

## HUMAN AUDITORY ANALYZER SYSTEM, SOUND PERCEPTION AND PEDAGOGICAL APPROACH TO ITS VIOLATION

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### Annotation

The auditory analyzer is phylogenetically the most recently formed structure with a complex structure and universal properties. Each of these systems performs a specific function, the violation of which leads to partial or complete hearing loss. This article provides an overview of the adequate impact of the auditory analyzer on the perception of sound. Educators should once again pay attention to the fact that deaf children who do not hear at all are rare. Most children considered deaf have a hard-of-hearing hearing residue, but not a very large one.

Sign language teachers should treat such children not as objects of education, but as subjects, that is, as active, acting, surrounding influences.

**Keywords:** hearing, extrareceptor analyzer, eardrum, outer, middle, inner ear, eardrum, Gs, DB, ototopic, vestibular apparatus, hearing residue, dactyl alphabet, oral speech,

The physiology of the auditory analyzer is a whole system that begins in the outer ear and ends in the cerebral cortex. An adequate effect of an auditory analyzer is sound waves that propagate at different speeds in an environment with different densities. Many important analyzers have been found in the ears and upper respiratory tract. One of them is an auditory analyzer. It belongs to the category of extra receptor analyzers, that is, analyzers that receive signals remotely.

Above the ear is involved in determining the direction of sound. Its shape and structure of the auditory pathways provide an increase in the pressure of the sound wave. The middle ear system is designed to ensure the complete transmission of sound waves to the inner ear. This process is carried out with the help of "mechanisms" present in the middle ear. The drum roll transmits the power of sound and the pressure of the sound wave to the corridor of the maze. The chain of the auditory icicles may be associated with two antagonist muscles. Consequently, the pressure of the sound wave on the stirrups in The human ear perceives environmental sounds that range from 16 to 22,000 Hz. Hearing loss peaks in people between the ages of 20 and 30. The human ear is able to receive ultrasounds with a frequency of up to 225 thousand Hz through bone tissue. Waves in the hearing range from 16 Hz to 500 Hz are called low-frequency, from 500 to 3000 Hz - medium, from 3000 Hz to 8000 Hz – ultrahigh-frequency sounds.

The different sensitivity of the auditory analyzer to sound waves of different frequencies is its second distinguishing feature. Our ear is most sensitive to sounds in the range of 1000-3000 Hz. As we move away from these optimal hearing limits, the sensitivity of the hearing organ decreases, and the threshold sound strength increases by about 1000 times from 200 Hz to 10000 Hz. creases, which leads to contact of the eardrum and the labyrinth corridor.

Phone sounds inventor A. Talia bears the name and is designated in the unit "waist". To make it more convenient, each "waist" is divided into equal 10 parts and is called decibels (dB). The minimum energy of sound vibrations leads to the sensation of audible sound, which is called the threshold of audibility of sound. The unit of sound measurement is the decibel (dB).

One of the important features of an auditory analyzer is its ability to determine where the sound source is located, which is called tonotopy. Tonotopy

occurs only when both ears hear normally, that is, well binaurally. The peripheral part of the auditory analyzer performs two main functions:

- 1) sound transmission, i.e. the transfer of sound energy to the receptor apparatus, is most often a mechanical (physical) function;
- 2) perception of sound, transformation (transformation) of the physical energy of sound vibrations by peripheral receptors – spiral (cortical) organs into nervous excitations (electro-poetic signals), which are then transmitted to the cerebral cortex in accordance with this function, sound-conducting and sound-receiving devices are distinguished

Physiology of the vestibular analyzer. The vestibular apparatus is considered an organ of balance, controls muscle tone and keeps the trunk in a certain balance, transmits information about the position of the body and its status balance to the cerebral cortex. The vestibule consists of the sound-conducting and sound-receiving parts of the ear: a) air permeability; b) bone and tissue permeability.

Due to the action of the receptors of the vestibular apparatus, a reflex reaction occurs in the muscles, which creates conditions for maintaining the balance of the trunk. There are functions of semicircular channels and functions of corridor bags. Reflexes can come out of the otolith apparatus. In this case, gravity or rectilinear acceleration and angular accelerations emanating from the ampoule are adequate effects. From the influence of semicircular channels in striated muscles, reflexes arise – animal reactions, among which reflexes are present in the muscles of the eye, arm-leg, body-neck. Reflexes present in the ocular muscle are characterized by the appearance of nystagmus – rhythmic twitching of the eyeball, which consists of slow and fast components.

Sound waves differ from each other in height, sonority and timbre.

The volume of a sound is its frequency equal to 1 second of sound. it is determined by the number of vibrations inside and is measured in GC. The resonance of sound can be measured in units of power or pressure, reflecting its intensity. But since these units differ from each other at the level of large quantitative limits, their use in practical work causes a lot of inconvenience.

140 dB is the strongest sound that the human ear can withstand. The lowest sound is considered to be 30 dB, the lecturer's speech is up to 60 dB. The jet dissipates - 100 dB of sound around the pilot. Timbre is a kind of sound in which the main part is tones, and additional parts are overtones.

I.P. According to Pavlov's teaching about analyzers, the auditory analyzer consists of three parts: peripheral, conductive pathways and parts of the cortex. The structures of the outer and middle ear, as well as the near- and endolymphal spaces of the inner ear, the basilar membrane, and the shell of the shell belong to the sound-conducting part. The auditory receiving part consists of a spiral organ. The conducting part of the sound is used to transmit sound to the receptor apparatus, and the receiving part is used to convert mechanical vibrations into nerve impulses.

The environment and the development of children with hearing impairments in it. Individual abilities come to the surface in a team. He is defined by his community, hard work, attitude to the environment and people, to himself. In pedagogy, the concepts of "environment" and "influence of the environment" are used in a broad sense. The environments will be biological, geographical, domestic, ecological, cultural, social. The social environment plays a key role in the development of personality. Children with hearing impairments experience various conditions. He expands his worldview by trying to collect individual items and other knowledge in the world around him. Hearing disorders and lack of speech profoundly affect the development of a child, penetrating into his specific social



year in the middle of the year. Parents-alcogoliki, heredityshistory in families with different Canberrans chromosomalyshistory (letuche m'matagshi and N ' aposematic) so observe the birth of a child with hearing impairment.

For example, statistics from Russia and Russia show that there is a growing number of children with hearing impairment. In various countries, 4-6% of the population have hearing disorders and need in physical communities. In 2% of NIH observed two-tone deafness, speaking with 3 meter, and in 4% - one-tone deafness. Thatmember correctly understand the specialties of mental development of children with hearing disorders, make a timely diagnosis, in the Apostille of the educational and educational institution, in the organizations. Classification of persons with hearing disorders has always interested surdopedagogov and vrachei. In our country L.V. Wide-ranging classification, proposed by Neumann (1961).

If a hearing disorder spreads in a range of parts related to conversational speech (from 500 to 1500 GC), the ego cannot be realized. Hearing impairment exceeding 100 dB, deafness, partial hearing impairment and hearing defect manifests in uvne from 15 dB to 80 dB. Classifieds descriptiondistributions3 groups discloupsdings. The rest of the hearing is classified into 4 groups: (from 125 to 2000 GC, from 125 to 1000 GC, from 125 to 500 GC, from 125 to 250 GC).

The pedagogical classification justifies various approaches to the education of children with hearing impairments. In our country, the psychological and pedagogical classification of boskis occupies an important place. It is based on L.S. Vygotsky's teaching about mental functions. Children with hearing impairments showed new indicators in which the specifics of development are manifested. The degree of hearing loss, the time of occurrence of hearing impairment, the level of speech development, depending on these indicators, are classified into the following groups:

I-children with hearing impairments. - Children in this group cannot naturally perceive speech and cannot master it on their own. They perceive spoken language in the process of special training through vision (lip reading) and auditory vision (using a sound amplification device).

II-late deaf children (children with impaired speech) – they have hearing impairment in varying degrees of structured, with varying degrees of speech preservation. But without specially organized training, existing speech can disappear. These children are children of conversational, communicative competence. It is important for them to develop the skills of visual and auditory perception of spoken speech. The development of thinking is somewhat similar to the development of thinking of hearing children. This similarity is due to both colloquial vocabulary and the level of verbal expression of surrounding events.

III – hearing-impaired children. Up to the hearing level of the bark, these children can master speech to some extent on their own, but at the same time they have pronunciation defects. Visual perception of speech occurs according to the degree of hearing impairment.

Differentiated special education of children with hearing impairments is carried out on the basis of psychological and pedagogical classification. When sending a child to a particular educational institution, it is necessary to take into account the degree of impaired speech development and hearing of the child. Because hard-of-hearing children, late deaf children, children with hearing impairments who have speech development receive education in a special school for hard-of-hearing children.

The mental development of children with hearing impairments is a specific path of development that is realized in conditions of contact with the outside world. Often, a violation of the function of the auditory analyzer leads to incomplete development



of a number of functions related to hearing. Violation of private mental development slows down the mental development of a deaf and hard of hearing child. With the deficit type, various violations of coordination and functional connections are observed. This is manifested in the underdevelopment of perceptual systems with short preservation.

The mental development of children with hearing impairments is subject to the laws of the mental development of hearing children. This is a general law-the rules are characterized by the following provisions:

An important place in sign language psychology is occupied by the doctrine of the relationship of biological and social factors in the mental development of a child. Biological factors include the nature of the nervous system, types of temperament, abilities. In the life of a child before birth – the continuation of the stage during the gestation period -belongs to the category of biological factors, such as the mother's illness, medications taken by her, birth trauma. Social factors are the level of development of the society in which a child lives and develops-politics, type of ideology, culture, science and art. The social environment is the signs of the education system adopted from this society, the source of human development. The acquisition of social experience manifests itself not in passive perception, but in an active form in various types of activities-play, communication, cocktails, gaining knowledge. Children gain this experience with the help of adults

Hearing impairment can be caused by biological factors, birth pathology, chemical damage. The peculiarities of childhood are based on the incompleteness of the brain structure in comparison with adults, the lack of formation of mental components, the plasticity of the nervous system and the tendency to condensation. Social factors play a great role in hearing impairment – family upbringing,



emotional upbringing, the level of upbringing of parents, their relationships with specialists, participation in correctional work.

The general pattern of mental development of all children is its organization in time: the content, determined by the peculiarities of the formation of a variable rhythm at different stages of a child's life, is the process of raising a child. The transition from one stage of mental development to another is manifested in the deep formation of mental components, the peculiarity of the psychological period-ontogenesis.

The mental development of children is based on the active formation of the brain at the life stage.

During the transition from one age to another, there is a complication of functional connections. Therefore, the age period is characterized by high sensitivity to various pedagogical influences. These stages are called censorship. In each age period there is a restructuring of communication and relationships, mental functions.

It is characterized by the presence of sensory stages, a strong educational influence on the mental functions that are being formed now. The sensitive phase of speech development (age from 3 years) occupies an important place in the mental correction of children with hearing impairments.

Visual perception and perception begin to take center stage due to hearing loss and perception in a deaf child. The visual analyzer of a deaf child will be of fundamental importance for understanding the surrounding world. Visual perception and perception in children with hearing impairments being at the level of hearing children L.V.Zankov, I.M. Soloviev, K.I. Veresotsky, proved in his research.

It is even reported that visual perception and perception are activated in children with hearing impairments. For this reason, children with hearing impairments attach great importance to the peculiarities and subtleties of the outside world, which the hearing child does not pay attention to. Hearing children often

change color to green, purple, red, carrot in comparison with the deaf. Children with hearing impairments subtly distinguish colors. L.V.Zankov and I.M. Solovyov notes that in the drawings drawn by children with hearing impairments, the listener will cover a greater number of details and parts compared to the drawings drawn by children. When comparing the drawings of deaf and hearing children, it is clear that in the drawings of hearing children, significant parts of objects are missing from the images. Drawings of children with hearing impairments have few such shortcomings, but they hardly draw pictures in which spatial relationships are expressed. L.V.Zankov and I.M.Solovyov note that in the process of visual perception, children with hearing impairments attach great importance to additional details of the subject in relation to hearing. For this reason, it can be shown that the analytical type of perception in children with hearing impairments is superior to the synthetic type. I.M.Solovyov admits that this condition does not lead to the conclusion that visual sensitivity prevails in children with hearing impairments compared to auditory children. Visual perception is of great importance in the formation of speech of children with hearing impairments. A hearing child learns to speak based on auditory and visual perception and perception.

Children with hearing impairments who lack speech have difficulties in generalizing and synthesizing, classifying what is perceived at the initial stages of learning (for example: when a child with hearing impairments in elementary school is shown a red pen and asked what it is, he answers in red). This suggests that the concept of color and object is not sufficiently distributed in the perception of the child. Such differentiation and distribution become possible when a child with hearing impairment masters speech, when words expressing objective and sensory meaning in his speech are formed in his dictionary.

Thus, it turns out that visual perception and perception in children with hearing impairments are of great importance for understanding the world around them. With the loss of auditory perception, visual perception in children with hearing impairments becomes more active and worsens. In addition to visual perception, the sense of smell and the sensation of movement also play an important role in the perception process. Motor sensations signal the movement of the human body, parts, and speech organs. In case of violation of the function of the auditory analyzer, the accuracy and differentiation of speech actions are violated. I.M.Solovyov and other scientists believe that hearing loss negatively affects not only the sensations of the articulatory apparatus, but also the sensations of movement of the respiratory apparatus. Because such forms of speech as facial expressions, dactylology, are formed on the basis of sensations of movement and vision. Skin sensations include tactile sensations and temperature sensations. They allow us to understand the material, the unity of which expresses the limit, its shape, magnitude. These sensory receptors are located at the tips of the tongue. Sensations require active activity and occur during the contact of receptors with the influencing substances. Skin sensations, perception together with others contribute to the full perception of the subject. Skin sensations complement the perception of an object through vision. Skin sensations are of great importance mainly when perceiving objects by size and spatial location, when perceiving the outer layer of objects. He is able to perceive the material through vision, has vision, which, in turn, helps to perceive. We believe that the study of feelings is of great importance not only for special psychology, but also for general psychology.

So, summing up the above, we can say that: for children with hearing impairments, seeing, hearing, feeling through the skin, lip-reading, teaching literacy using the finger alphabet, the use of modern hearing aids at an early age, the

installation of a cochlear implant is becoming increasingly important to eliminate hearing impairments in a child. A sign language teacher and a sign language rehabilitator should, first of all, contribute to the development of the auditory perception of a deaf child, the restoration of his vital activity, the establishment of social relations in society among peers.

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