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Property of attention in senior preschool children with delay of mental development

Abstract. The article examines average indicators of attention sustainability and concentration, attentional set-shifting and attention volume of mentally retarded children. Authors consider features of attention development of preschool mentally retarded children, various classifications of mental retardation. In addition, the authors reveal various diagnostic approaches of the mental retardation. Reasons causing difficulties in forming homogeneous children groups with the specified type of mental dyontogenesis are identified. The diagnostic significance of the neuropsychological approach is emphasized when studying the children that demonstrate the mental retardation of intensity.

Special attention is paid to attention peculiarities of the mentally retarded children. The authors conducted a comparative study of the mentally retarded children and normative developed children. Twenty of 5-6 year-old children of two groups were involved in the study. It was revealed that the normative developed children as compared to the mentally retarded children have significantly higher levels of the attention sustainability and concentration.

Keywords: voluntary attention, attention concentration, (modification of the Perron-Ruzer method), attention volume, attention features, mental retardation.

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Features of voluntary attention of mentally retarded children of senior preschool ages. In recent years, the number of mentally retarded children has noticeably increased. Moreover, data of Psychology for Special Needs show that mental retardation is one of the most common forms of mental abnormalities in early ontogenesis. Moreover, this fact causes increased attention of researchers to this issue.

A comprehensive study of the mental retardation as a specific anomaly of child development was developed in Soviet defectology in the 1960s. This study is associated with names of such scientists as T.A. Vlasova, V.M. Astapov, N.S. Pevzner, V.M. Lubovsky and others. T.A. Vlasova and N.S. Pevzner in their book “About children with developmental disabilities” gave the first generalizations of clinical data about the mentally retarded children and general recommendations concerning remedial works with them to aid the teacher. Cognitive peculiarities of the mentally retarded children are widely covered in the psychological literature (V.I. Lubovsky, L.I. Peresleni, I.Yu. Kulagina, T.D. Puskayev, etc.). V.I. Lubovsky notes insufficient formation of the voluntary attention of the mentally retarded children, deficiency of basic attention properties: concentration, volume, allocation [1, 15-18pp.] .

The mentally retarded children have underdeveloped voluntary attention. There is the deficiency of the main attention properties: concentration, volume, allocation. It is characterized by instability, low concentration and attentional set-shifting.

The issue concerning attention development of the mentally retarded children is relevant that this mental process is necessary for child’s successful development in training and education. In addition, its lack of development can lead to decreasing school readiness. The increased interest in the research issue is also caused by the insufficient development of pedagogical aspects of attention disorder correction at the mentally retarded children.

Already at preschool age, the mentally retarded children do not cope with the program

requirements in the kindergarten. Moreover, by the time, they entering a school do not reach the required level of the school readiness.

Early detection, study and correction of cognitive impairments, and above all attention at the mentally retarded children of senior preschool ages, is a necessary condition for their further successful schooling [2,6-7pp.].

As our N.A. Nazarbayev noted when he addressed to the nation: “In order to join the ranks of civilized developed countries in the future, we need education being aligned with the times. The education will help to make Kazakhstan one of the 50 developed countries.” In this case, no doubt, that a mental load falls on teachers’ shoulders for ensuring that the younger generation is formed versatile and deeply educated. It may be said that attentiveness during the educational process is the main condition when a child receive knowledge [3].

A group of researchers viewed attention as a psychological phenomenon at the end of the XIX - the beginning of XX century. B.B.Petukhov, L.M. Becker, W. James, T. Ribo, N.N. Lange, A.A. Ukhtomsky, N.F. Dobrynin, S.L. Rybinshteyn, J. Aymaulytov, M. Zhumabayev, K. Zharykbaev and others differently characterized attention in their writings.

Today, attention plays a crucial role in the educational process according to studies of the academician T. Tazhibayev. He notes: “In most cases, the children’s attention is related to interest. Therefore the educational process should be interesting and visual” .

As well as it is possible to note the modern domestic psychologist O. Sangilbaev. He conducts research works related to the problem of attention development and formation at primary school students in schooling.

T.A. Vlasova and M.S. Pevzner offered the first clinical classification of mental retardation in 1967. Two mental retardation variants were considered within this classification. One of them was related to pedomorphism and universal infantilism when backwardness of emotional-volitional spheres and child personal immaturity are at the first place. The second variant was connected to violation of cognitive activities in the mental retardation and persistent encephalitic asthenia, the last is characterized with alteration of attention, distractibility, rapid fatigability, psychomotor lethargy or excitability.

M. S. Pevzner considered, as it is possible to invert light organic changes in the cerebrospinal system and immaturity of the emotional-volitional sphere when providing correct healing and correctional and educational works. So, sometimes the mental retardation has been described as “temporary mental retardation”. However, according to follow-up study data of M. G. Reidiboym (1971), I.A. Yurkova (1971), M.I. Buyanov (1986), as far as signs of intellectual incapacity and often psychopathic disorders more often than not come to the fore as the emotional immaturity with child aging.

V.V. Kovalev is the author of the following classification (1979). He divided the mental retardation into dysontogenetic and encephalopathic variants. Predominance of immaturity signs of frontal and frontal-diencephalic areas of the brain are characteristics for the first variant; symptoms of subcortical system damage are more for the second one. The author emphasized mixed residual neuropsychiatric disorders - dysontogenetic-encephalopathic - adding to these two variants.

It cannot be overemphasized attention: it is needed to know actively the outside world and practical activities. A human can remember only those irritants that manage to capture his attention [4,22,43pp].

It is of critically important for teachers that students have a high level of attention. It is necessary for literal perception of advanced information. This is particularly so mentally retarded children whose attention has certain characteristics.

That is why the attention characteristics of the mentally retarded children as well as techniques of its development are careful studied. When analyzing children attention of different age groups, it is worth paying attention to their concentrate capability, maintaining instructions in

memory as well as their activity in performing certain tasks. These capabilities are amenable to be developed at regular school studies and intervention programs.

Violation of active attention is typical for different children mental retardation forms. Decreasing attention concentration is typical; it adversely affects learning processes. Functional or organic disorders of the cerebrospinal system affect a lack of attention and leads to inability to focus on playful or learning activities.

The mentally retarded children have increased exhaustion resulting in short-term productivity. If they perform tasks, errors increase very rapid when achieving a goal. At the same time, increasing absent-minded behaviors are expressed in constant attention switching to various objects [5,28pp].

Major deficiencies of the active attention are occurred at the mentally retarded children when fatigue, asthenia, absence of motivation for learning activities. Z. Trzesoglova identified various characteristics of attention disorders at the mentally retarded children:

- 1) Increased exhaustion of the active attention.
- 2) Insufficient attention concentration.
- 3) Extreme limitation of attentional capacity, when children apperceive an insufficient information. It leads to a fragmented perception and performance distortion.
- 4) "Nonselective" attention that is demonstrated in inability to focus on dominant percept features.
- 5) Attention frequent switches. In this case, children show a spontaneous response to various exogenous irritants. For a long time they cannot concentrate their attention on task implementation.
- 6) Attention torpidity is expressed in impairment in abilities to switch attention from one activity to another.

These characteristics of active attention violation at the mentally retarded children stop implementation of mental activities, do not arouse concentration and selectivity of cognitive activities, trouble implementation of sense and memory experience.

Involuntary attention disorders as high distractibility to incidental exogenous irritants are observed under the mental retardation along with a hyperactivity syndrome. Attention violation increases at the time of fatigue and a dramatic drop in capability under the mental retardation along with a cerebrastronic syndrome. When there are phenomena of the universal infantilism with a loss of interest in this activity type [6,33-38pp].

The lack of the active attention is often typical for the mentally retardation children having the cerebrastronic and asthenic syndromes, the universal infantilism, the mental retardation and the psychopathic syndrome.

Sustainability of the active attention often suffers at the mentally retardation children having the asthenic and cerebral syndromes and at children with infantile cerebral paralysis.

Therefore, mentally retardation children's attention develops differently as opposed the normal attention development. Violation of the active attention is typical for children with various forms of the mental retardation. Attention concentration violation is typical; it will adversely affect learning processes. At the same time, increasing absent-minded behaviors are expressed in its instability.

Diminished attention to verbal information is typical for the most mentally retardation children. Such children begin to yawn, get distracted by unrelated matters, and lose a plot thread, even if they listen a fascinating, interesting, emotional story. These characteristics are especially good appeared when there are any distractions in surroundings. A sudden rap on the door, a stranger in a group, a downfallen object - all of these take children's mind off so much so that they forget an educator's task in full. The teacher will need to make many efforts to return the children's attention to the lesson.

Each attention variants affect quality of learning in its own way. For example, a child shall

work to increase his attention to be successful in maths, he shall accurately distribute his attention to be perfectly in literacy and he shall show sustainability of the attention while reading [7,165-177pp.].

The mentally retardation children having problems with development of each attention properties show poor performance of almost all school lessons.

It is possible to develop different types of attention using special corrective exercises as well as reading, dictation and so on. Engage with the children according to clear instructions, try to motivate them and interest in the process.

It is important to correctly measure jobs for the mentally retardation children, because slightest fatigue causes their attention weakening. It results in failure to perceive lessons, to execute tasks according to the instructions. The tasks shall be accessible, non-volume and interesting.

Use gestures during the lessons to capture the mentally retardation children's attention, it is the most effective way. It is connected to their diminished attention to verbal matters because children are easily bored, regardless of the content, especially if there are exogenous irritants.

A teacher will need some time to make a working climate again when losing children's attention and this will negatively affect effectiveness of the lesson.

Below, we consider some exercises and games that promote developing basic attention properties of the mentally retardation children.

How you can work with the children at home?

You can use the same tasks requiring a certain patience to develop attention concentration. One of the task is to delete any letters in printed texts, for example, on pages of old newspapers or magazines. A child shall be extremely focused and attentive to complete the task [8,148p].

You can offer to work with larger or smaller fonts the mentally retardation children depending on their ages. Gradually, increase work time by 5 minutes.

When studying children at home, consider their characteristics. If you want to develop different types of attention, it is needed to:

- paint pictures on the pattern and hatch them;
- make different pictures using matches or counting sticks as well as on the pattern and even for a time;
- compare pictures;
- search for changes in objects or in pictures, etc.

Attention is a complex mental process connected with motivation and intentions. Mentally retardation children can perform activities successful, only if their attention level is high enough. As attention is one of the most important mental processes, working with the mentally retardation children is critical necessary for their development, although it will be quite difficult.

Perform systematic correctional tasks to achieve any results, that is to improve attention development of the mentally retardation children from an early age in spite of their characteristics. When performing such tasks, you shall provide different activities that result positive motivation.

You need to remember that the tasks should not be too complex and volume when planning correctional work with the mentally retardation children. Gradually increase the task volume and complexity preventing removal the children from stability.

Tasks with increased mental activities will be the most difficult for these children, so exclude them from the program. When drawing lesson, you shall consider children's specificity of attention, their individual characteristics plans as well as areas of current and planned development in the near future.

Then you can hope for certain effects and progresses over time that are expressed in improving the mentally retardation children's concentration, distribution and attention retention indicators [9,149,158pp].

Mental retardation causes: Severe gastrointestinal diseases at early ages (for newborns and children under one year old). Various antenatal abnormalities. Multiple pregnancies (it is more often for gemellary pregnancies). Birth abnormalities (asphyxia, birth trauma, etc.). Prematurity chromosomal and endocrine disorders. Mental characteristics of mentally retardation children: Physical and motor characteristics. Mentally retardation children have stunted growth, low body weights, dystaxia; they start walking late, they are hyperactive. Infantile psychological characteristics. Infantilism is delayed maturation of brain systems. Thus, children's emotional-volitional sphere develops with delay. Cognitive process characteristics. A limited volume and difficulty of perception and memory, slow reception and processing of incoming information, a language delay and a subsequent poverty and primitiveness speech. Schooling. Persistent academic failure, lagging behind in the general program, learning amotivation, low self-control, predominance of play activities over training ones. When schooling, children have not only a negative attitude towards studying but also an inadequacy sense [10,141-145pp].

Syndromes of a time lag of mental evolution as a whole or its individual functions, a slow rate of body properties encoded in the genotype are typical for mental retardation. "Mental retardation" concept is used for children having minimal organic damages or functional defects of the cerebrospinal system as well as who are under conditions of social deprivation for a long time. Within the psychological and pedagogical approach, enough great amount of information has been accumulated regarding specific characteristics of the mentally retardation children who are distinguished, on the one hand, from children with normal mental development, and, on the other, from mentally deprived children. Psychologists note weakness of volitional processes, emotional instability, impulsivity or flaccidity and apathy that are typical for these children. The mentally retardation children demonstrate symptoms of hyperactivity, impulsivity as well as high levels of psychic tension and aggression.

The mentally retardation children's attention develops differently as against the normal development of attention. Violation of the active attention is typical for children with various forms of the mental retardation. Attention concentration violation is typical; it adversely affects learning processes. At the same time, increasing absent-minded behaviors are expressed in its instability[11,75p.].

An experiment was conducted to examine attention features of mentally retarded children of senior preschool ages and to compare attention of normative developed children and the mentally retarded children of the senior preschool ages.

The researchers analyzed professional literature in regards to studying attention of the mentally retarded children of the senior preschool ages to solve the problems of the present study. In addition, they surveyed a State Municipal Management Enterprise (SMME) kindergarten No. 88 "Bayan Sulu" in Nur-Sultan. Twenty of 5-6 year-old children of two groups were involved in the study. Ten children of the SMME No. 88 "Bayan Sulu" of the city of Nur-Sultan were included in an experimental group. The Psychological-Medical and Pedagogical Commission (PMPC) diagnosed all children of the experimental group as the mentally retarded children. Ten children of another group of the SMME No. 88 "Bayan Sulu" of the city of Nur-Sultan were included in a control group. The control group was consisted of children with normative developmental variation. The study was conducted from September 15, 2018 to March 01, 2019 in the SMME kindergarten №88 "Bayan Sulu" of the city of Nur-Sultan.

The subject of the study: two groups of children (10 mentally retarded children diagnosed by the Psychological-Medical and Pedagogical Commission (PMPC) and 10 normative developed children of the senior preschool ages (5-6 years), who attend the SMME kindergarten No. 88 "Bayan Sulu" of the city of Nur-Sultan on the 40a Kyz Zhibek street.

The study includes four stages: organizational, preparatory, psychodiagnostic and final.

1. Study methods of attention capacity - "Remember and repeat"
2. Study methods of attentional set-shifting and attention allocation - "Put badges" (it is

modification of a Perron-Ruser method)

3. Study methods of attention sustainability and concentration - “Lines reversed” (a Bourdon test)

Statistical data processing

Statistical processing of study results (calculation of variation parameters (arithmetic mean value, square deviation, standard error of the mean), calculation of the Mann-Whitney test for assessing the statistical attention significance of the mentally retarded children of the senior preschool ages before and after corrective measures providing.

Results of the attention sustainability and concentration study according to the Bourdon test in the studied groups are presented in Table 1 and Fig. 1.

Table 1

Average values of the attention sustainability and concentration at the mentally retarded children

Value	Normative developed children	Mentally retarded children	Statistical significance, p
Attention sustainability and concentration	2.1	1.6	<0.05

It has been found that the normative developed children of the senior preschool ages as compared to the mentally retarded children have significantly higher sustainability and concentration values.

Distribution in the children groups according to a manifestation rate of the attention sustainability and concentration is shown in Figure 1.

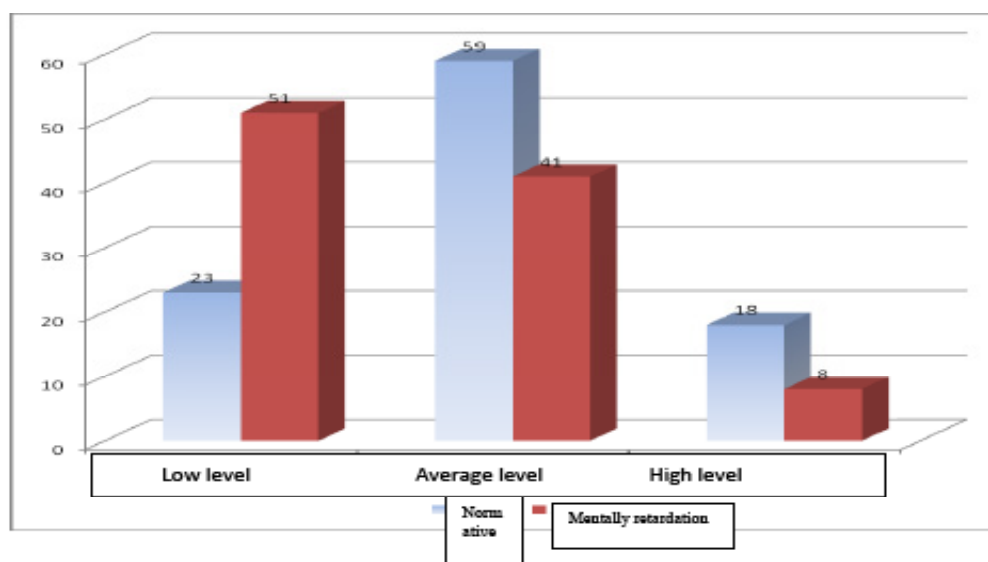


Fig.1. The level of the attention sustainability and concentration at the mentally retarded children (%)

In the group of the normative developed children of the senior preschool ages, the high level of the attention development and concentration was at 18% of children, the average level - at 59% of children and the low level - at 23% of children. At the mentally retarded children, the high level was at 8% of children, the average level - at 41% of children, and the low level - at 51% of children.

Thus, the mentally retarded children as compared to the normative developed children have significantly lower levels of attention sustainability and concentration.

The study of attentional set-shifting at the normative developed children and the mentally retarded children are presented in Table 2 and Fig. 2.

Table 2

Average values of the attentional set-shifting at the normative developed children and the mentally retarded children

Value	Normative developed children	Mentally retarded children	Statistical significance, p
Attentional set-shifting	1.9	1.4	<0.05

Results of the methodology for assessing the children's attentional set-shifting abilities have shown that the normative developed children and the mentally retarded children of the senior preschool ages have significantly higher levels of attentional set-shifting.

Distribution of the attentional set-shifting ability in the children groups is shown in Fig. 2

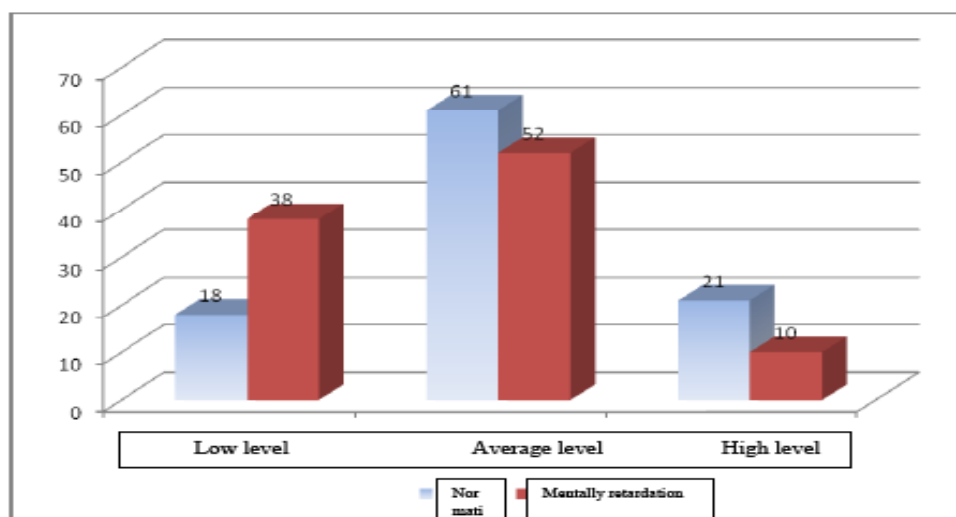


Fig.2. The level of the attentional set-shifting abilities at the normative developed children and the mentally retarded children (%)

As you can see in the Figure 2, in the group of the normative developed children of the senior preschool ages, the high level of the attentional set-shifting was at 21% of children, the average level - at 61% of children and the low level - at 18% of children. At the mentally retarded children, the high level was at 10% of children, the average level - at 52% of children, and the low level - at 38% of children.

Thus, the mentally retarded children as compared to the normative developed children have significantly lower levels of the attentional set-shifting.

The study results of the attention capacity at the normative developed children and the mentally retarded children are presented in Table 3 and Fig. 3.

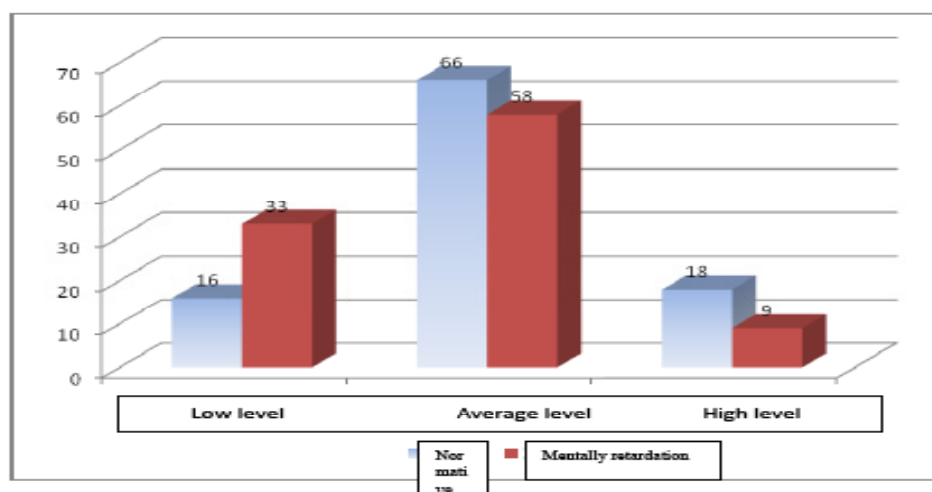
Table 3

**Average values of the attention capacity at the normative developed children
and the mentally retarded children**

Value	Normative developed children	Mentally retarded children	Statistical significance, p
Attention capacity	2.2	1.6	<0.05

Results of the methodology for assessing the children's attention capacity have shown that the normative developed children and the mentally retarded children of the senior preschool ages have significantly higher levels of the attention capacity, as shown in the Table 3.

Distribution of the attention capacity ability in the children groups is shown in Fig. 3



**Fig.3. The level of the attention capacity at the normative developed children
and the mentally retarded children (%)**

In the group of the normative developed children of the senior preschool ages, the high level of the attention capacity was at 18% of children, the average level - at 66% of children and the low level - at 16% of children. At the mentally retarded children, the high level was at 9% of children, the average level - at 58% of children, and the low level - at 33% of children.

Thus, the mentally retarded children as compared to the normative developed children have significantly lower levels of the attention capacity.

In general, the results of the three methods show that the mentally retarded children as compared to the normative developed children have significantly lower levels of the attention sustainability, concentration, capacity and the attentional set-shifting.

Findings

The problem of education and training of preschool children with developmental disabilities is one of the most important and urgent problems of correctional psychology. The mentally retarded children are at the risk group according to all indicators.

Issues of correctional works against attention disorders are not adequately covered in the literature despite numerous statements that specific attention disorders are present at the mentally retarded children of senior preschool ages.

Attention is at the forefront of the training and the education. It is an integral part of all cognitive processes. In general, the mentally retarded children have difficulties in learning activities due to lack of attention.

The mentally retarded children as compared to the normative developed children have significantly lower levels of the attention development level, concentration, sustainability, capacity and the attentional set-shifting. This demonstrates importance of taking corrective measures with them.

The mentally retarded children of the senior preschool ages have an insufficient of the attention development level. This leads to a decrease in their performance and abilities to adopt the training program.

The level of the attention sustainability, concentration, capacity and the attentional set-shifting was significant increased at the mentally retarded children of the senior preschool ages when providing the correctional measures.

Thus, the data obtained indicate the significant improvement in the attention at the mentally retarded children of the senior preschool ages when the remedial measures with them were provided.

The data obtained indicate the need for remedial and rehabilitation measures with the mentally retarded children of the senior preschool ages in order to improve their attention and increase the success when mastering the training program.

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Психикалық дамуында тежелуі бар мектепке дейінгі балалардың зейін ерекшеліктері

Аннотация. Мақалада психикалық дамуы тежелген балаларда зейіннің тұрақтылығы мен шоғырлануының, зейін аудару және көлемінің орташа көрсеткіштері зерттеледі. Психикалық дамуы тежелген мектеп жасына дейінгі балалардың зейінін дамыту ерекшеліктері қарастырылады. Психикалық дамуы тежелудің әртүрлі жіктелуі қарастырылады, психикалық дамуы тежелуін диагностикалаудың түрлі тәсілдері ашып көрсетіледі, психикалық дизонтогенездің көрсетілген түрі бар балалардың біртекті топтарын қалыптастыру кезінде қиындықтар туғызатын себептер анықталады, әртүрлі айқындылық дәрежедегі психикалық дамуы тежелуін көрсететін балаларды зерттеу кезінде нейропсихологиялық тәсілдің диагностикалық маңыздылығы атап көрсетіледі.

Психикалық дамуы тежелген балалардағы зейін ерекшеліктеріне ерекше көңіл бөлінеді. Психикалық дамуы тежелген балалар мен дамудың нормативтік нұсқасы бар балаларға салыстырмалы зерттеу жүргізілді. Барлығы 5-6 жастағы 20 бала тексерілді. Дамуы қалыпты мектепке дейінгі ересек жастағы балаларда, психикалық дамуы тежелген балалармен салыстырғанда зейін тұрақтылығы пен зейін қоюдың анағұрлым жоғары көрсеткіштері бар екені анықталды.

Түйін сөздер: ерікті зейін, зейін қою, (Пьерон-Рузер тәсілінің түрленуі), зейін көлемі, зейін ерекшеліктері, психикалық дамуы тежелуі

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Особенности внимания у дошкольников с задержкой психического развития

Аннотация. В статье исследуются средние показатели устойчивости и концентрации внимания, переключение и объем внимания у детей с задержкой психического развития. Рассматриваются особенности развития внимания детей дошкольного возраста с задержкой психического развития. Рассматриваются различные классификации задержки психического развития, раскрываются различные подходы к диагностике задержки психического развития, выявляются причины, вызывающие затруднения при формировании однородных групп детей с указанным типом психического дизонтогенеза, подчеркивается диагностическая значимость нейропсихологического подхода при исследовании детей, демонстрирующих задержку психического развития разной степени выраженности.

Особое внимание уделяется особенностям внимания у детей с задержкой психического развития. Проведено сравнительное исследование детей с задержкой психического развития и детей с нормативным

вариантом развития. Всего обследовано 20 детей в возрасте 5-6 лет. Выявлено, что дети старшего дошкольного возраста с нормой в развитии по сравнению с детьми с задержкой психического развития имеют достоверно более высокие показатели устойчивости и концентрации внимания.

Ключевые слова: произвольное внимание, концентрации внимания, (модификация метода Пьерона – Рузера), объем внимания, особенности внимания, задержка психического развития.

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