

УДК 37

СОВРЕМЕННЫЕ МЕТОДЫ РАННЕЙ ДИАГНОСТИКИ НАРУШЕНИЙ РЕЧИ У ДЕТЕЙ В ВОЗРАСТЕ 2-4 ЛЕТ¹

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Аннотация

Статья посвящена актуальным вопросам ранней диагностики речевых нарушений у детей 2–4 лет. В работе рассматриваются современные методы выявления отклонений в речевом развитии, комплексный подход к обследованию детей, включающий сбор анамнеза, наблюдение, логопедическое обследование и междисциплинарное взаимодействие специалистов. Особое внимание уделяется значимости своевременной диагностики в период максимальной нейропластичности детского мозга.

Ключевые слова: речевые нарушения, ранняя диагностика, дети 2–4 лет, логопедическое обследование, комплексная диагностика, речевое развитие, методы обследования, междисциплинарный подход, нормативное развитие, индивидуальные особенности

MODERN METHODS OF EARLY DIAGNOSIS OF SPEECH DISORDERS IN CHILDREN AGED 2-4 YEARS

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ABSTRACT

The article is devoted to topical issues of early diagnosis of speech disorders in children aged 2-4 years. The paper considers modern methods for detecting deviations in speech development, an integrated approach to the examination of children, including the collection of medical history, observation, speech therapy examination and interdisciplinary interaction of specialists. Special attention is paid to the importance of timely diagnosis during the period of maximum neuroplasticity of the child's brain.

Keywords: speech disorders, early diagnosis, speech therapy examination, comprehensive diagnosis, speech development, examination methods, interdisciplinary approach, normative development, individual characteristics

Speech is a fundamental tool of human development, combining the functions of communication and thinking. Through speech, a child not only exchanges information, but also learns about the world around them, builds social connections, and develops key cognitive processes: perception, memory, imagination, and logical thinking. The period of preschool childhood is especially important in this regard, when the foundations of the language system and communicative competence are being laid.

The age of 2-4 years is a critical stage of speech development. It is at this time that qualitative changes occur: the child moves from isolated words to the construction of phrases; A meaningful dialogue is formed from the simple naming of objects; grammar rules are mastered, vocabulary is expanded; Sound pronunciation and phonemic perception are improved.

Due to this intensity and sensitivity of the period, early diagnosis of speech disorders becomes not a formal procedure, but a strategically important intervention. It allows you to: timely identification of deviations from the normative development; trigger compensation mechanisms during the period of maximum neuroplasticity of the brain; prevent secondary impairments (in the cognitive, emotional, and social spheres); Reduce the time required for subsequent remedial work.

The urgency of the problem is confirmed by statistics: according to modern data, from 30 to 40% of preschoolers show deviations in speech development. In the absence of timely help, 60-70% of children with speech retardation develop persistent disorders by the age of 5-6, such as general speech underdevelopment, dyslalia, and dysarthria. The consequences of such deviations go beyond purely speech difficulties: there are problems with learning to read and write; cognitive activity decreases; interaction with peers becomes more difficult; The risk of school maladaptation increases [11].

Modern diagnostic practice is facing new challenges that require a revision of traditional approaches: The spread of the digital environment reduces children's speech activity, replacing live communication with on-screen content; The growing number of bilingual families creates difficulties in differentiating language norms; atypical forms of OCR appear (for example, a rich passive vocabulary with weak expressive speech); the frequency of comorbid disorders is

increasing (a combination of speech problems with ADHD, autism spectrum disorders, and sensory disorders) [1,5].

In response to these challenges, a comprehensive approach to diagnosis is being formed, integrating: classical speech therapy methods (observation, conversation, examination); standardized tools (questionnaires, screening tests); interdisciplinary interaction (with a neurologist, otolaryngologist, psychologist); innovative technologies (video analysis of communication, computer programs).

The purpose of early diagnosis is not just to fix the current level of development, but to identify the area of the child's immediate development; identify potential risks of secondary disorders; create an individual correction route; involve the family in the support process by teaching parents observation and basic speech stimulation techniques.

The theoretical basis of modern methods are key concepts: the theory of neuroplasticity – explains the ability of the brain to rebuild under the influence of targeted stimulation; the concept of the "zone of proximal development" by L. S. Vygotsky – shifts the focus from the current level to the potential of the child, allowing for correction based on its real capabilities; biopsychosocial model – takes into account the interaction of biological (heredity, perinatal factors) psychological (temperament, motivation) and social (speech environment, family interaction) components of development [13].

The practical significance of early diagnosis is manifested in specific results: reducing the time of correctional work by 1.5-2 times; preventing the formation of psychological complexes associated with speech disability; creating conditions for the harmonious development of personality; reducing the burden on the child during the school period by preventing learning difficulties/

Thus, modern diagnosis of speech disorders in children aged 2-4 years is not an isolated procedure, but a systematic process that combines scientific knowledge, practical techniques, and partnership between specialists and families. Its result is not only the identification of the problem, but also the construction of a developmental trajectory that allows the child to realize his full potential.

Normative indicators of speech development in 2-4 years

Understanding the normative indicators of speech development is a prerequisite for early diagnosis. Without clear guidelines, it is impossible to distinguish individual variations in the rate of development from true disorders. At the age of 2-4 years, speech transforms from a set of individual words into a tool for meaningful communication: the child learns grammatical rules, expands the vocabulary, and learns to build coherent utterances. Tracking these stages allows you to notice the backlog in time and correct it.

By the age of 2-2.5, a child usually has a vocabulary of 50 to 300 words. The vocabulary is mainly of a subject nature: the names of toys, household items, family members, and animals. The first verbs appear ("give", "on", "go") and simple adjectives ("hot", "delicious"). Phrasal speech is just beginning: the child combines 2 words ("give me mom", "drink water"), but more often uses separate lexemes, complementing them with gestures and intonation. The pronunciation is roughly simplified: there are no complex consonants (r, l, w, w), substitutions are allowed ("ty" instead of "tea", "blooper" instead of "paw"). At the same time, impressive speech (understanding) is significantly ahead of expressive speech: the baby follows multi-step instructions ("take the doll and put it in the stroller"), recognizes objects in pictures, reacts to questions "where?", "who?".

By the age of 3, the vocabulary grows to 800-1000 words. The child actively uses nouns, verbs, adjectives, pronouns ("my", "yours") and adverbs ("fast", "high") appear. Phrases become expanded: 3-4 words ("Mom, I want to drink milk", "Give me a red car"). Basic grammatical forms are mastered: the plural of nouns ("tables", "cats"), the accusative case ("I see a bear"), the past tense of verbs ("played", "slept"). The pronunciation remains imperfect, but "difficult" sounds (r, l, w, w,

h, w) are already highlighted, which are either skipped or replaced by simpler ones ("yba" instead of "fish", "syapka" instead of "hat"). Coherent speech manifests itself in short statements about what is happening ("The doll has fallen", "I'm building a house"), but retelling and detailed stories are not yet available.

By the age of 4, the vocabulary reaches 2,000 words. The child uses abstract concepts ("kind", "cold", "yesterday"), uses complex prepositions ("for", "under", "between"), builds sentences with subordinate clauses ("When dad comes, we'll go for a walk"). The grammatical structure approaches the norm: correctly coordinates words in gender, number and case, uses the tenses of verbs, learns diminutive forms ("table", "kitty"). Sound reproduction is improving: most sounds are automated, and difficulties remain with only the most articulatively complex ones (r, L, w, w). Coherent speech reaches a new level: a child can briefly retell a familiar fairy tale, describe a picture, and share his impressions of an event. There are elements of monologue speech: he is able to keep the topic, logically build 4-6 sentences, use conjunctions ("because", "if", "to").

It is important to keep in mind that normative indicators are benchmarks, not rigid frameworks. The pace of speech development is influenced by: biological factors (date of birth, perinatal history, heredity); social environment (adult speech activity, number of contacts, presence of siblings); individual temperament (active children initiate communication more often, shy ones prefer to listen); multilingualism in the family (bilinguals master each language system it may go slower, but the total communicative potential remains normal) [8,11].

Deviation from the norms becomes an alarming signal if: by the age of 2.5, there is no phrasal speech; by the age of 3, the vocabulary does not exceed 500 words or the child does not build sentences of 3 words; by the age of 4, massive sound substitutions persist, it is impossible to retell a short text, speech remains incomprehensible to outsiders [8,11].

When identifying such markers, an in-depth examination is necessary to differentiate speech development delay (RRR) from other disorders (RRR, dyslalia, dysarthria) and to begin timely correction.

Basic diagnostic methods

Modern diagnostics of speech disorders in children aged 2-4 years is based on a combination of diverse methods to obtain a holistic picture of speech development. The key principle is the multiplicity and variability of checks: a single examination does not give a reliable picture, because the child may be tired, agitated or not in the mood for interaction. Therefore, the specialist uses a set of techniques – from formalized tests to observation in the natural environment.

The first step is to collect medical history. The speech therapist examines medical records (hospital extracts, pediatrician's notes, specialist opinions), and also conducts a detailed conversation with parents. It is important to find out: how pregnancy and childbirth proceeded, whether there were perinatal complications, when there were gurgling, babbling, the first words and phrases, what diseases the child suffered, whether there are hereditary speech disorders in the family. The speech environment is discussed separately: whether the family speaks one language or several, how often adults communicate with the child, whether they use reading and songs, how much time they spend in front of the screen. These data help to understand the prerequisites for possible deviations and build hypotheses for further examination [5,6].

This is followed by observing the natural behavior of the child. A speech therapist or psychologist monitors how the baby interacts with others in a familiar environment – while playing, eating, changing clothes. Attention is paid to: initiative in communication (whether he starts a dialogue himself, responds to appeals); the use of non-verbal means (gestures, facial expressions, gaze); the ability to follow simple instructions ("give the ball", "sit on a chair"); play activities (manipulates objects, reproduces plot actions, uses toys for their intended purpose) [2,4].

The observation is recorded in the protocol with an indication of the context and specific examples. This allows you to see how speech is integrated into the child's daily life, and not just manifested in the classroom.

A direct speech therapy examination covers several areas. First, the impressive speech is checked – the understanding of the converted speech. The child is offered to: follow two- to three-step instructions ("take the doll and put it in the stroller"); correlate words with objects or pictures ("where's the car?", "show the cat"); answer questions ("who's sleeping?", "what's mom doing?") [8,10].

This helps to determine how well he perceives lexico-grammatical constructions and can operate them in everyday life.

Then expressive speech is studied: the volume of the active vocabulary (naming objects, actions, signs); the ability to build phrases (from 2-4 words); the use of grammatical forms (cases, numbers, tenses); pronunciation (presence/absence of distortions, substitutions, omissions); the general sound of speech (tempo, intonation, volume, clarity).

For this purpose, game tasks are used: "Name who speaks how" (onomatopoeia), "Finish the sentence" (grammatical consistency), "Tell me what you see" (coherent speech). It is important that the child does not feel the situation as an exam: the tasks are presented in the form of a fairy tale, travel, helping toys.

Special attention is paid to the examination of the articulatory apparatus. The speech therapist evaluates: mobility of lips, tongue, cheeks; coordination of movements when performing tests ("smile", "tube", "horse"); muscle tone, the presence of hyperkinesis, symmetry of movements.

For kids, this is designed as a game: "let's show how the tongue swings on a swing," "let's blow on hot tea." This presentation reduces anxiety and increases engagement.

To study phonemic perception, exercises are used to: distinguish words that sound similar ("goat" – "scythe", "house" – "tom"); highlight the initial /final sound in a word.

repetition of syllabic chains with oppositional sounds (pa ba, sa sha).

These tests reveal the ability to analyze and synthesize speech flow, which is critical for further literacy development.

Interaction with other specialists plays an important role. A neurologist excludes organic causes of disorders (for example, perinatal lesions of the central nervous system), an otolaryngologist checks hearing and the condition of ENT organs, a psychologist evaluates cognitive functions and the emotional volitional sphere. If autism spectrum disorders or intellectual disability are suspected, a psychiatrist is involved. This interdisciplinary approach ensures that the diagnosis takes into account all aspects of the child's development [5,9].

Standardized tools are used to objectify the results. For example: questionnaires for parents (such as MacArthur Bates CDI) allow you to quantify the volume of passive and active vocabulary, the frequency of use of grammatical forms; video recording of communicative episodes makes it possible to analyze the dynamics of communication in a natural environment; computer programs and interactive tests complement traditional methods (tasks for distinguishing sounds, correlating words and images) [1,4].

During the diagnosis, it is critically important to establish emotional contact with the child. The examination is conducted in a bright, familiar environment (for example, in a kindergarten group room), preferably after a meal. The participation of two children at the same time is acceptable – this reduces tension and stimulates speech activity. All tasks are age-appropriate: instead of prescriptive instructions ("make a sound"), game images are used ("repeat how the bear roars").

The result of the diagnosis is an individual profile of speech development. It reflects: the level of understanding of speech; the volume of vocabulary; the quality of pronunciation; the formation of grammatical structure; features of articulatory motor skills; phonemic perception.

Based on these data, the speech therapist formulates a conclusion, determines the priority areas of correction and draws up a lesson plan taking into account the area of the child's immediate development. This takes into account not only speech indicators, but also the overall dynamics.: how does the child respond to help, how stable is his interest, and whether there is progress in repeated trials. This allows you to make the escort route as personalized and effective as possible.

An analysis of modern methods of early diagnosis of speech disorders in children aged 2-4 years convincingly shows that timely detection of deviations is a key factor in the successful speech and general development of a child. It is during this age period that the brain has maximum neuroplasticity, and speech goes through fundamental stages of formation – from individual words to phrases, from simple naming of objects to meaningful dialogue, from rough sound substitutions to the gradual mastery of the phonetic.

The effectiveness of diagnostics is ensured through an integrated approach combining diverse methods. Collecting anamnesis (medical, speech, family) sets the context and helps to understand the prerequisites for possible violations. Observing a child's natural behavior in a familiar environment reveals how speech is integrated into everyday life, and not just manifested in the classroom. A structured speech therapy examination provides a systematic picture: from understanding speech (the impressive side) to its active use (the expressive side), including articulatory motor skills and phonemic perception. Standardized tools (questionnaires, screening tests) They introduce objectivity, and interdisciplinary interaction with a neurologist, an otolaryngologist, and a psychologist eliminates organic causes and takes into account concomitant developmental factors. Innovative methods such as video analysis of communication and computer programs expand the possibilities of data capture and interpretation.

At the same time, the reliability of the results directly depends on taking into account the age and individual characteristics of the child. Standards of speech development serve as guidelines, but not rigid limits: the pace is influenced by biological factors (perinatal history, heredity), the social environment (adult speech activity, multilingualism in the family) and personal characteristics (temperament, motivation). Therefore, the diagnosis should be multiple, playful, contextual and partner-based: repeated tests, adaptation of tasks to the interests of the baby, analysis of speech in everyday situations and the active involvement of parents in monitoring and recording dynamics.

The result of the survey is an individual profile of speech development. It reflects: the level of understanding of speech, the volume and quality of the active vocabulary, the formation of the grammatical structure, the peculiarities of sound pronunciation and phonemic perception, the state of articulatory motor skills. On this basis, the speech therapist formulates a conclusion, determines the priority areas of correction and draws up a personalized escort route. It is important that the focus is not only on speech indicators, but also on the overall dynamics.: how does the child respond to help, how stable is his interest, and whether there is progress in repeated trials. This allows you to make the route as targeted and efficient as possible.

However, modern practice faces a number of challenges. Digitalization of the environment reduces the speech activity of children; the growing number of bilingual families complicates the differentiation of language norms; atypical forms of speech development delays appear (for example, a rich passive vocabulary with weak expressive speech); the frequency of comorbid disorders increases (a combination of speech problems with ADHD, ASD, sensory disorders). These trends require constant updating of diagnostic tools, development of screening techniques for mass examinations, professional development of specialists in the field of interdisciplinary interaction and education of parents about risk markers and ways to stimulate speech in the family [1,13].

The prospects for the development of the direction are related to several key vectors. Firstly, with the introduction of digital technologies: mobile applications for initial assessment, algorithms

for analyzing speech products, platforms for remote monitoring. Secondly, with the deepening of neurocognitive research, revealing the mechanisms of compensation and making it possible to more accurately predict the dynamics of development. Thirdly, with the creation of unified interdisciplinary diagnostic protocols that ensure uniform quality standards. Fourth, with the expansion of the network of early speech therapy consultations at children's clinics and kindergartens, which will make help more accessible and faster [1,7,12].

Thus, the modern diagnosis of speech disorders in children aged 2-4 years is not a one-time procedure, but a dynamic process combining scientific knowledge, practical techniques and partnership between family and specialists. Its goal is not just to state the fact of deviation, but to create conditions for the fullest possible realization of the child's speech and cognitive potential. Only this approach transforms diagnostics from a tool for identifying problems into a tool for building a future where every child gets a chance for harmonious development, successful socialization and self-confidence.

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