

ARTICULATION & PHONOLOGICAL DISORDERS

Language proficiency is a privilege of the cognitive human being and is achieved quickly, effortlessly and without special teaching (Chomsky, 1982, Lenneberg, 1967). It is a complex and dynamic process consisting of subsystems (vocabulary, phonology, pragmatics, syntax and morphology) that interact and support each other, naturally depending on the chronological age of the child and the linguistic requirements of a given developmental “window”.

Phonology concerns the subsystem of language that focuses on the phonemes (sounds) that are systematically used in natural languages to communicate meaning (Nespor & Ralli, 1996). The phonological system of a language signals meaning since phonetic distinctions, both perceptually and expressively, form the basis of the conceptual distinction between words. Vowels and consonants as a whole define the set of phonemes/sounds of a given language which, in combination with prosody (intonation, pauses), give the verbal message a “distinctive” value within the context of a specific phonological system. The Speech production pre-requires (a) a well-organized cognitive-linguistic system that supports the child's transition from sound to meaning and (b) a normal articulatory mechanism that allows speech production (Locke, 1993).

In this context, speech sound disorders are defined as the condition that affects the individual's communicative ability at the level of language perception and production (ASHA 2007). The individual's performance in the educational, social and professional context is affected and is due to various etiologies (organic medical-centric versus functional cognitive/linguistic background) with a frequency of 7-10% and 40% in co-morbidity with various developmental language disorders (e.g., Autism Spectrum Disorders, Developmental Language Disorder) (Bloomfield & Dodd, 2004; Petinou, 2021).

In general, speech sound disorders are divided into two major categories that include **articulation and/or phonological difficulties**.

While articulation disorders are characterized by simple deletions (water->wate), substitutions (water->νελό or νεδό) or corruptions of sounds, disorders at the level of phonology affect multiple sounds that appear as patterns of errors, significantly affecting the intelligibility of speech (e.g., instantiation /souppa - touppa/, anticipatory assimilation

/patata- tatata/, /banana - nanana/, cluster simplification /spiti - piti/, frontalization /aggouraki- antoudati/).

In recent years, there has been a significant amount of research activity in various languages around the world, with a significant focus on the classification of speech sound disorders (Dodd, 2023; Petinou, Ttofari & Philipou, 2024). Assuming Dodd's (2014) model, 5 classification categories arise that are related to the types of errors (symptomatic profile) observed in children's pathological speech, and they are as follows:

1. Articulation disorder
2. Phonological delay
3. Consistent phonological disorder
4. Inconsistent phonological disorder
5. Childhood apraxia of speech

Intervention

The therapeutic intervention may combine different approaches (articulation and phonology problems coexist) requiring a stepwise and hierarchically structured connective intervention. The treatment should bring about a change in the child's speech (improvement), generalization of correct productions in other contexts (phonology, speech), generalization of correct productions in other social contexts outside of therapy (home, school, classroom, with other people) and maintenance over long periods of time.

Based on the above, a differential diagnosis can be made and the appropriate intervention and targeting can be selected. Therapeutic approaches, depending on the severity and type of disorder, are divided into two categories:

(a) Arthrokinetic, Logokinetic, Stomatokinetic where difficulty is observed in articulation, planning (apraxia) or execution (dysarthria) of arthrokinetic speech patterns (arthrokinetic interventions, rapid syllable transition training, Prompt)

(b) Linguistic and Psycholinguistic where difficulty is observed in perceiving and distinguishing the characteristics of speech sounds and are associated with linguistic, cognitive and learning problems (minimal pair therapy, core vocabulary approach).

In general, based on the global literature, the various therapeutic interventions include Core Vocabulary, Cycles Approach, Metaphone, Minimal Pair Therapy, Non-linear Approach, Perception Discrimination, Stimulability Approach, Traditional Articulation Therapy (Bowen, 2015).

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