

EXPERIMENTAL STUDY OF SPEECH DEVELOPMENT IN PRESCHOOL CHILDREN WITH DOWN SYNDROME

Salbi Abasova

Azerbaijan State Pedagogical University, teacher

E-mail: s-asadzade@mail.ru

<https://orcid.org/0000-0001-6353-5588>

Abstract. Speech and effective communication skills can be enhanced through specialized methods during early childhood, aiding in the development of accurate speech therapy diagnosis and cognitive processes in individuals with Down syndrome. The establishment of communication tools represents a crucial structural component of communicative activities. Delayed speech development is often associated with a noticeable lag in the development of these communication tools, while other aspects of communicative activity tend to be relatively preserved, consistent with the characteristics of children with Down syndrome. Timely establishment of these communication tools, through stimulation of other structural components, can help prevent cognitive and behavioral disorders.

Keywords: Down syndrome, research, experiment, diagnosis, criterion, subcriterion, control group, developmental level.

DOI: 10.30546/2709-2488.1.2024.002.

To cite this article: Abasova S. (2024). Experimental study of speech development in preschool children with down syndrome. *Journal of Preschool and Primary Education*, Vol. 246, Issue I, pp. 29-38.

Article history: received – 10.01.2024; accepted – 27.02.2024.

DAUN SİNDROMLU MƏKTƏBƏQƏDƏR YAŞLI UŞAQLARDA NİTQ İNKİŞAFININ EKSPERİMENTAL TƏDQIQI

Səlbi Abasova

Azərbaycan Dövlət Pedaqoji Universitetinin müəllimi

E-mail: s-asadzade@mail.ru

<https://orcid.org/0000-0001-6353-5588>

Annotasiya. Daun sindromlu uşaqlarda düzgün nitq və ünsiyyət bacarıqları belə uşaqların erkən yaş dövrlərində xüsusi üsullarla inkişaf etdirilə bilər ki, bu da onlarda loqopedik diaqnostika və koqnitiv proseslərin inkişafına kömək edir. Ünsiyyət vasitələrinin yaradılması kommunikativ fəaliyyətin həlledici struktur komponentini təşkil edir. Gecikmiş nitq inkişafı çox vaxt ünsiyyət vasitələrinin inkişafında nəzərəçarpacaq geriləmə ilə əlaqələndirilir, kommunikativ fəaliyyətin digər aspektləri isə Daun sindromlu uşaqların xüsusiyyətlərinə uyğun olaraq nisbətən qorunub saxlanılır. Digər komponentlərin stimullaşdırılması yolu ilə ünsiyyət vasitələrinin inkişafı idrak və davranış pozulmalarının qarşısını almağa kömək edə bilər.

Açar sözlər: Daun sindromu, tədqiqat, eksperiment, diaqnoz, meyar, alt meyar, nəzarət qrupu, inkişaf səviyyəsi.

DOI: 10.30546/2709-2488.1.2024.002.

Məqaləyə istinad: Abasova S. (2024). Daun sindromlu məktəbəqədər yaşlı uşaqlarda nitq inkişafının eksperimental tədqiqi. *«Məktəbəqədər və ibtidai təhsil»*, № 1 (246), səh. 29-38.

Məqalə tarixçəsi: göndərilib – 10.01.2024; qəbul edilib – 27.02.2024.

Introduction / Giriş

In preschool children with Down syndrome, the pace of mental development lags behind that of typically developing children. This developmental delay is accompanied by qualitative differences, impacting the formation of communication skills, including language perception, cognitive abilities, analytical thinking, comprehension, and memory of various concepts. It is crucial to note that many of these deviations represent secondary disorders, manifesting early in a child's life and potentially impeding their future development. Hence, timely diagnosis of these developmental disorders becomes imperative. Such early identification empowers parents to establish a nurturing relationship with their child and choose appropriate corrective and rehabilitative measures. This, in turn, enables the determination of the child's potential for emotional and intellectual growth, the correction of behavior, and the overall shaping of their personality [Zhiyanova, P.L., 2010]. This revision maintains the core content while enhancing readability and flow. If you have any specific concerns or further sections to review, please let me know.

It is necessary not only to work with children with Down syndrome on speech development but also to create appropriate conditions to improve the condition of their voices. Logopedic and logarithmic exercises should be accompanied by the treatment of respiratory diseases, thyroid hypofunction, muscle hypotonia, and hearing impairment. In the next steps, research and analysis of speech disorders are carried out, and the general strategy of correction is determined. More effective correction methods and programs should be designed.

The analysis of the speech development of preschool children with Down syndrome, which is the main goal of the study, is described in the form of a histogram for each age group and each criterion as the final result. This analysis represents the initial diagnosis of speech in terms of quality and quantity

Main part / Əsas hissə

Preschool-aged children with Down syndrome were divided into three categories and participated in the experimental group of the diagnostic study, while children with typical development in the corresponding age categories formed the control group. The study assessed the level of speech development in preschool children, encompassing both expressive and receptive aspects of speech. The examination included an evaluation of speech comprehension, passive and active vocabulary, syllable structure, grammatical structure, voice pronunciation,

and phonetic-phonemic perception. Additionally, the prosodic aspects of general speech were assessed and analyzed. In total, the study involved 30 preschool-aged children, with 15 in the experimental group and 15 in the control group.

The diagnostic research was conducted through individual examinations of both the experimental and control groups. Although numerous methods exist for assessing the speech development of preschool children, we chose to utilize the diagnostic methods developed by Y.A. Strebeleva [Strebeleva, E.A., 2005]. We applied these diagnostic methods in a modified format to create a diagnostic program based on a system of criteria. This criteria-based system takes into consideration the age parameters of preschool children. Specifically, while the diagnostic criteria for ages 3-4 years, 4-5 years, and 5-6 years remain the same, we introduced corresponding sub-criteria for each age period. We studied and analyzed five main diagnostic criteria and two sub-criteria for ages 3-4 years, five main diagnostic criteria and three sub-criteria for ages 4-5 years, and five main diagnostic criteria and four sub-criteria for ages 5-6 years. Each diagnostic criterion has its own specific goals and objectives, which should be reflected in the diagnostic research and analysis. We applied each criterion using a relevant approach methodology, considering the age parameters. This revised version maintains the original content while improving readability and clarity. If you have any further text to review or specific concerns, please let me know. In addition to the diagnostic criteria, the modified program has developed speech maps based on the criteria for the various age categories studied. In the diagnostic study, these maps were primarily used as research material. In the modified methodical program of the diagnostic study, the description of the methods according to the criteria and age categories was provided for each age category [Ushakova O.S., 2004].

None of the children in the control group exhibited deviations in speech understanding, articulation apparatus, sound pronunciation, or phonemic perception. Vocabulary volume and the development of grammatical speech structures were also in line with age norms. Each of the mentioned criteria fell within the age-appropriate norms during the study period.

Throughout the research, the level of speech development was assessed in all three subgroups, and while it corresponded to age norms, one child in the 3-4 age group (son of Abilov Ugur Elman oglu) displayed a rapid pace of speech in the prosodic aspect: intonation weakness, lack of inter-word intervals, hasty loss of suffixes, and an absence of expected accents. In contrast, the speech of all other children was expressive, with proper intonation, correct pauses, and accents. Their speech flowed smoothly and fluently.

Examination of the motor skills of the children in the control group revealed that all of them successfully completed the tasks presented in the study.

Regarding their intellectual development, each of the 15 children demonstrated a normal level of development for their age, both mentally and psychologically.

Therefore, the results indicate the absence of specific disorders affecting the normal development of speech in the children studied in the control group.

An analysis of voice pronunciation research revealed that all children in the group successfully performed the tasks, and individual voice pronunciation development fell within the normative indicators for their age. [Rynders J.E., Horrobin J. M., 1990].

The diagnostic results for the control group indicated that, during early preschool age, speech in typically developing children can be generalized and situational. All forms and functions of speech develop as the range of communication of a typically developing child expands. In the small preschool age, adult speech plays a guiding and organizing role for the child. Adult speech captures the child's attention and directs them to action. However, in the learning process, verbal instructions must be complemented by practical activities with adults as examples.

The diagnostic results for the control group also indicated that, in preschool age, it is possible to effectively guide and direct children's activities with verbal instructions and verbal information among typically developing children. By the age of 5, words serve as a means of transmitting social experience and information. Incorporating words into communication streamlines the process of acquiring and assimilating new knowledge. Children can readily apply skills acquired through verbal instruction to unfamiliar situations and new objects. During this period, the child's personal speech also undergoes changes, becoming an essential tool in regulating their activities. Speech actively contributes to knowledge assimilation, cognitive development, sensory development, and plays a pivotal role in moral and aesthetic upbringing, as well as in shaping the child's activity and personality. In the control group, typically developing children of upper preschool age have a broad knowledge of the reality that surrounds them. This knowledge includes the work of adults, family relationships, events in social life. As the age increases, the child participates more in social life, and their need for communication grows. A 5-year-old child has already mastered these norms to a certain extent, and their social experience is increasing. They begin to evaluate their personal qualities and forms of behavior. In the 6th year of life, children voluntarily manage their personal activities. At this age, they can perform tasks independently, understanding the essence of the issues set by adults.

In accordance with the set goals, sensory and sensorimotor forms of alalia according to clinical classification and diagnosis of general speech development retardation (level I) according to pedagogical classification among the problems

of speech formation in children in the experimental group were examined according to different indicators. According to the general analysis of the results of the study, speech development is retarded, which is characteristic of preschool children with Down syndrome. The criteria defined by us for the diagnostic study of speech development were applied to diagnose the speech of both the control group and children with Down syndrome.

The results of the analysis of the methodical material presented in the study for the diagnosis of the speech development of 3-4-year-old children with Down syndrome were distinguished by diagnostic criteria. The criteria were considered according to certain methodologies. Among them, 5 main ones, including 2 sub-criteria, were determined.

Children with Down syndrome learn to use gestures and facial expressions, which are non-verbal tools, before speaking. Gestures that accompany pre-verbal means of communication, such as crying, shouting, imitating voices, help children communicate and free them from many psychological problems. Although expressive speech is not yet developed at this age, a child with Down syndrome tries to communicate through various non-verbal means. Using gestures allows parents to understand and support the development of their children with Down syndrome. Knowing gestures allows you to more accurately understand the speech of those around you, which leads to a rapid accumulation of vocabulary. The ability to use all possible means of communication makes it possible to prevent secondary developmental disorders. As the vocabulary increases, the use of gestures gradually decreases. For this, work should be done on the stimulation of various verbal signals and their use in speech. In other words, the child's use of sounds, syllables, words, and expressions in parallel with gestures is rewarded. At this time, the child's capabilities should be taken into account.

Analyzing the condition of the articulation apparatus of children with Down's syndrome, macroglacia, Gothic palate structure, hypotonus, and hypersalivation were observed against the background of the paretic state of the muscles. Although their jaws are narrower than normal, their teeth are large and spaced due to their structure. The state of the articulating apparatus and muscles is one of the main reasons for these children's speech disorders. [Kameristova N.N., 1971]

In 3-4-year-old children with Down syndrome, voice pronunciation, syllabic structure, and prosodic aspects of speech are reflected. Most of the children do not have speech, and those who have speech mainly show voice imitation, phonetic-phonemic disorders of all kinds. Gesture-mimicry is also used as a means of speech during simultaneous communication with voice imitation. Although the active vocabulary is very weak, there is a passive vocabulary consisting mainly of nouns. Although the articulatory apparatus is not fully formed in the 3-4 age

category, the articulation structure belonging to Down syndrome is observed. In addition, muscle innervation disorders are also noted.

Result / Nötico

Based on the results of the diagnostic study, there is a serious delay in the speech development of 3-4-year-old children with Down syndrome, which is not typical for typical children of this age. More precisely, as a speech therapy diagnostic result, it is possible to diagnose the I level of general speech development according to the pedagogical-psychological classification, and to diagnose the sensory and sensorimotor forms of alalia according to the clinical-pedagogical classification. To diagnose the speech development of 4-5-year-old children with Down syndrome, criteria were established through the analysis of similar methodological materials for both typical children and those with Down syndrome. In addition to the criteria used for 3-4-year-old children, a sub-criterion was added after analyzing the diagnostic results for 4-5-year-olds.

4-5-year-old children with Down syndrome in the experimental group displayed varying forms and levels of speech disorders. While passive speech was present in these children, there were significant delays in active speech development. Unlike the previous age group studied, these children began to incorporate gestures with their first syllables.

In this age category, children participating in the study were diagnosed with I and II levels of general speech delay, as well as alalia and dysarthria speech defects.

An analysis of methodological materials based on the criteria established for the diagnosis of speech development in 5-6-year-old children with Down syndrome was conducted. This analysis resulted in the identification of 5 main criteria and four sub-criteria for this age category.

Examination of the articulation apparatus and voice pronunciation for each subgroup revealed characteristic features associated with Down's syndrome, including a narrow jaw, Gothic palate, large tongue, muscle hypotonus dystonia, and hypersalivation, resulting from muscle hypotonus. Additionally, constant snoring and nasopharyngeal region closure were observed. Due to muscle weakness, not only in the articulatory apparatus but also in the laryngeal muscles, the voice exhibited a low-toned, baritone quality without modulation.

According to the findings of the diagnostic research, many phonemes were lost or distorted in children with Down syndrome aged 5-6. The sounds produced were often nasal, rhythmless, monotonous, unmodulated, and muffled, with frequent iterations. Unlike previous age categories, this age group showed

a somewhat higher use of words and voice imitations accompanied by gestures and facial expressions.

The development of play in early preschool age is a direct extension of the primary activity, and it can lead to progress at a certain level of development. Prior to preschool age, children with Down syndrome typically do not engage in objective activities and their actions with objects remain non-specific at the level of manipulation. This is largely due to a lack of visual-motor coordination. Furthermore, without special training, the process of mastering object manipulation is slow, as these children often lack genuine interest in the surrounding world. By the age of four, children may display numerous inappropriate movements with objects [Thomson G.O.B., 1983].

Children with mental disabilities at the age of three are not prepared for speech development. Key components such as objective activity for speech development, interest in the environment, the development of the emotional-volitional field, particularly emotional communication with adults, and phonemic hearing are not yet formed. The articulation apparatus remains underdeveloped. In preschool age, speech development begins for children with Down syndrome. With early intervention, first words can be formed after three years, and expressions may emerge towards the end of preschool age. However, the speech is often underdeveloped and may not serve communicative functions. Adult speech plays a crucial role in organizing the activities of mentally challenged children, capturing their attention, directing their actions, and even assigning simple tasks. In isolated cases, verbal instructions should be supplemented with visual aids, role models, and collaborative work. [Van Dyke D.C., McBrien D.M., Sherbondy A., 1995]

Typically developing children begin to develop self-awareness and display signs of independence starting at the beginning of preschool age, building upon the three-year-old crisis. In contrast, mentally challenged children do not yet exhibit these aspects of personality formation during this age period. Interest in the environment, object manipulations, and self-recognition typically emerge in children with Down syndrome who are mentally challenged after the age of four [Sapozhnikova, T.V., 2014].

The characteristics observed in each age group of preschool children with Down syndrome were typical of the Down syndrome condition. Children with Down syndrome who participated in the study exhibited dental pathologies associated with a narrow jaw, large fleshy lips that did not close properly, a consistently open oral cavity, a wide, fleshy tongue, and a Gothic hard palate structure. Alongside this distinctive articulation structure, muscle dystonia was evident, primarily affecting the tongue, lips, cheeks, and soft palate muscles. The paretic

soft palate caused drooping, resulting in muffled sounds and hindering the correct pronunciation of certain sounds. Dystonia of the muscles of the larynx and vocal cords was also observed, leading to a weak, unmodulated, and muffled phonation system.

Speech therapy for preschool children with Down syndrome is typically organized into stages, with a focus on finding effective methods to address the child's challenges at each stage. Three main directions can be considered in solving this problem. The choice of direction depends on the individual characteristics of the child.

The first direction involves addressing non-speech disorders identified in the initial stage before progressing to the treatment of speech disorders.

The second direction encompasses the elimination of speech disorders, followed by the elimination of non-speech disorders. Here, speech is seen as a tool for fostering various mental processes.

The third direction involves simultaneous correction of both speech and non-speech disorders, with parallel work to stimulate the development of various mental processes. The speech therapist should select the most suitable direction at each stage of the speech therapy process, considering the child's individual traits, physical and mental capabilities, and developmental outlook. Regardless of the chosen direction, the speech therapist's primary task is to select appropriate correction materials based on the child's characteristics and design a training program that follows the correct sequence. [Warfield M.E., Shonkoff J.P., Krauss M.W., 2001]

Individual speech therapy sessions for children with Down syndrome should be tailored to the child's leading activities, starting from the age of three. Well-structured exercises are easily absorbed by the child, and the chosen method should incorporate elements of play. The game-based approach should involve presentation, explanation, and questions, making it possible to engage the child actively. Systematic repetition of tasks is crucial in logopedic exercises, helping the child achieve the desired results. Given that many children with Down syndrome have strong imitative skills, they can learn more effectively through visual presentations and auditory-visual perception. Therefore, the exercises should have an imitative nature. Gradually increasing the complexity of exercises while considering the child's age and individual characteristics is essential.

References / İstifadə edilmiş ədəbiyyat

1. Zhiyanova, P. L. (2010). Formirovanie navykov obshcheniya i rechi u detey s sindromom Dauna. Moscow. (146 pages).
2. Kameristova, N. N. (1971). Opyt izucheniya razvitiya rechi u detey s boleznuyu Dauna [Experience of studying speech development in children with Down syndrome]. In Tez. dokl. VI nauch. sessii po defektologii (pp. 218-219). Moscow.
3. “Kompleksnoe razvitie detey s sindromom Dauna: gruppovye i individualnye zanyatiya” [Comprehensive development of children with Down syndrome: group and individual classes]. (2004). Methodicheskoe posobie [Methodological manual]. Moscow. (264 pages).
4. Sapozhnikova, T. V. (2014). Osobennosti razvitiya i obucheniya gramote detey s sindromom Dauna [Features of the development and literacy education of children with Down syndrome]. Biysk. (95 pages).
5. Strebeleva, E. A. (2005). Naglyadnyy material dlya obsledovaniya detey [Visual material for examining children]. Moscow. (180 pages).
6. Ushakova, O. S. (2004). Metodika razvitiya rechi detey doshkolnogo vozrasta: Uchebno-metodicheskoye posobie [Methods for speech development in preschool children: Educational and methodological manual]. Moscow. (288 pages).
7. Rynders J.E., Horrobin J. M. (1990). Always Trainable? Never Educable? Updating Educational Expectations Concerning Children With Down Syndrome. American Journal on Mental Retardation. Vol. 95, № 1, pp. 77-82.
8. The child with mongolism, Grime and Stratton. (1960). New-Jork-London. p. 276.
9. Thomson G.O.B. (1983). Legislation and provision for the mentally handicapped child in Scotland since 1906 / Oxford Review Education. № 9 (3)
10. Van Dyke D.C., McBrien D.M., Sherbondy A. (1995). Issues of sexuality in Down syndrome. Downs Syndr Res Pract. № 3(2), pp. 65–69.
11. Warfield M.E., Shonkoff J.P., Krauss M.W. (2001). Children with disabilities: A longitudinal study of child development and parent well-being. Monographs of the Society for Research in Child Development, –66, (3, Serial No. 266).