

## About functional disorders of the nervous system of schoolchildren

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**Abstract.** Functional disorders of the nervous system, synonymous with minimal brain dysfunction (MMD) of childhood, are reversible and normalize as the brain grows and matures, and one of these manifestations is attention deficit hyperactivity disorder (ADHD). The diagnosis of MMD most often appears in the child's card only during the medical examination before school, first grade, or even later. In this article, we presented the results of medical examination of children from one of the districts of the Tashkent region and identified the most frequently detected functional disorders of the central nervous system. Of the neurological pathology, functional disorders of the central nervous system 12.6% (ADHD, dyslalia, enuresis, dyscalculia, logoneurosis), NCD in 6.84%, childhood migraine in 3.3% and 1.8% neuroses were detected in 5-6 year old children. Early diagnosis and timely correction of identified violations leads to improved school performance, improved relationships between peers and teachers, and in the future to reduce delinquency among adolescents.

**Keywords:** nervous system, schoolchildren, minimal brain disorders, Kern Ierasek test.

**Introduction** Functional disorders of the nervous system of a school-age child are reversible and normalize as the brain grows and matures. They are otherwise called minimal brain disorders (MMD). MMD is not a medical diagnosis in the truest sense of the word. Rather, it is only a statement of the fact of the presence of mild disturbances in the functioning of the brain, the cause and essence of which have yet to be clarified in order to begin treatment. MMD is not an obstacle to learning not only in a general education school, but also in a gymnasium, and subsequently in a university. In these cases, only advisory support of the child is required. If the cause that caused the deviation ceases to operate, the growing brain is often itself able to gradually return to a normal level of functioning. But this is possible only in cases where the child leads a healthy lifestyle and is not overloaded with a mass of activities that lead to chronic overwork. However, the essence of the defect in MMD must be understood in order to trace the consequences of its negative impact on the development of the child's mental processes and behavior in general and take measures to prevent and minimize them.

Side panels In most children with MMD, with the appropriate training regimen, by grades 5-7, brain function is completely normal. However, with a sharp increase in training loads or after serious illnesses, individual symptoms of MMD (increased mental fatigue, memory, attention and self-government disorders) may also appear in children in the senior grades, despite the fact that

previous neurological examinations indicated a complete cure. Attention deficit hyperactivity disorder (ADHD) is one of the manifestations of minimal brain dysfunction, that is, a very mild insufficiency of functional disorders of the brain, which manifests itself in a deficit of certain structures and a violation of the maturation of higher levels of brain activity. Attention deficit disorder is often accompanied by hyperactivity disorder (ADHD).

**The generally accepted diagnostic criteria for MMD are:**

- Onset of symptoms before the age of 7 years;
- Constant preservation for at least 6 months;
- Symptoms are observed in at least two social areas: for example, in the children's team and at home.

Often, children with ADHD are characterized by excessive motor activity, impulsivity, distractibility, and inattention. Having fairly good intellectual abilities, hyperactive children are characterized by insufficient speech development and fine motor skills. These children may have a decrease in interest in acquiring intellectual skills, drawing. Sometimes there are some other deviations from the average age characteristics, which leads to their lack of interest in systematic, attention-demanding activities, and hence future or present educational activities.

In everyday behavior, they are characterized by inconsistency, impulsiveness, unpredictability. All this makes them undesirable members of the children's team, complicates interaction with peers, and at home with brothers, sisters, parents. The diagnosis of MMD most often appears in the child's card only during the medical examination before school, first grade, or even later.

In view of the demand, relevance of knowledge on the manifestations of MMD and ADHD among schoolchildren, we decided to briefly highlight the topic based on the results of medical examination of children in one of the districts of the Tashkent region.

**Purpose of the work** : to study the most frequently detected functional disorders of the central nervous system among schoolchildren

**Material and methods.** We used the data of clinical examination of children and adolescents of the KVP of the Zangiota district of the Tashkent region, who were examined on behalf of the rector's office of the Tashkent Medical Academy (TMA) in March 2021. 1723 children (100%) were examined. Of these, 1247-72.43% of children turned out to be healthy.

Among 476 -27% of children, various neurological disorders were identified. Of these: in 12.6% of children, functional disorders of the central nervous system (ADHD, dyslalia, enuresis, dyscalculia, logoneurosis), NCD in 6.84% of children, childhood migraine in 3.3% of children, neuroses in 5-6 year olds were detected in 1.8% of children. In this article, we decided to briefly dwell on the most commonly identified functional CNS disorders.

All functional disorders of the central nervous system (ADHD, dyslalia - not pronouncing a few letters, enuresis - urinary incontinence in children over 5 years

old, dyscalculia - counting disorders, ignorance of the multiplication table in older college students) we combined under the term minimal brain dysfunction (MMD).

During the clinical examination of children of different ages, we tried to apply appropriate tests and scales. For example, in 5-6 year old children, we applied the Kern Ierasek test - a human drawing test to identify the child's school maturity. The drawing test is one of the most used projective diagnostic methods. It can be carried out from 3 years. The findings are most reliable in relation to preschool and primary school age. When examining primary school students, we also used the Kern Ierasek Orientation Scale. They gave a verbal instruction: "Draw a whole person. Try to draw as best as you can - as best you can. The tests are aimed at determining the development of fine motor skills of the hands, coordination of knowledge and hand movement. These skills are necessary at school for mastering the letter.

**Results and discussion:** As can be seen from the table 1, the percentage of children who were better at drawing human silhouettes prevails in children without MMD. Among healthy children there were also children who drew poorly or could not draw at all. The first reason, this suggests that healthy children could not draw a full-fledged human being due to their lack of training.

	Healthy	Children with MMD
Total number of children	135 (100%)	87(100%)
Children who drew a complete person	50(37% )	28( 32% )
Children, partially painted a silhouette of a person	58( 43% )	34(40 % )
Children who couldn't draw	27(20% )	25( 29% )

**Table 1: A full-fledged silhouette of a little man was able to draw both healthy children and children with MMD**

The second reason is that fine motor skills of the hand were not sufficiently developed in some healthy children. And in 32% of children with MMD, despite defects (dyslalia, ADD, enuresis), fine motor skills were developed according to age, and these children were able to perform the Kern Ierasek test well. But a larger percentage of 29% of children who did not complete the test were children with MMD, which indicates the immaturity of the brain structures responsible for understanding and fine motor skills of the hand.

In addition, the Hai test, knowledge of rhymes, and the difference between sides were used. Children with MMD more often confused the right and left sides, when comparing numbers there was an incorrect answer. With MMD, incomplete formation of visual-motor coordination is noted (children made various mistakes and inaccuracies in the operational translation of visual information into motor-

graphic analysis, i.e. when copying, copying, they did not notice inconsistencies even with subsequent doubt. With a poor test result, poor academic performance was observed in 50% of cases. Low results on the Kern Ierasik test should not provide psycho-diagnostic information. They are the reason for the child's increased attention, strengthening emotional and pedagogical preparation at the very beginning of education, and in some cases, with especially low results, conducting in-depth psycho-pedagogical examinations.

**Conclusions** Functional disorders of the nervous system (MMD, ADHD, dyslalia, enuresis, etc.) are often observed among schoolchildren and children of older groups of kindergartens and, unfortunately, are detected by chance during mass medical examinations of the child population. Early diagnosis and timely correction of identified violations leads to improved school performance, improved relationships between peers and teachers, and in the future to reduce delinquency among adolescents.

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