

Disorders of speech development

Developmental speech disorders represent a group of speech disorders that arise during the development of the fetus, in the perinatal or postnatal period of the child up to 1 year of age. They influence the communication process and the child's overall psychomotor and social development. If they are not diagnosed correctly and in time, they can persist or worsen in the next period until adulthood. Treatment tends to be long-term, complex and multidisciplinary. Speech disorders that arise in later life can be the first manifestation of another disease. ^{[1][2]}

Speech is an articulated (most often sound) expression of a person used for communication. In addition to spoken language, there is also written and internal speech.

Speech development

The first six years of life are crucial in the development of speech. The development of each child is individual, the stage of speech development must always be assessed in connection with the overall state of health and psychomotor development.

Conditions for the physiological development of speech

- suitably stimulating environment, correct speech patterns
- good hearing – even minimal hearing loss of up to 40 dB can affect speech (secretory otitis or frequent respiratory catarrh)
- the absence of significant anatomical or functional pathology in the area of the respiratory, phonation and articulation system (vocal cords, nose and nasopharynx, epipharyngeal closure, dentition, jaws, mobility of the tongue, state of the sublingual frenulum...)
- absence of neurological or psychiatric disability (mental retardation, autism spectrum disorder, cerebral palsy, severe visual impairment...)^[2]

Stages of child speech development

- up to 1 year: pre-speech stage, physiological infancy, around 12 months first words with meaning
- around 2 years: simple sentences and questions ("what is this?")
- around the age of 3: the period of prolonged physiological infancy ends, the question "why?" appears, begins to acquire the grammatical structure of words and sentences
- around the age of 4: intellectualization stage – vocabulary grows, auditory perception improves significantly
- around the age of 5: more precise pronunciation of most sounds
- around 6-7 years: completion of speech development – the child manages a continuous narration of the story, uses compound sentences ^[2]

Classification of speech disorders

1. Developmental disorders:
 - delayed development
 - abnormal development (developmental dysphasia, dysarthria, dyslalia)
2. Fluency disorders:
 - stammer
 - grumpiness
3. Speech sound disorders:
 - steaminess
4. Speech disorders (a manifestation or consequence of another disease):
 - Dysarthria
 - Aphasia (disease mainly of adult age, rarely in children)
5. Mutism^[2]

Delayed speech development

This is a state of verbal communication that has not reached an age-appropriate level. The level of expressive speech (expressive skills), speech perception (comprehension), social communication and cognitive skills are assessed. The evaluation is carried out at 3 years. Delayed speech development can be the first sign of another serious illness.

Causes:

- hearing impairment → hearing examination and early compensation (hearing aids, cochlear implant), speech therapy care, or sign language
- insufficiently or inappropriately stimulating environment → education of parents, inclusion in a team
- morphological or functional speech defects → rehabilitation or surgical treatment
- autism spectrum disorders → complex care, replacement communication – e.g. exchangeable picture communication system (VOKS)
- mental retardation → complex care, substitute communication

- neurological disease (DMO...) – dysarthria dominates
- severe visual impairments
- delayed speech development simple - no associated pathology found, frequent familial occurrence, mostly spontaneous adjustment ^{[2][1]}

Developmental dysphasia

Developmental dysphasia is the second most common developmental speech disorder in children. It is a specifically impaired speech development, manifested by a difficult ability or inability to learn to communicate verbally, even if the conditions for speech development are adequate.

- in the beginning, speech development is always delayed
- speech perception disorder of varying severity (receptive component) and motor (expressive) component
- the child is less able to understand longer sentences, has a small vocabulary, poorer verbal memory, multiple dyslalia, phonemic hearing impairment (flour-meadow, dog-forest) and the occurrence of dysgrammatisms in speech, garbled words, confusion and omission of sounds and syllables are often present → worsened intelligibility of speech
- expresses onomatopoeia (words phonetically imitating various natural sounds), replaces verbal communication with excessive non-verbal, communicates by pointing and gestures
- often also uneven development of the intellect, disorders of visual perception (problems in tracing shapes), impairment of memory and motor functions (coordination of movements, graphomotor skills), specific learning disorders at school age
- the organic basis is usually light diffuse damage to the CNS, especially the auditory and speech areas - organic damage to the brain during the prenatal, perinatal or postnatal period up to the child's 1st year of age
- pathological foci changes are sometimes present during nighttime EEG monitoring
- requires comprehensive care (pediatrician, speech pathologist, neurologist, speech therapist, psychologist, special pedagogue, possibly physiotherapist), postponement of school attendance is often appropriate ^{[1][2]}

Dyslalia

Dyslalia is the most common speech disorder in preschool age (about 40% of preschoolers). It is a functional disorder where the sound is formed at the wrong place of articulation. There is an inability to use individual sounds or a group of sounds in the process of communication according to the speech habits and norms of the respective language - omission, substitution or inaccurate pronunciation of sounds ^[1]. Up to 5 years, dyslalia can be physiological (if other pathologies are excluded).

- most common problems: production of sibilants (sigmatism) and sounds L, R and Ø (lambdacism, rotacism and rotacismus bohemicus)
- **causes** : hearing defects (acoustic or audiogenic dyslalia), anatomical deviations of speakers (bite defects, anomalies of the teeth, palate, lips, tongue - shortened sublingual frenulum...), CNS defects, incorrect speech pattern, insufficient vocabulary, phonemic hearing impairment or previous lay pronunciation modification
- **treatment** : speech therapy (from approx. 4 to 5 years), possibly surgical ^[2]

Stuttering (balbuties)

Stuttering is a disorder of speech fluency that typically manifests itself between the ages of 3 and 4, when starting school or during puberty. It often leads to feelings of inferiority, logophobia and even social isolation.

- **causes**: multifactorial, influence of heredity, social environment and organic background
- the clonic component (repetition of syllables) or the tonic component (stretching of syllables) predominates, co-verbal behavior is often disturbed (involuntary movements, grimaces, flexion of the limbs, vegetative changes), there are blocks (unnatural pauses) in speech, the sufferer tends to have difficulties managing the breath (breaths in the middle of the word)
- speech is unnatural and harder to understand
- **therapy**: difficult and long-term, complex care (phoniatrist, speech therapist, psychologist, possibly psychiatrist) ^[2]

Turmoil (tumultus sermonis)

Stuttering is an excessively accelerated rate of speech, when indistinct articulation and swallowing of endings impairs speech intelligibility. It usually occurs alone or in association with stuttering. It usually does not require treatment. ^[2]

Hoarseness

Hoarseness is a pathologically altered speech sound disorder. It can be transient or permanent, functional or organic.

- reduced nasality (hyponasality) or closed hoarseness (rhinophonia clausa) – obstruction in the nasal cavity or nasopharynx (swollen nasal mucosa during a cold, nasal polyps, adenoid vegetation...)
- increased nasal resonance or open hoarseness (rhinophonia aperta) - in the case of a disturbed oropharyngeal closure (clefts, shortening or paralysis of the soft palate...)
- mixed hoarseness (rhinophonia mixta) – with insufficient oropharyngeal closure and the simultaneous presence of nasal polyps

- **treatment** : surgical with subsequent rehabilitation and speech therapy care ^[2]

Dysarthria

Dysarthria is a disorder of motor speech realization based on organic damage to the central nervous system with preserved understanding.

- developmental dysarthria – in neurological diseases (BMD, muscular dystrophy...);
- acquired dysarthria – head and brain injuries, tumors, CNS infections, degenerative CNS diseases, etc.
- spastic type (pyramidal dysarthria) – in a central motor neuron disorder and is part of the spastic form of DMO; speech is made convulsively, the movements of the speakers are hypertonic, increased nasality is evident
- athetoid, hyperkinetic, hypokinetic type (extrapyramidal dysarthria) – disorder of the striatum and other subcortical nuclei, accompanying dyskinetic forms of DMO; articulation is imperfect due to athetoid movements of the tongue, involuntary movements of the speakers may appear, prosodic factors of speech are disturbed
- ataxic type (cerebellar dysarthria) – damage to the cerebellum and its pathways; speech is saccaded, emphasizing individual syllables, adiadochokinesis, clinging in individual articulation positions and stops in speech are evident
- bulbar type – damage to the motor nuclei of the medulla oblongata and the cranial nerves innervating the speech organs; arises suddenly after injuries and operations; impaired intelligibility, articulation disorder on the basis of damage to the cranial nerves innervating the vocal cords
- mixed type ^{[1][2]}

Aphasia

Aphasia is a central disorder of production and/or comprehension of already normally developed speech. This is an acquired disorder, which usually has a sudden development on the basis of a disease or injury to the CNS. It occurs rarely in children. ^[2]

Numbness (mutism)

Dumbness is a sudden loss of the ability to speak on a functional basis (neurotic or psychotic), it arises as a reaction to a traumatic experience.

- complete mutism (total) or tied to a certain situation or person - selective (elective)
- therapy : psychotherapy ^[2]

Links

Related articles

- Disorders of speech and other symbolic functions • Speech disorders • Aphasia/PGS/diagnosis
- The most common syndromes and diseases of pediatric neurology/PGS

References

Reference

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