„Logopedia Silesiana", t. 12, nr 2, ISSN 2391-4297
https://doi.org/10.31261/LOGOPEDIASILESIANA.2023.12.02.07
pp. 1–14: English language version

Olga Przybyla
University of Silesia in Katowicach
Poland
https://orcid.org/0000-0001-8924-3102

Katarzyna Czech
Medical University of Silesia in Katowice
Poland
https://orcid.org/0000-0002-2443-5805

Parallel Development of Motor Skills and Speech from a Logopedic Perspective

Abstract: This article examines the impact of motor disorders on speech development in children, highlighting the interdependence of gross, fine, and oral motor skills. It outlines developmental milestones from infancy through school age, updated Centers for Disease Control and Prevention (CDC) and American Academy of Pediatrics (AAP) standards, and diagnostic tools like Munich Functional Developmental Diagnosis (MFDR), emphasizing early identification of delays (Zubler et al., 2022; Fritz et al., 1994). The text explores how motor impairments, particularly dyspraxia (ICD-11: F82), disrupt articulation, phonation, and communication via sensory-motor integration deficits, advocating interdisciplinary therapy integrating speech therapy, physiotherapy, and sensory integration for optimal outcomes.

Keywords: dyspraxia, neurodevelopmental disorders, gross motor skills, fine motor skills, oral motor skills

Paralela rozwoju motoryki i mowy z perspektywy logopedycznej

Streszczenie: Artykuł analizuje wpływ zaburzeń motoryki na rozwój mowy u dzieci, podkreślając współzależność motoryki dużej, małej i oralnej. Przedstawia kamienie milowe rozwoju od niemowlęctwa do wieku szkolnego, zaktualizowane standardy Centrum Kontroli i Prewencji Chorób (CDC) oraz Amerykańskiej Akademii Pediatrii (AAP), jak i Monachijską Funkcjonalną Diagnostykę Rozwojową (MFDR), akcentując wczesną identyfikację opóźnień (Zubler et al., 2022; Fritz et al., 1994). Omówiono, jak zaburzenia motoryczne, zwłaszcza dyspraksję (ICD-11: F82), zakłócają artykulację, fonację i komunikację poprzez deficyty przetwarzania sensoryczno-motorycznego, zalecając interdyscyplinarną terapię łączącą logopedię, fizjoterapię i integrację sensoryczną dla osiągania efektów terapeutycznych.

Słowa kluczowe: dyspraksja, zaburzenia neurorozwojowe, motoryka duża, motoryka mała, motoryka oralna

Motor skills refer to the overall physical ability of the human body required to perform various movement-related activities which comprise gross motor skills, fine motor skills, and oral motor skills. Motor development constitutes a key element of human biological development, encompassing its diverse dimensions – from perception to speech planning and execution. It involves mastering muscle control, exemplified by the ability to maintain postural balance, which is essential for performing complex motor tasks. Balance, as a component of coordination motor abilities (CMA), forms the foundation for effective and optimized motor performance, with both its static and dynamic forms playing a crucial role in intricate motor activities (Przybyla 2015a; Zwierzchowska, Bieńkowska, 2017) .

Main Objectives of the Article Presentation of the development of gross, fine, and oral motor skills in children and their impact on speech acquisition from a logopedic perspective; discussion of developmental norms (Centers for Disease Control and Prevention (CDC) and the American Academy of Pediatrics (AAP), Munich Functional Developmental Diagnostics (MFDD)) and key motor milestones in the context of early diagnosis of delays and nalysis of motor disorders (dyspraxia, oral dyspraxia) and their consequences for articulation, phonation, and communication, with emphasis on interdisciplinary therapy.

Research Assumptions: 1) Motor and speech development are closely interconnected – gross/fine motor disorders lead to oral-motor deficits and articulatory delays; 2) Early intervention (logopedics + physiotherapy + SI) compensates for sensory-motor deficits, particularly in dyspraxia (ICD-11: F82); 3) Developmental norms enable objective assessment of motor-speech trajectories; postural/kinesthetic dysfunctions disrupt oral praxis. Literature References demonstrate strong neurophysiological links between motor coordination (with language, respiratory efficiency, and speech, confirming early vestibular interventions enhance neuroplasticity and compensate hearing deficits (e.g. Raczek 1998, Przybyla, 2013, 2016a; 2016b; Zwierzchowska; Bieńkowska, 2017; Zwierzchowska et al., 2019). Findings support interdisciplinary logopedics integrating logorhythmics/psychomotoryka, echoing SIPT praxis models for dyspraxia where balance subtests predict articulation delays.

The development of motor skills is a dynamic process that begins in the first days of a child's life and continues throughout the whole childhood. It is a gradual process in which a child learns to control their muscles and body movements, acquiring new motor abilities.

The general outline of motor skill development is as follows:

1. First months of life (0-6 months) – infants start with simple reflexive movements, such as grasping and sucking reflexes. Gradually, they learn to control their head and upper body, which is the foundation for further motor development.
2. 6-12 months – infants develop skills, such as sitting, crawling, they also attempt to stand. Furthermore, they start to manipulate objects, which indicates the beginning of fine motor skill development.

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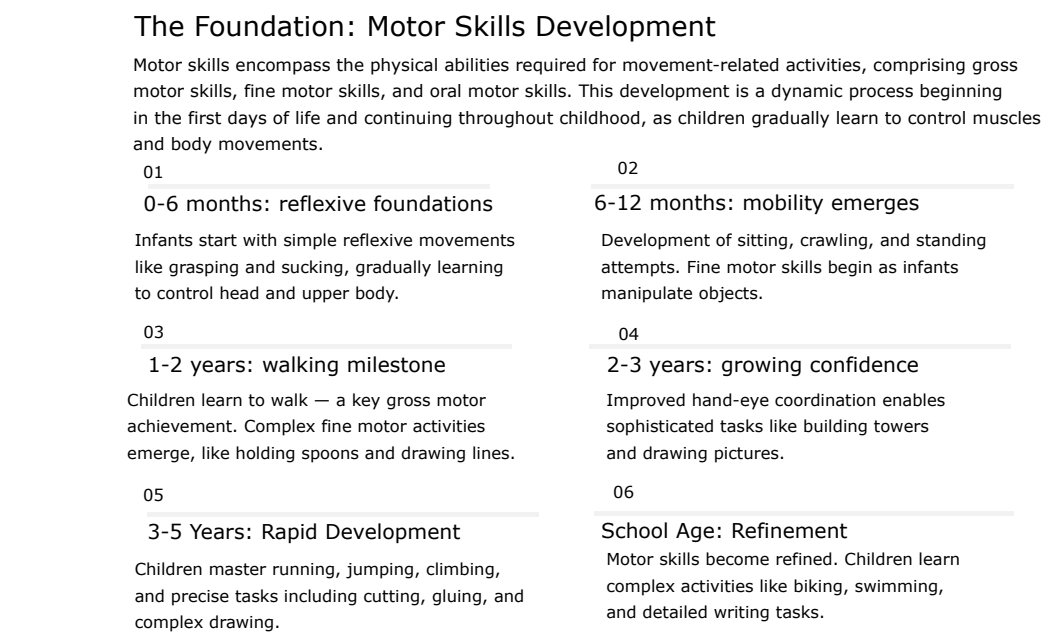
3. 1-2 years – children learn to walk, which is a key milestone in gross motor development. They also begin to perform more complex fine motor activities, such as holding a spoon or drawing simple lines.
4. 2-3 years – children become more dexterous and confident in their movements. Their hand-eye coordination improves, allowing them to complete more sophisticated tasks, such as building block towers or drawing simple pictures.
5. Ages 3-5 – it is a period of rapid motor skill development. Children learn to run, jump, climb, and perform more precise tasks such as cutting, gluing, and more complex drawing and writing.
6. School age – motor skills become more refined. Children learn complex skills, such as riding a bike, swimming, and playing team sports. They also develop more advanced fine motor skills, including writing, drawing detailed pictures, and completing intricate manual tasks.

Figure 1
The Foundatio: Motor Skills Development



Source: Own compilation.

It is worth emphasizing that every child develops at their own pace –some children may acquire certain motor skills more quickly, while others may need more time (Zubler et al., 2022). It is of utmost importance to provide the child with appropriate stimuli, encourage physical activity, also make exploration and

learning through play possible, which is a natural environment for the development of motor skills. The most recent standards for developmental milestones in children have been updated by Centers for Disease Control and Prevention (CDC) and the American Academy of Pediatrics (AAP). The aim of these guidelines is to facilitate the early identification of developmental delays in motor skills. The updates provide more accurate and evidence-based criteria for monitoring child development. The revised milestones focus on the skills that most children should achieve by a certain age, with particular emphasis put on those that can be easily observed in a natural setting. A significant aspect of this update is the reassessment and adjustment of existing CDC milestones, leading to the replacement or age adjustment of many previously listed milestones (Organizational Principles to Guide and Define the Child Health Care System…, 2006, pp. 414–420). The developmental milestones established by CDC and AAP serve as key indicators of healthy development at various stages of a child's life, covering children from one month of age up to 5 years old (Scharf, 2015, pp. 25–38.). The outlined motor skills create a framework for tracking a child's motor development. An alternative classification of gross motor milestones is presented by Zukunft-Huber, who divides the milestones into those achieved in prone and supine positions.

Developmental milestones in the prone position (lying on the stomach) are as follows: at 3-4 months of age support on elbows and pelvis appears; at 6-7 months of age- support on hands and pelvis with extended elbows (known as high plank position), with the belly lifting off the ground around the 7th month; at 9-10 months of age- support on hands and knees appears (the quadruped position); at 12-16 months of age- support on hands and feet can be observed (the so-called bear position).

Developmental milestones in the supine position (lying on the back) are as follows: at 3-4 months of age hand-to-eye-to-mouth contact emerges (Zukunft-Huber, 2018); at 6-7 months of age foot-to-hand-to-eye-to-mouth contact appears. The development of gross motor skills begins from the prone position, that is why tummy time is crucial from the earliest moments of a child's life. It plays a key role in transitioning between different postures. This aspect is thoroughly explained in the Munich Developmental Diagnosis (Munich Functional Developmental Diagnostics, MFDD).

MFDR is an early diagnostic method used to assess the psychomotor development of children from the first month to the sixth year of life. The scales were developed in Germany by Professor Theodor Hellbrügge. MFDR is recognized worldwide and serves as a comprehensive tool for evaluating a child's development, enabling early detection of potential disorders in various developmental domains such as perception, speech development, social interactions, and motor functions. This diagnostic approach assesses multiple aspects of child development, including the age of crawling, sitting, grasping, perception, speech, comprehen-

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sion of spoken language, and social skills. During the first year of life, the most critical psychomotor functions are evaluated, while the second and third years focus, among others, on gross and fine motor skills, cognitive processes, speech production, comprehension of spoken language, social abilities, and independence.

The Munich Functional Developmental Diagnosis is highly objective, as the results of individual tasks are unambiguous. This method enables the creation of a child's developmental profile, i.e. a graphical representation of results across specific functions, allowing for quick evaluation of whether a given skill deviates from the normative range. The profile is also useful for parents, since it presents a child's developmental age in a clear and understandable manner. Early detection of psychomotor abnormalities in young children, along with timely therapeutic intervention, can significantly help to compensate for deficits related to gross motor impairments. Research indicates that appropriate therapeutic support can effectively enhance development, especially in at-risk children. The MFDD has been recognized by the World Health Organization (WHO) as a model system for tertiary prevention, underscoring its importance in early diagnosis and prevention of potential developmental issues (Fritz, 1994). A child's motor development is a dynamic process characterized by periods of acceleration (developmental leaps) and temporary delays (Borkowska, 1999).

Gross motor skills refer to ability of the body to perform movements, ranging from simple actions like walking to more complex ones requiring precise coordination. They form a fundamental part of human functioning. On the other hand, fine motor skills involve precise muscular movements that engage smaller muscle groups, such as those used in writing, drawing, using tools, or manipulating small objects.

The development of fine motor skills is crucial for manual dexterity, hand-eye coordination, and overall manual efficiency. It is primarily responsible for all manipulative activities performed by the distal part of the upper limb, i.e. the hand and fingers. It includes activities, such as: grasping, holding, writing, drawing, using tools (e.g. scissors), manipulating small objects (e.g. beads), self-care tasks related to fastening and unfastening buttons, zippers, tying shoelaces, as well as the activities involving the use of cutlery. Thus, proper development of fine motor skills is the foundation for learning to write.

Grasping and manipulating objects also helps to develop coordination between what a child sees and what their hands do, thus influencing hand-eye and bilateral coordination. The development of grasping abilities in children progresses through various stages, beginning at the moment of birth. Fine motor skill development starts at birth and continues throughout childhood. From the very first moments of life, infants exhibit the palmar grasp reflex (also known as the grasping reflex). It is one of the primitive reflexes observed in newborns – an involuntary, automatic movement that plays a crucial role in a child's motor development. It is the most conspicous and strongest in the first few months of a child's life

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and disappears by the end of the 4th month. It is an important phase in infant development, playing a key role in motor and neurological development. Its proper occurrence and loss are significant indicators of a child's healthy development. It is manifested as an automatic closing of the baby's hand when the palmar surface is stimulated – this is how the child begins to learn from the very beginning how to activate the flexor muscles in the hand. The proper formation of the palmar grasp (Mikołajewska et al., 2017, pp. 1784–1791), which emerges between 1 and 1.5 years of age and fully develops during the preschool years, is crucial for fine motor development. The characteristic gripping methods for the palmar grasp are the spherical grasp and the cylindrical grasp.

The spherical grasp, often referred to as the ball grasp, is one of the types of grasps used in fine motor skills, which develops in children as they grow and refine their manipulative abilities. It is an important stage in the development of manual dexterity, typically emerging during the preschool years. This grasp involves using the entire hand to catch and hold rounded objects, such as a ball. All fingers, including the thumb, participate in gripping the object, forming a kind of "dome" or "cup." The entire hand wraps around the object, with fingers evenly distributed around it. The spherical grasp is crucial for developing object manipulation skills, which are essential for many daily activities and educational tasks. It represents a significant milestone in a child's fine motor development, enabling more effective handling of objects and laying the foundation for future manual skills (Link et al.). The cylindrical grasp**,** on the other hand, involves gripping an object (such as a handle of a hammer) by wrapping four fingers and the thumb around it. There are several variations of this grasp, depending on the intended force applied to the held object (Barczyk, 1999).

A more precise grasp that develops in the first years of life is the pincer grasp, also known as the tripod grasp. The pincer grasp (also called the tripod grasp or scissor grasp). It plays a significant role in a child's ability to perform complex manual tasks. A proper writing grip develops between the ages of 4 and 14, and mastering global movements related to gross motor movements is crucial for its correct development. Initially, a four-finger grasp appears, which gradually transitions into a three-finger grasp as writing skills improve. Impaired fine motor skills also affect oral motor abilities**,** visual-motor and articulation skills**.**

Oral motor skills refer to the coordination and control of muscles in the oral cavity, including: the tongue, lips, cheeks, palate, and mandible. The development of oral motor skills is essential for various functions, such as eating and speaking, as well as for overall sensory and motor development in children. Precise movements of the tongue, lips, and other oral muscles are crucial for accumulating sensory, motor, and auditory experience necessary for speech and communication development, starting with unconscious sound production and progressing to increasingly intentional sounds and, eventually, words. In addition, oral motor

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control enables safe chewing and swallowing of food, which is vital for nutrition and the development of self-sufficiency (e.g. Przybyla, 2015a, pp. 570–581).

The integration of motor and sensory development is extremely important. The oral cavity is an area rich in sensory receptors, in addition the development of oral motor skills enhances the exploration of different food textures and flavors. Eating and speaking abilities significantly influence social interactions and emotional development of a child. The development of oral motor skills begins at birth, when sucking and swallowing are the first manifestations of oral motor skills in newborns. Learning to control saliva, starting solid foods, and producing first sounds and words are early phases of oral motor development. Oral motor skills are a crucial element in a child's development, affecting their ability to eat, speak, and progress in overall growth. Supporting oral motor development through adequate play, exposure to variety of foods and, when necessary, specialized exercises are essential for building communication skills.

A dysfunction in any of the complex perceptual systems directly affects speech development (see Table 1).

Table 1
Interdependence of sensory systems relevant for speech development

sensory system	key relationships for speech development
tactile system	is responsible for superficial sensation in the facial and oral areas; influences articulatory kinesthesia and oral praxis.
vestibular system	plays a crucial role in regulating muscle tone required for verbal communication. Determines the level of coordination in the articulatory apparatus and affects articulatory kinesthesia and oral praxis.
proprioceptive system	present in the vocalis muscle (internal thyroarytenoid muscle), which tightens the vocal folds, also in the articulatory apparatus. Provide feedback on the relative positioning of the maxilla and mandible, significantly influencing voice modulation and articulation quality. Determine the coordination level of the articulatory apparatus, impact articulatory kinesthesia and oral praxis. Regulate proper distribution of postural tension , during verbal communication, body positioning linked to neuromuscular processes dependent on proprioceptive stimulation.
visual system	is essential for lip-reading and interpreting proxemic, kinesic, and iconic communication cues.
auditory system	plays a key role in sound perception via bone conduction and is responsible for sound discrimination and differentiation.

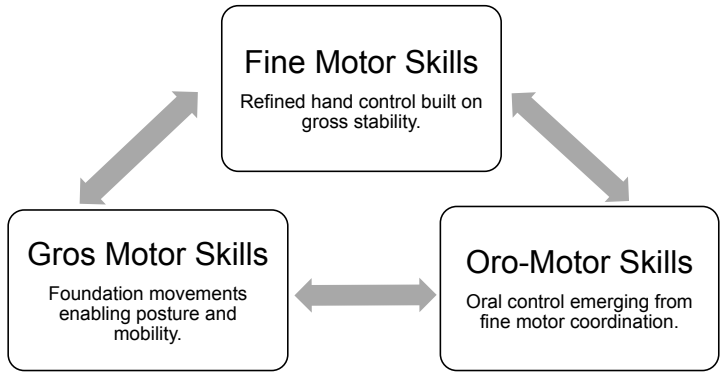
Source: Own compilation.

Abnormal muscle tone distribution, primarily hypotonia, and disruptions in sensory processing can significantly impact a child's motor development. It is important to emphasize that child development progresses in three key directions:

- cephalocaudal development – proceeds from the head downward (beginning with eyeball and neck movements), through the thorax (arm and torso movements), and finally to the lower body (leg movements and walking);
- proximodistal development – progresses outwards from the body's longitudinal axis (first, paraspinal muscles become functional, followed by shoulder, forearm, hand, and finally finger muscles);
- ulnar-radial development – occurs along the transverse axis of the body – from the fifth (little) finger towards the thumb (Weisner, 2021).

Motor impairments, both gross and fine, affect oral motor development, which in turn has a significant impact on speech acquisition in children. Motor development and speech development are closely interconnected, and difficulties in one area often influence the other area.

Figure 2
Interdependence Between Motor Function Development



Source: Own compilation.

Figure 2 presents a cause-and-effect pattern demonstrating how gross motor skills influence fine motor development, which in turn affects oro-motor skill acquisition. In the situation when a child with delayed communication skills visits a speech therapy clinic, they are likely to exhibit abnormalities not only in oro-motor functions but also in both fine and gross motor abilities.

Children with motor impairments often experience delays in speech development due to the difficulties in precise control of the muscles required for speech sound production (Marshalla, 2004). Motor disorders can limit a child's ability to express emotions and engage in nonverbal communication, which in turn affects overall speech and communication development.

Thus, for oral motor skills to develop properly, both fine and gross motor skills must progress normally. The effective integration of hearing, vision, and touch is indispensible in acquisition of communication competences. At the sensori-motor

level, visual and auditory analysis and synthesis of words play a fundamental role (Stelmasiak Różańska, 2021, pp. 87–106). The first years of life are crucial for lifelong learning and development. Developmental milestones follow a predictable sequence in infants and children, with later skills building upon earlier achievements. Understanding typical development helps clinicians to recognize delays. Early identification of developmental delays allows for timely referral to therapeutic interventions, increasing a child's chances of reaching key developmental milestones.

Research on the outcomes of early childhood intervention has demonstrated a wide range of benefits when children receive necessary speech therapy, physiotherapy, occupational therapy, or specialized educational services in a language-rich preschool environment.

The development of a child's speech is closely linked to motor development, and low efficiency of the articulatory organs results in difficulties with precise movements needed to produce specific sounds. Knowledge about the neurophysiological foundations of speech development is the basis for stimulating its development - the most crucial area of human mental development.

Speech involves both production (speaking) and reception (understanding) which depend on neurophysiological and biochemical processes occurring in the cerebral cortex and subcortical structures, as well as on the correct structure and functions of the articulatory organs and the auditory system (Ostrowska-Hązła, 2021, pp. 147–161.). Speech development begins already in the prenatal period. Between the 4th and 5th month of fetal life, a child begins to respond to acoustic stimuli. Children start to communicate with the environment from the very first moments of life, initially through crying.

The stages of a child's speech development include the following phases:

- the preparatory stage, lasting from the 3rd to 9th month of fetal life, when the foundations of speech organs develop,
- the melody period, lasting during the first 12 months, when a child uses exclamations, crying, onomatopoeic creations, with cooing appearing first and babbling appearing later; a child should correctly pronounce the sounds: a, e, m, b, t, d, n, j,
- the word period, lasting from 1 to 2 years of life, when the first words appear; a child should correctly pronounce the sounds: a, o, e, u, i, y, p, b, pi, m, t, f, n, ń, ś, k, ki, j,
- the sentence period, lasting from 2 to 3 years of life, when simple sentences appear; a child should correctly pronounce the sounds: a, o, e, u, i, y, ą, ę, p, b, pi, bi, m, mi, f, w, fi, wi, ś, ź, ć, dź, ń, k, g, ki, gi, ch, t, d, n, l, li, j; sometimes they can already articulate: s, z, c, dz, sz, ż, cz, dż,
- the period of specific child speech lasts from 3 to 7 years of age, when a child's speech becomes increasingly refined and conversations become more fluent; a child masters the sounds: s, z, c, dz, sz, ż, cz, dż, r (Lichota, 2015).

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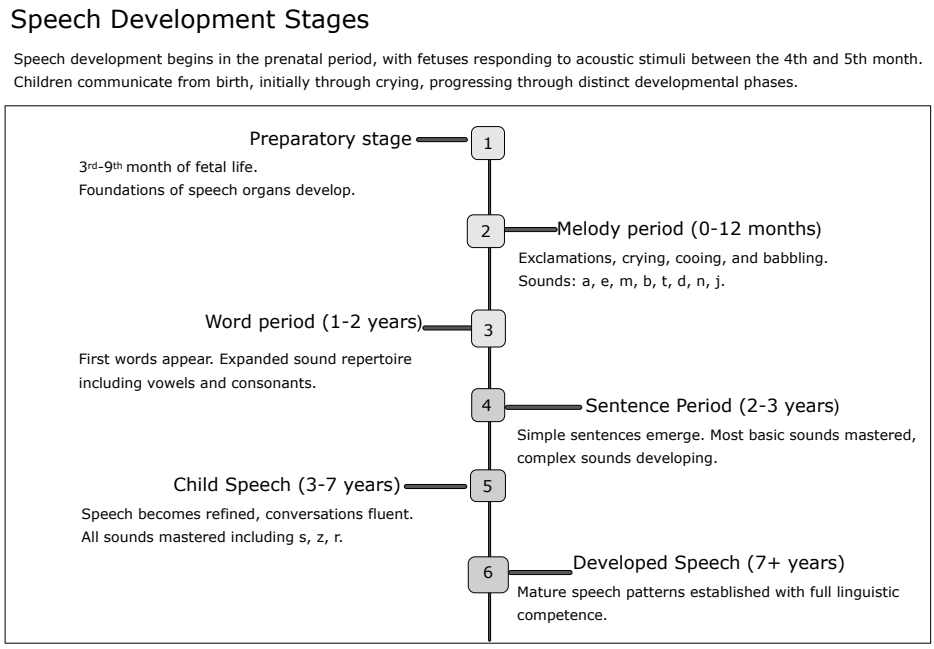
Speech difficulties can affect a child's ability to interact with peers, which may lead to frustration and behavioral problems.

Specialists distinguish the following periods of speech development:

- preparatory period (fetal life stage),
- melody period (0-1 year of age),
- word period (1-2 years of age),
- sentence period (2-3 years of age),
- specific child speech period (3-7 years of age),
- developed speech period (above 7 years of age) (Porayski-Pomsta, 2007, 2015).

Figure 3
Speech Development Stages



Source: Own compilation.

The development of children's speech depends on many components, with biological, psychological, social and linguistic factors playing an important role. These include external influences, including environmental factors, as well as individual characteristics, i.e. psychomotor development. The conditions enhancing proper speech formation also include correct development of the auditory, visual and kinesthetic spheres, proper development of cognitive processes and harmonious emotional development (Sałach-Zapaśnik, 2006, pp. 331–337).

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A common problem resulting from motor disorders, is balance and coordination dysfunctions, the so-called oral motor disorders, which include dyspraxia. Dyspraxia is a condition where an individual's ability to perform intentional actions is impaired. According to the ICD-11 classification, dyspraxia is defined as a specific developmental disorder of motor functions (F82), which include the "clumsy child" syndrome, developmental coordination disorder and developmental dyspraxia (Białas-Paluch, 2017, pp. 75–95). Dyspraxia is a neurological disorder that affects the planning and execution of coordinated, purposeful movement sequences. It is a frequently occurring problem that can significantly impact a child's daily functioning and speech development.

A child with dyspraxia has difficulties with planning, coordination and execution of movement . This disorder may involve gross motor skills, fine motor skills or oral motor skills, or all three of these areas (Ayres, 2015). Problems with oral motor skills can affect eating difficulties, which in turn may directly impact speech development, as the same muscles are used for both eating and speaking. Eating difficulties can also limit exploration of different food textures, which is important for sensory development that influences speech.

Orofacial praxis refers to the ability to perform intentional articulatory movements (e.g. Styczek, 1983). Oral dyspraxia, also known as childhood apraxia of speech, is a specific type of disorder involving difficulties in coordinating and executing precise, controlled movements necessary for speech production. This neurological problem affects the ability to plan and execute movement sequences of the articulatory organs (the lips, the tongue, the mandible). It is a specific disorder that impacts the planning and coordination of speech movements, potentially causing articulation difficulties and even speech development delays. A child cannot reproduce proper tongue and lip positioning or execute movements on command. The ability to precisely differentiate articulatory movements diminishes, making clear articulation unattainable (e.g. Przybyla, 2013, 2015b; Zwierzchowska; Bieńkowska, 2017; Zwierzchowska et al., 2019). Children with oral dyspraxia may struggle with accurate performance of the movements required for production of speech sounds. This can lead to speech development delays, incorrect speech production, or limited ability to form words and sentences. A characteristic feature is inconsistent articulation, i.e. different attempts to pronounce the same word may yield different results (Przybyla, 2016a, 2016b, Zwierzchowska; Bieńkowska, 2017; Zwierzchowska et al., 2019). The diagnosis requires evaluation by a speech therapist who conducts a detailed assessment of a child's speech and language abilities. It is essential here to distinguish oral dyspraxia from other speech disorders. Motor disorders and abnormal muscle tone distribution, and particularly muscle hypotonia, significantly impact oral motor skills. Low muscle tone in the lips, tongue, soft palate, and respiratory muscles affects flaccidity of the respiratory muscle and phonation, making free sound production difficult. Children suffering from oro-facial dyspraxia must learn to produce each

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sound separately before combining them into the whole words. Difficulties in oral dyspraxia are manifested as problems with performing the activities, such as blowing, whistling, or tongue protrusion, with speech being unclear and slurred (Przybyla 2013; 2015a; Zwierzchowska, Bieńkowska, 2017). The consequence of oro-facial dyspraxia is articulation disorders. Observations include transitions between sequences of articulatory movements and their overlapping, resulting in:

- ellipses - omitting sounds, syllables and words,
- heterotopias - sound substitutions,
- metatheses - inversions of sound order,
- sound anticipations,
- sound postpositions,
- repetitions of initial sounds,
- slips of the tongue (e.g. Przybyla, 2013).

Proper diagnosis and focus on differential diagnosis are crucial, as treatment differs from other types of speech and oral motor disorders; in addition, early and specialized intervention is recommended. Correlations are observed between oral praxis and motor praxis, making early speech therapy and physiotherapeutic support very important. Sensory integration therapy sessions also play a vital role (Printz et all, 2018). From the perspective of a sensory integration therapy, stimulation of the vestibular system combined with auditory system stimulation is essentialt, as is developing praxis (including ideation), working on sequencing, developing gross motor skills with a special focus on movement alternation, bilateral coordination, and crossing the midline of the body. Previous research on dyspraxia focused on description of symptoms and observation whether dyspraxia is permanent or temporary. Scientific research provides conclusions showing that in some children, problems resolve over time due to the maturation of the central nervous system and progressive myelination of nerve fibers (Przybyla, 2016a). Intensive speech therapy is typically a key element of treatment, focusing on improving coordination and planning of the movements needed for speech.

It is assumed that during the first year of life, children develop the foundations of communication, and by the age of 10, they acquire language as a system of rules and learn complex linguistic behaviors, i.e. they master linguistic and communicative competence, regardless of the fact that the process of refining these skills is long-term. This is related to fulfilling communicative needs.

The assessment of development level in young children (up to 3 years old) must include evaluation of perceptual and motor processes, non-verbal communicative behaviors, speech comprehension, and knowledge of spoken language. The assessment of older children's development level involves both understanding and producing messages, encompassing all aspects of linguistic and communicative competence, i.e. systemic (mastery of the language system) and pragmatic (ability to use language appropriately to the situation) (e. g. Porayski-Pomsta, 2007, 2015).

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The therapy for a child with oral dyspraxia requires a holistic and personalized approach that includes work on speech skills, support in communication and social interactions, as well as work on balance and motor coordination. Collaboration between speech therapists, physiotherapists, parents, and teachers is crucial for effective therapy and supporting development of communication in children. In practice, this entails the need to plan integrated therapeutic interventions, implement consistent communication strategies in home and educational settings, and systematically support the child's communicative development in everyday situations.

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Olga Przybyla – Ph.D. Professor of the University of Silesia, linguist, speech therapist, sensory integration therapist, Editor-in-Chief of «Logopedia Silesiana». Her areas of research also include logopedic diagnosis and therapy with elements of sensory integration and surdologopedics, with audiogenic conditioning of speech disorders in particular, and complex auditory perceptions.
olga.przybyla@us.edu.pl

Katarzyna Czech – Master of Physiotherapy. Teacher of Integrated Early Childhood Education and Physical Education. Graduate of postgraduate studies in Oligophrenopedagogy with Autism and Asperger's Syndrome. Member of the Polish NDT-Bobath Association. Certified NDT-Bobath therapist, neurodevelopmental therapist, certified sensory integration therapist and diagnostician, and Sensoplastyka trainer. PhD student at the Medical University of Silesia in Katowice.
kasienka679@gmail.com

https://doi.org/10.31261/LOGOPEDIASILESIANA.2023.12.02.07