

## CHILDREN'S SPEECH DEVELOPMENT AFTER COCHLEAR IMPLANATION

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### ABSTRACT

Increasingly, after cochlear implantation (CI), children began to appear in regular kindergartens and schools. A speech therapist has a natural question: "Where to start rehabilitation?" The article focuses on the creation of necessary conditions for the successful development of speech of deaf children after cochlear implantation, the perception of non-speech and speech signals, and the development of speech.

**Keywords:** cochlear implantation, hearing prosthesis, rehabilitation.

First, let's understand what a cochlear implant is. A cochlear implant is basically a type of hearing prosthesis. However, it not only amplifies sound like a hearing aid, but also stimulates the hair cells of the inner ear and transmits sound, including speech information, directly to the auditory nerve using very low electrical discharges.

A cochlear implant allows people with severe hearing loss to perceive high-frequency sounds that cannot be heard even with powerful hearing aids.

This operation is performed with completely deaf children. Through surgery, the thinnest wire-electrode is inserted into the bones of the skull, and electrical impulses are applied directly to the auditory nerve through the shell. These are very complex devices - cochlear implants.

The main task of speech therapy is to teach the child to perceive new sound sensations, understand their meaning and use them to develop speech. The child must master the rules of communication, learn to understand speech, create statements in internal and external speech. In most cases, hearing loss is reversible. This method of correction requires a long and complicated rehabilitation. Rehabilitation lasts 3-5 years.

Post-operative rehabilitation includes:

1. Fine tuning of the cochlear implant;
2. Development of hearing, speech and communication skills, auditory perception, oral speech, sound skills;
3. Development of non-verbal intelligence and other mental functions, movement skills.

O.V. Zontova [1] identifies a number of directions for working with children who have undergone cochlear implantation surgery.

Development of perception by listening to non-speech and speech signals.

It is necessary to form all central auditory mechanisms that provide the ability to perceive surrounding sounds and spoken speech:

- sound detection;

- localization of the sound source in space;
- distinguish between two sounds;
- assessment of different hearing qualities;
- recognition of non-speech sounds;
- determination of acoustic correlates of various speech signals;
- recognition of various speech signals.

In the process of teaching listening, it is necessary to fully encourage the appearance of any sound imitations in the child, to gradually form the interdependence of sounds and words.

The following facts should be taken into account in the process:

- before giving the signal, it is necessary to attract the auditory and visual attention of the child;
- first of all, children do not hear quiet sounds;
- they perceive longer sounds better;
- modulated, intermittent sounds are well received;
- the latent period of reaction to sounds increases;
- reactions to sounds develop faster in pulse time than in sound.

The ability to distinguish non-speech sounds is developed with the help of musical instruments. After turning on the cochlear implant, the work continues with the active participation of the hearing analyzer. Learning the sound system begins with the accumulation of words, the meaning of which the child learns. These words belong to different categories. The leading role in vocabulary acquisition belongs to parents. They are given a sample dictionary of children at different stages of learning, and it is recommended to keep the child's dictionary.[2]

Development of oral speech.

During cochlear implantation, children often have no speech at all or only one strange word. Many types of work begin at the pre-operative stage: development of breathing, articular massage, training of articular organs.

After cochlear implantation, work on the formation of oral speech is carried out on the basis of the rapidly developing auditory perception, the development of ideas about the surrounding world, and the formation of the ability to imitate voice and articulation.

In his training, the teacher-psychologist uses the program of non-verbal development of children with cochlear implants, based on information about the normal formation of psychomotor skills at this age. This development includes: motor activity, perception of the surrounding world, attention, memory, imagination, thinking, emotional-volitional sphere.

Children should always be in a speech environment, it is equally important to provide conditions for constant training, daily listening training.

The work on the formation of one's own speech includes the following stages:

1. Development of pre-speech forms of speech
2. Formation of active forms of speech by creating onomatopoeia.
3. Cultivate the need for oral communication
4. Formation of initial communication skills
5. Collect passive and active vocabulary until the end.

Initial speech therapy work includes a number of directions:

1. Formation of correct speaking breath (formation of directed air flow, increasing force and duration of exhalation). To do this, you can blow soap bubbles, blow a tune, blow cotton from your palm.

2. Articulation massage. This is necessary for children whose articulation organs are not mobile enough and who have weak muscle tone.

3. Articulation gymnastics. Together with voice reactions, the mobility of the child's articulation organs should be developed. "Antics" in front of the mirror, various voice exercises, singing, repetition of syllables by the child imitating adults, etc. also help in this [3].

The child must have a need for oral communication. The work begins with the awakening of the main sounds. Experience shows that there is a certain pattern in the sequence of sounds in children's speech. Vowels usually make a sound [a, o, u, e]. Among the consonants, these are lip-lip [p, b, m], lip-tooth [f, v], tongue [t, d, n, l] sounds, that is, the most convenient for auditory-visual perception. sounds whose repetition does not require subtle motor differences.

The results of children's speech development are different. With the active help of parents, after 1.5 months, the child begins to actively imitate intonation, it is possible to form about 10 words based on imitation. After 1.5 years, the ability to build phrases from several words is formed. The child's expressive vocabulary is at least 100 words. After 2 years, the child develops connected speech.

By the age of three, the majority of children who have undergone surgery can be ready to go to public school, while their speech development is still lagging behind - in this case, additional help from a speech therapist is required.

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