, left hand - in 26.8%. According to the results of the second test, the number of children who prefer to draw with the right hand, as well as in the first test, amounted to 68.9%,

the left hand - 25.9%, and 5.2% of children with ID could draw with both hands.

The same situation is observed in the results of the third test. When throwing the ball 74.4% of children had the right hand, 18.9% - the left hand; also, some number of children using their hands - 6.7%.

According to the results of the analysis of answers to the fourth question, it was found that 73.8% of children prefer to hold scissors in the right hand, 23.1% of children in the left hand, and if necessary, 3.1% can use both hands. 91.8% of children prefer to hold a toothbrush in the right hand, in the left - 8.2%. When asked about the use of a spoon, most children answered that they hold it in the right hand (88.9%), 6.3% in the left hand, 4.8% of children are able to hold a spoon both in the right and left hands.

A somewhat different picture was obtained by the results of the second test. No children capable of holding a comb in both right and left hands were found, although the majority of children are still right-handed - 93.6%, 6.4% - left-handed.

The number of children using left and right hands when opening the lid of the box is approximately the same - 38.6% and 36.8%, both hands are used by 24.6% of the surveyed.

When using a hammer, the right hand dominates in 86.3% of cases, the left hand - in 13.7%. In the "lock" test, the right hand was dominant in 65.8% of cases, the left hand - in 34.2%.

In the test "Napoleon's pose" 56.6% of children had the right hand, and 43.4% had the left hand. In the "clap" test, in which pupils were asked to clap their hands, the right hand dominates in 43.8% of children, and the left hand in 56.2%. 40.9% of pupils lift an object from the floor with the right hand, 44.8% do it with the left hand and 14.3% perform this action with both hands.

To determine the hidden signs of left-handedness, which are most often unknown to the experimenter and are not influenced by the training, we used the tests "fingers of hands", "crossing of hands on the chest" and "apploding".

According to our findings, they supplement the information about the presence of motor asymmetry features in the subjects, as it is noted in the literature (Bragina N.N., Dobrokhotova T.A., 1988).

Among normally developing children of 8-11 years of age right-handed children were 56 children, i.e. 76,7%, left-handed - 14 children or 19,2% and ambidextrous - three (3) or 4,1%. Of them in the age group of 8-9 years right-handed made 76.3% or 29 children, left-handed - 18.4% or 7 children and 2 ambidextrous were detected, composed 5.3%.

In the age group of 10-11-year-old normally developing children, right-handed children accounted for 80% or 28 children, left-handed - 17.1% or 6 children and 1 ambidextrous was detected, amounting to 2.9%.

The same studies in the group of children 8-11 years old with ID revealed the following results.

And so, 41 right-handed children or 70.7%, 15 left-handed children or 25.9%, two (2) ambidextrous children or 3.4% were identified.

Distribution by age groups revealed that in the age group of 8-9 years right-handed children made up 63.3% or 19 children, left-handed children - 30% or 9 children and 2 ambidextrous were

detected, accounting for 6.7%. In the age group of 10-11-yearold children right-handed children accounted for 71.4% or 20 children, left-handed - 28.6% or 8 children. There were no ambidextrous children in this group.

The test for reciprocal coordination, which evaluates interhemispheric interaction at the level of the lower parts of the brain and the musculoskeletal body, is performed equally well by healthy children and children with ID of the younger age subgroup. Obviously, in this age group, the inter-beam interaction, secured by subcortical brain structures, functions approximately the same in healthy children and in children with ID. As the chronological and logical age increases (and therefore, as the cortex and cerebral cortices and brain commissures become more and more visible, which is consistent with the available literary data.

The most characteristic errors in both groups are difficulties of inclusion in the task, uneven pace of activity, non-simultaneous performance in one of the hands (and more often in the right hand).

In healthy children there is a positive visual dynamic of the predictions about the coordinates of space and in the sphere of the proximal right hand. For example, with the increase of eyesight they have the frequency of "mirror" errors decreases.

In case of ID there is also a positive age dynamic in this type of law, but children of this group, as a rule, are significantly different from their healthy peers. With increasing age, they have not so quickly decreased the number of "green" errors when performing the tests of procrastination right, there are symptoms that are generally not typical for healthy children, for example, symptoms of posture simplification example.

Some children with ID also have originality, practically not occurring in the norm, violations of coordinate spatial predictions: They can correctly show the right and left hands of a psychologist and make mistakes when showing the right and left hands of themselves. The necessary discrepancy can be seen both in the lack of the basic ideas about the coordinated of the body, based on the "body scheme", as well as about possible deviations from the "normative" approach to the development of pro-transformational presuppositions at ID.

Results.

In the norms of inter-subject asymmetry and inter-subject interaction is, of course, heterochronic in nature. That is why in the schoolchildren studied by us we face with the first level of interlocutor connections formed to the fullest extent, while the second and third levels are still in the process of formation. This leads to the fact that the healthy children of 8 years of age are not yet able to perform complex bimanual movements, automatized motor programs, organized motor acts based on the "scheme of the body" and the speech level of spatial relations. Some of them have not yet completely stabilized various motor and sensory asymmetries. In this regard, the comparison of the results of healthy children of 8-11 years old among themselves shows, that the functional organization of inter-hemispheric asymmetry and interhemispheric interaction is in the state of constant progressive development in this age range. In children with ID, the differences from the norm are primarily quantitative in nature. The development of different types of practice,

stabilization of hemispheric specialization in movements, including of complex, and hierarchically organized functional system of interhemispheric relations are going through the same stages in children with ID as in normal, but only at a slower and more irregular pace. For most of them expressed disorders of muscle tone, oculomotor reactions, tactile sensuality, kinetic (proprioceptive) components of praxis, sensorimotor sphere are not characteristic. This indicates to the subcortical functioning of brain and subcortical formations, which are responsible for "background" components of involuntary movements and are the functional substrate of the basic components of interstitial asymmetry and interstitial interaction.

This is evidenced by frequent difficulties in entering tasks, symptoms of general and parathyroidal exhaustion, manifestations of inertness, sometimes reaching the stage of perseveration. We can't rule out that the necessary "second" deficiency of the second "second" deficiency of the postcortical oibrations and the levels of interhemispheric interactions that they produce leads to a relatively high frequency and persistence of "green" errors in the proximal right brain in children with ID.

In addition, the character of violations of the performance of different tests of the right brain shows that the symptoms of "delay" appear or show themselves very clearly when it is necessary to include the functional activity of the left side of the brain. That is why the differences from the norm are marked in those tasks, where the role of dynamic (kinetic) organization of movements and their pro-articulatory speech regulation is significant (in comparison with the tests, performance of which relies mainly on inter- and exteroceptive polysensory information). One more aspect of the obtained results, which should not be left without attention, is about the observed interhemispheric interaction in children with left-handedness.

However, the data obtained indicate a significant mosaic, variability in the pace and quality of development of different aspects of interhemispheric asymmetry and interhemispheric interaction in the motor sphere in ambidextrous and left-handed children in norm and at ID. For example, we cannot say that ambidextrous and left-handed children with ID in all motor tests demonstrate lower results than their healthy peers. They are worse at performing the tests of the right posture by the visual eye example.

Discussion.

We considered it necessary to conduct additional research with the purpose of verification of the Edinburgh questionnaire and worked out an adapted thesis. Thus, we separate two types of laterality, which we encountered in the course of the research: pathological and functional. Pathological latency, which is connected with changes in the inter-parietal interactions underlying the integration of brain functions, but, in our opinion, it is of a mixed nature in mental retardation, due to the organic damage of the brain. In children with ID there is a lack of immaturity of the left hemisphere integrative structures, which also leads to pathological latency. Functional latitude is not a pathology of the brain, it does not contradict the laws of normal mental development, including intellectual and tactual development, however, many researchers believe that the dominance of the right hemisphere is in favor of creative development of personality. We believe that reproductive methods of teaching, appealing to the left hemisphere, can create stereotypical approaches to creativity in children by 9-11 years old.

It is possible to assume that the presence of left-handedness signs in the motor sphere and a different character of interhemispheric asymmetry and interhemispheric interaction in left-handed children will lead to the fact that a number of motor tests will be performed worse by them than by right-handed children. Therefore, it would be very interesting to compare the results of children with expressed and weak right-handedness with the results of children with weak right-handedness and children with weak and expressed left-handedness. However, the relatively small number of left-handed and a-ambidextrous children among healthy children does not allow us to make such an assessment correctly. Proceeding from this, we will limit ourselves only to some preliminary observations of the results shown by healthy children with signs of left-handedness.

Conclusion.

The data obtained indicate a significant mosaic characteristic, variability in the pace and quality of development of different people in the inter-hemispheric and interhemispheric interaction in the motor sphere in ambidextrous and left-handed children in the norm. Probably, this is where the role of the brain hemispheres functional disconnection in left-handedness is played. It should be noted that the right hemisphere of the brain, which forms and functions in the motor sphere in lefthanded children as the dominant one, cannot always cope with the successful implementation of this role. The analysis of our results shows that ambidexters and children with signs of lefthandedness in most cases worse perform many motor tests with the left hand. A similar pattern is observed in left-handed children with a mild degree of intellectual disabilities.

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