

Communication rehabilitation in Autism Spectrum Disorder: the role of orthophonic treatment and therapeutic approaches

إعادة تأهيل التواصل في اضطراب طيف التوحد: دور التكفل الأرفوفوني والمقاربات العلاجية

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Abstract:

Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder marked by enduring challenges in social communication and interaction, typically accompanied by restricted, repetitive patterns of behavior, interests, or activities. Among the various therapeutic interventions, speech and language therapy plays a central role in addressing the diverse communication challenges associated with ASD. This article explores the principal orthophonic care methods used in the management of individuals with ASD, including language simulation, pragmatic language training, articulation therapy, and AAC.

Furthermore, it examines the most influential therapeutic schools guiding speech-language interventions, such as ABA, TEACCH, DIR/Floortime, and ESDM. By integrating theoretical perspectives and evidence-based practices, the article highlights the need for individualized, multidisciplinary approaches tailored to the specific needs of each individual.

The present study examines also contemporary insights into the etiology of ASD and underscores the pivotal role of early intervention in facilitating communicative development and promoting an improved quality of life.

Keywords: Autism spectrum disorder (ASD); speech and language intervention; communication disorders; Pragmatic Language; Early intervention.

ملخص:

يعد اضطراب طيف التوحد اضطرابا نمائيا عصبيا يتميز بصعوبات مستمرة في التواصل والتفاعل الاجتماعي، إلى جانب أنماط سلوكية واهتمامات وأنشطة مقيدة ومتكررة. ويعد علاج النطق واللغة من بين التدخلات العلاجية الأساسية في

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التكفل بالتحديات التواصلية المتنوعة المرتبطة باضطراب طيف التوحد. تهدف هذا المقال إلى استعراض أهم أساليب التكفل الأرطوفوني المعتمدة في علاج الأفراد ذوي اضطراب طيف التوحد، ومن بينها تنشيط اللغة، التدريب على اللغة التداولية، علاج اضطرابات النطق، إضافة إلى التواصل المعزز والبدل.

كما يتناول المقال أبرز المدارس والمقاربات العلاجية الموجهة للتدخلات الأرطوفونية، مثل تحليل السلوك التطبيقي برنامج تيبش، نموذج الفروق الفردية والعلاقات التنموية، ونموذج دنفر للتدخل المبكر. ومن خلال دمج الأطر النظرية بالممارسات المبنية على الدليل العلمي، تبرز المقالة أهمية اعتماد مقاربات فردية متعددة التخصصات تستجيب للاحتياجات الخاصة لكل فرد مصاب باضطراب طيف التوحد. كما تستعرض الدراسة الراهنة المعطيات الحديثة المتعلقة بمسببات اضطراب طيف التوحد، وتؤكد على الدور المحوري للتدخل المبكر في دعم النمو التواصلية وتحسين جودة الحياة.

الكلمات المفتاحية: اضطراب طيف التوحد؛ التدخل الأرطوفوني؛ اضطرابات التواصل؛ اللغة البراغماتية؛ التدخل المبكر.

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1- Introduction

Speech and language therapy is a specialized clinical discipline, dedicated to the prevention, evaluation and rehabilitation of communication disorders across the lifespan. It encompasses a broad range of techniques designed to support the development and refinement of oral and written language, articulation, voice, fluency, and pragmatic skills (Sharp,H.,Hillenbrand,K.2008).

Central to the practice of speech therapy is the individualized approach, where therapeutic strategies are tailored to each person's unique communicative profile and needs. The role of the speech and language pathologist is therefore crucial in facilitating not only linguistic development, but also broader cognitive, social, and academic integration. Within the framework of neurodevelopmental disorders, orthophonic treatment holds particular relevance in addressing the communication challenges frequently associated with autism spectrum disorder. ASD is characterized by persistent deficits in social communication and interaction, often accompanied by restricted and repetitive patterns of behavior. These features significantly impact language acquisition and functional communication, making speech and language therapy a foundational component of early and ongoing intervention (Vitásková,K.,Kytarová,L.2017).

In 2021, global estimates suggested that approximately 1 in 127 individuals were affected by autism. While this figure provides a general average, prevalence rates differ considerably across studies, with some rigorously conducted research indicating notably higher values. Nevertheless, the true prevalence in many low- and middle-income countries remains largely undocumented (World Health Organization, 2023).

When contrasted with the 2021 estimate, the 2023 CDC (Centers for Disease Control and Prevention) report reveals that autism now affects approximately 1 in every 36 children, cutting across racial, ethnic, and socioeconomic backgrounds. The data also show a marked gender difference, with boys being diagnosed almost four times more frequently than girls (43 per 1,000 boys compared to 11.4 per 1,000 girls). Notably, for the first time, the prevalence among Asian, Hispanic, and Black 8-year-old children has surpassed that of White children, a trend that may reflect enhanced access to diagnostic evaluations in

historically underserved groups. Taken together, these findings highlight persistent geographical, racial, and gender disparities in autism diagnosis, underscoring the challenges of ensuring equitable access to interventions and support services (Up & Up ABA,2025).

This article seeks to explore the orthophonic methods commonly used in the management of ASD, referencing the principal therapeutic schools that guide clinical practice in this domain.

Research:

Problematic:

Autism spectrum disorder (ASD) presents a wide range of communicative impairments that vary in severity and manifestation, posing significant challenges of speech and language therapists in selecting and Implementing appropriate intervention strategies. Give the heterogeneity of the disorder, there is no universally applicable method for addressing the communication deficits associated with ASD. Orthophonic treatment must therefore be carefully adapted to the individual's developmental profile, language abilities, and social- cognitive functioning.

The diversity of therapeutic schools and their theoretical orientations further complicates the choice of effective interventions. While each approach offers unique insights and tools. The lack of consensus on standardized practices raises critical questions regarding the efficacy, applicability and adaptability of these methods in orthophonic care for individuals with ASD. This article seeks to explore the following central question: how can speech-language therapy, informed by diverse therapeutic schools, be effectively implemented to address the specific communicative challenges associated with autism spectrum disorder? By examining current methods of theoretical frameworks, this analysis aims to contribute to a more nuanced understanding of evidence-based orthophonic practices for individuals on the autism spectrum.

Importance and objectives of the research:

Importance of the research:

ASD presents a significant challenge in the field of communication Sciences due to the complex and heterogeneous nature of the disorder. Among the most prominent difficulties faced by individuals with ASD are deficits in verbal and nonverbal communication, which can greatly hinder their social integration and academic progress. Speech and language therapy is recognized as one of the most essential interventions for addressing these deficits. This research is important as it seeks to synthesize current knowledge on the most effective orthophonic methods and therapeutic models used in the treatment of ASD.

By highlighting evidence-based practices and adapting them to the specific communication profiles of individuals with autism, this study aims to contribute to more personalized and impactful intervention strategies.

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Objectives of the research:

This study seeks to achieve the following objectives:

- 1-**To analyze the primary communication difficulties associated with ASD and their implications for development.
- 2-**To present and describe the main speech and language therapy methods used to address these communication challenges.
- 3-**To explore and compare the major therapeutic schools that guide speech and language intervention for individuals with ASD.
- 4-**To highlight the role of individualized and interdisciplinary approaches in enhancing communication outcomes.
- 5-**To advance both academic and clinical knowledge regarding effective approaches in speech and language therapy for individuals with ASD.

1- Definition of Autism Spectrum Disorder:

ASD is a neurodevelopmental condition that emerges during early childhood and is defined by persistent deficits in social communication and social interaction across a range of contexts. These deficits may be observed currently or inferred from developmental history. They typically include impairments in social-emotional reciprocity, challenges in developing and sustaining relationships, and impairments in nonverbal communication skills essential for social engagement.

In addition to social-communicative challenges, ASD is also characterized by restricted, repetitive patterns of behavior, interests, or activities, which are abnormal in either intensity or focus (American psychiatric association, 2013,P56-57), and is considered a complex condition that affects subtle cognitive functions, even in its mild forms, with cognitive differences appearing at an early stage (Benotmane,Brahimi,Harbi,2026,p350); it is also characterized by limited attention to visual information (Hacene,Oussalah,Benmaar,2026,p164). These patterns must be evidenced by at a minimum of two of the following symptoms, occurring either at present or in the individual's history:

- Repetitive or stereotyped motor behaviors, object use, or patterns of speech.
- Rigid adherence to routines, resistance to change, or ritualized patterns of verbal or nonverbal behavior.
- Intensely focused, highly restricted interests that are atypical in their nature or intensity.
- Unusual responses to sensory stimuli, including hyperreactivity, hyporeactivity, or an atypical fascination with sensory elements of the environment.

These symptoms must cause clinically significant impairments in social, academic, or occupational functioning. The diagnosis is not better explained by intellectual disability or global developmental delay (Shore,Ratelli,2011,p15).

2- Core Symptoms of Autism Spectrum Disorder (ASD):

According to Shore and Ratelli (2011), the diagnostic characteristics of Autism Spectrum Disorder can be grouped into three primary domains: social interaction, communication, and behavioral patterns. Within these categories, twelve core symptoms are identified:

(Figure 1): Core Symptoms of Autism Spectrum Disorder (ASD)



2-1 Social Interaction:

Children with autism spectrum disorder show significant deficits in social interaction, as follows:

- Significant deficits in the use of multiple nonverbal communication behaviors, including eye contact, facial expressions, body postures, and gestures.
- Difficulty in forming age-appropriate peer relationships.
- Limited spontaneous efforts to share interests, experiences, or accomplishments with others.
- A marked absence of social or emotional reciprocity in interactions.

2-2 Communication :

They also have significant difficulties in verbal and non-verbal communication as described below:

- An evident delay or total absence in the development of verbal language, without recourse to alternative communicative means such as gestures or facial expressions in non-verbal individuals.
- Substantial challenges in initiating or sustaining conversations.
- The presence of stereotyped, repetitive, or idiosyncratic use of language.
- Limited or absent spontaneous pretend play or social imitative play appropriate to the developmental level.

2-3 Behavior :

Children with ASD also characterized by:

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- An intense preoccupation with one or more narrowly restricted, stereotyped interests that are atypical in their intensity or focus
- An inflexible commitment to particular routines or rituals that lack functional purpose.
- Recurrent motor patterns or gestures (e.g., hand flapping, body rocking) and an unusual preoccupation with parts of objects.
- Persistent and excessive interest in object parts rather than the whole item.

These symptoms reflect the varied and complex nature of ASD and are essential for diagnostic evaluation and intervention planning (Goyal,M.Goyal,K,2025,pp3-5).

3- Causes of autism spectrum disorder:

ASD is a complex neurodevelopmental disorder with multifactorial origins. While the exact causes of ASD are still not fully understood, extensive research suggests that a combination of genetic, environmental, and neurological factors contribute to the development of the condition. These factors interact in complex way to influence brain development, which can affect communication, social behavior, and cognitive functioning.

- **Genetic factors:**

Genetics play a significant role in the development of ASD, with studies indicating a strong hereditary component. Family and twine Studies have shown that children with a sibling diagnosed with ASD are at higher risk of developing the disorder themselves. Several specific genes have been identified that appear to be associated with an increased risk of ASD, though. No single gene is responsible for the disorder. These genes are often linked to processes underlying brain development and synaptic function, and variations or mutations in these Genes, may disrupt normal neural processes critical for communication and social behavior (Lord,Bishop,2015,pp1-16).

Research has also highlighted that ASD is often associated with other genetic conditions, such as fragile X syndrome, Rett syndrome, and other genetic syndromes, which may predispose individuals to developmental delays and language impairments.

Environmental factors:

while genetics play a critical role, Environmental influences also contribute to the onset of ASD, including prenatal exposure to specific substances or infectious agents, complications during pregnancy or birth, and environmental toxins.

For example, prenatal exposure to substances such as alcohol or certain medications like valproate has been linked to a higher risk of ASD. Maternal infections, particularly those occurring in the first trimester, are another area of concern, with some studies suggesting that infections like rubella or cytomegalovirus may increase the risk of the disorder.

Furthermore, increased parental age at conception has been associated with an elevated risk, as older parents may be more likely to pass and genetic mutations that contribute to ASD (Zwaigenbaum,Brian,2013,pp 309-318).

- **Neurological factors:**

Neurological variations in the structural and functional organization of the brain are closely linked to Autism Spectrum Disorder (ASD). Empirical research indicates that persons diagnosed with ASD frequently follow non-typical developmental trajectories of brain development—most notably, an early phase characterized by accelerated cerebral growth, subsequently followed by a slowing down in subsequent years. Structural and functional anomalies have been observed in brain regions critical for social cognition, communication, and sensory processing, including the amygdala, prefrontal cortex, and cerebellum.

Furthermore, imbalances in neurotransmitter systems—particularly involving serotonin and dopamine—have been associated with ASD. These neurotransmitters are essential in regulating mood, social behavior, and cognitive functioning, suggesting a neurochemical contribution to the core symptoms of the disorder (Lord,Bishop,2015,pp1-16).

- **Interaction between genetics and environment:**

It is increasingly understood that the causes of ASD are likely a result of complex interactions between genetic predispositions and environmental factors. for instance, genetic vulnerabilities may predispose an individual to ASD, but environmental triggers may influence whether or not these genetic factors result in the disorders. This gene-environment interaction model suggests that both hereditary and environmental factors must be considered when exploring the causes of ASD.

4- **Major therapeutic schools guiding orthophonic intervention in ASD:**

Various schools of thought have shaped therapeutic interventions for ASD, each proposing its own principles and methods; among them:

(Figure 2): Therapeutic schools for Autism Spectrum Disorder (ASD)



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4-1 Applied behavior analysis:

ABA constitutes one of the three core branches within the field of behavior analysis, the remaining two being the experimental analysis of behavior and behaviorism, or the philosophy of behavior. As a science, ABA can be described as a systematic approach to understanding behavior of social interest. ABA is deeply rooted and influential work of individuals such as Edward Thorndike, John Watson, Ivan Pavlov, and B.F. Skinner, to name a few (Matson,2018,p25).

As part of speech and language therapeutic approaches, ABA is often applied to:

- Break down complex communication tasks into smaller, teachable components.
- Used positive reinforcement to encourage correct language use or social behaviors.
- Implement discrete trial training (DTT) to teach specific language structures.
- Generalize learned language skills across various environments and communication partners.

For nonverbal or minimally verbal individuals, ABA may be combined with AAC systems to promote functional language use. Critics of ABA often point to its structured nature and potential lack of spontaneity; however, when integrated thoughtfully, ABA techniques can effectively support language acquisition, especially in early intervention (Lovaas,1987,pp3-9).

4-2 The TEACCH Program:

The TEACCH (Treatment and Education of Autistic and Related Communication-Handicapped children) program is a structured teaching approach developed at the University of North Carolina. Unlike the strictly behavioral model of ABA, TEACCH is rooted in cognitive-behavioral and developmental principles and emphasizes adaptation of the environment to the specific needs of individuals with Autism Spectrum Disorder (ASD).

Key characteristics of TEACCH include:

Structured teaching: Activities are organized using visual schedules, clearly defined work areas, and task sequences to support comprehension and independence.

Visual support: Visual instructions, cues, and prompts are extensively used to enhance understanding and reduce verbal dependency.

Individualization: programs are highly individualized, focusing on the person's strengths, interests, and developmental level.

Skill generalization: TEACCH promotes learning in natural settings to encourage the application of communication skills in the real-life contexts.

In speech and language intervention, TEACCH techniques are particularly useful for supporting language comprehension, building routine-based communication, and developing pragmatic skills. By minimizing environmental noise and providing predictability, the TEACCH approach allows individuals with ASD to focus more effectively on acquiring and using language (Mesibov, Schopler, 2004,p7).

4-3 DIR/Floortime Approach:

The developmental, individual-differences, relationship-based model was developed by Dr. Stanley Greenspan and Dr. Serena Wieder. Unlike more structured Behavioral models, DIR/Floortime emphasizes emotional and relational development as foundational to communication and learning.

At the heart of the approach is the belief that meaningful relationships and emotional engagement are prerequisites for language development. Instead of focusing on correcting isolated Behavior, DIR/Floortime aims to promote interaction through play and shared emotional experiences.

Key principles of DIR/Floortime include:

- **Developmental Focus:** Interventions are based on the child's level of developmental progress rather than their actual age.
- **Individual differences:** child's sensory processing, motor coordination and regulatory profile are key considerations for therapists.
- **Relationship-based interaction:** communication is nurtured through emotionally meaningful, back-and-forth interactions, often initiated during play.

In speech therapy treatment, DIR/Floortime is used to:

- Encourage spontaneous communication during play.
- Build joint attention and shared experiences, which are foundational for language learning.
- Develop expressive and receptive language through natural, emotionally rich interactions rather than rote practice.

This approach is especially effective for children who may be resistant to highly structured interventions, offering a more flexible and child-led path to communication development;

4-4 SCERTS Model:

The SCERTS Model (Social Communication, Emotional Regulation, and Transactional Support) is a comprehensive, interdisciplinary framework designed to support the communication and socio-emotional development of children with Autism Spectrum Disorder (ASD), while also addressing the needs of their families. This model spans early childhood through the school years and integrates a variety of evidence-based practices to promote functional development.

SCERTS prioritizes the enhancement of a child's ability to communicate using conventional and symbolic means, progressing from pre-verbal stages to more advanced, conversational levels of interaction. Simultaneously, the model emphasizes the importance of fostering emotional regulation, enabling children to manage arousal and behavior in socially appropriate and adaptive ways.

Rooted in the developmental social-pragmatic model, SCERTS also incorporates elements from several established intervention approaches, including ABA, Pivotal Response Treatment, Floortime,

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Relationship Development Intervention (RDI), and Social Stories. By integrating these methodologies, the SCERTS framework offers a flexible, individualized approach that supports both skill acquisition and emotional well-being in naturalistic settings (Chiang,2018,p31);

Key components of the SCERTS model include:

- **Social communication:** a focus on enhancing communication skills in both verbal and non-verbal domains, with an emphasis on effective social exchanges, such as beginning and holding conversations, recognizing social indicators, and using language properly across different contexts (Shore,S.Ratelli,2011,p174).
- **Emotional regulation:** developing the ability to manage emotions in various situations, thereby fostering self-regulation skills that enhance participation in social and academic environments.
- **Transactional Support:** providing tailored support systems, including strategies like visual assistance, environmental structuring and individualized the interventions, to foster a supportive communication framework that addresses the individual's unique needs.

In speech and language therapy, the SCERTS model promotes:

- Enhancing language use within real-world contexts, supporting both functional communication and emotional expression.
- Integrating emotional regulation strategies within communication training to help individuals manage frustration, anxiety, or overstimulation while interacting.
- Collaborating with educators, parents, and other professionals to create a seamless, multidisciplinary support network that promotes language growth across home, school, and therapy environments.

The SCERTS model is widely praised for its comprehensive approach that values not only linguistic skills but also the emotional and social aspects of communication, which are crucial for individuals with ASD (Prizant & all,2006,p6).

4-5 The Early Start Denver Model (ESDM):

The The Early Start Denver Model (ESDM) is an intensive, evidence-based early intervention program designed for toddlers diagnosed with or at risk for ASD, typically between the ages of 12 and 36 months, with continued application up to approximately 48 to 60 months. As an adaptation of the original Denver Model-originally developed for preschool-aged children between 24 and 60 months-ESDM modifies and extends its developmental and behavioral principles to provide appropriate support for younger infants.

This model integrates insights from developmental psychology and neuroscience regarding typical infant development to promote similar trajectories in young children at risk for ASD. ESDM is grounded in the recognition that early symptoms of autism often reflect disruptions in neural systems responsible

for social interaction and language acquisition. Additionally, motor development may be affected in many infants presenting early signs of autism.

Retrospective analyses of home videos featuring infants who were later diagnosed with ASD reveal behavioral patterns such as reduced attention to faces, limited responsiveness to their names, and an absence or delay in the emergence of foundational gestures like pointing. These early communicative behaviors are critical for initiating and supporting language development, and their absence underscores the importance of early, targeted intervention (Rogers,Dawson,2010,p14).

Key features of the ESDM include:

- **Developmental focus:** ESDM recognizes the importance of fostering typical developmental milestones in young children, using structured interventions to target language acquisition, social interaction, and cognitive development.
- **Naturalistic teaching:** unlike in traditional ABA, which often involves discrete trials, ESDM integrates therapy into everyday activities, making learning more relevant and context-driven. Therapy is typically delivered through play and daily interactions with, therapists embedding intervention within natural settings.
- **Parent involvement:** parents are trained to implement ESDM strategies at home, insuring that the child's communication and social development are supported across environments. This collaborative approach promotes consistency and generalization of skills.

In speech and language therapy, the ESDM emphasizes:

- **Language development:** fostering verbal and nonverbal communication by focusing on gestures, joint attention and shared social experiences.
- **Social skills:** supporting reciprocal interactions and social play through structured activities.
- **Emotion regulation:** assisting children in understanding and managing their emotions within social contexts, which enhances their ability to communicate effectively.

The ESDM's integration of early developmental principles with behavioral techniques makes it a valuable tool for promoting communication in young children with ASD. It is particularly beneficial and fostering early social-emotional development and communication skills, both of which are critical for future learning and engagement (Rogers,Dawson,2010,pp17-23).

4-6 The Miller Method:

The Miller Method is a therapeutic and educational approach that emphasizes cognitive development in children with ASD, aiming to bridge the gap between a child's current developmental stage and typical developmental expectations. Central to this approach is the effort to understand the child's behavior and perception from their own cognitive and experiential perspective. According to its proponents, even

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when a child's actions appear disorganized or confused, they are often attempts to interpret and adapt to an environment that feels unpredictable or overwhelming.

A key objective of the Miller Method is to empower the child to exercise autonomy in navigating and interacting with their environment, rather than being restricted by repetitive behaviors, rigid routines, or ritualistic patterns. The method promotes flexibility, self-initiation, and adaptive responses, which are essential for social and cognitive growth (Shore,Ratelli,2011,p20).

The goals of the Miller Method are clearly defined and include:

- Assessing the child's capacity to engage with people and objects, adapt to changes, and learn from lived experiences.
- Enhancing the child's body awareness in spatial relation to others and surrounding objects.
- Facilitating functional communication and social interaction through guided exchanges.
- Supporting the cognitive transition from concrete, immediate experiences to more abstract and symbolic levels of understanding (Kaliva,2011,p26).

4-7 PECS (The Picture Exchange Communication System):

PECS provides a structured and systematic approach to developing early communication skills in individuals with Autism Spectrum Disorder (ASD), utilizing pictorial representations in a manner distinct from other picture-based communication methods. Grounded in the principles of Applied Behavior Analysis (ABA), PECS emphasizes functional and spontaneous communication initiated by the child, rather than communication prompted or directed solely by adults.

In the PECS model, children are taught to actively exchange pictures to request desired items or activities in their environment. For instance, a child who wants a drink learns to hand over a picture of a drink to an adult, who then responds by providing the item. This exchange-based method fosters essential communicative behaviors, including the initiation of interaction, approaching communication partners, and making spontaneous requests - skills that are foundational to meaningful communication.

The PECS protocol is organized into six progressive phases. Initially, children are taught to use single pictures to express basic needs. As they progress, they learn to discriminate between multiple images and eventually construct simple sentence structures using sentence strips. These pictorial symbols and sentence strips are kept in a portable communication book, typically secured with Velcro, allowing children to independently access and use them during everyday interactions.

Through its structured phases and emphasis on child-initiated exchanges, PECS has demonstrated effectiveness in improving communication competence among children with ASD (The National Autistic Society,2007,p51).

5- Speech and language therapy methods for Autism Spectrum Disorder:

Speech and language therapy constitutes a primary intervention for individuals with ASD who exhibit language and communication impairments. Therapists utilize a variety of strategies tailored to the developmental and communicative requirements of each child, with the objective of enhancing both expressive and receptive language abilities.

5-1 Developmental speech and language training through music (DSLM):

DSLM is a music-based therapeutic intervention primarily aimed at enhancing communication skills in children diagnosed with Autism Spectrum Disorder (ASD). This method integrates structured musical activities and related materials to stimulate and support the development of speech and language in children experiencing developmental delays in these domains.

DSLM utilizes a range of therapeutic musical experiences, from simple singing exercises to associating sounds or images with specific words, in order to facilitate accurate vocal production of target language. These musically structured interventions are both functionally and developmentally organized to improve speech articulation, expand vocabulary, and foster Social interaction and communication skills in children diagnosed with ASD.

As a result of participation in DSLM sessions, children with autism can acquire practical and functional vocabulary that can be effectively used in everyday communicative contexts. Music serves as a motivating and engaging medium, often capturing the attention of children and encouraging both verbal and non-verbal participation.

Extensive research supports the implementation of music therapy in autism intervention, highlighting its positive influence on cognitive, communicative, sensory, and social development. Music's inherent appeal and structured format make it a valuable tool for promoting engagement and learning. DSLM, in particular, has been shown to contribute significantly to the development of language and communication skills, as well as to improvements in social interaction, cognitive functioning, and behavior management in children with ASD (Hayoung,2011,pp19-22).

5-2 Augmentative and Alternative Communication (AAC):

AAC comprises a set of strategies and instruments that help individuals cope with daily communication difficulties. Communication itself can be expressed through various channels, including spoken words, eye contact, written language, gestures, facial expressions, touch, sign language, pictorial symbols, and speech-generating devices. People naturally adapt their communication methods depending on context and conversational partners. What ultimately defines successful communication is not the form used, but rather whether the listener accurately understands the speaker's intended message (Dodd,2017,p2).

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As emphasized by the American Speech-Language-Hearing Association (ASHA), the primary function of AAC is to enhance current verbal communication or serve as a replacement when speech is not functional. ASHA categorizes AAC into two broad types: unaided and aided systems. Unaided communication depends entirely on the user's body while aided communication involves the use of external tools, ranging from low-tech solutions like writing or drawing to advanced electronic devices that assist in speech production (Quigney,2016,p42).

5-3 Expressive Language Skills:

Expressive language interventions are designed to enhance vocabulary acquisition, syntactic development, and articulation skills, thereby enabling individuals with autism spectrum disorder (ASD) to convey their thoughts, needs, and emotions more effectively. Clinicians implement a range of empirically supported strategies, such as modeling, prompting, and visual supports, to facilitate the development of expressive communication competencies. Through structured sessions, individuals are guided to expand their vocabulary and construct increasingly complex sentences.

Visual aids, facial cues, communication boards, and assistive auditory devices are frequently employed to facilitate expression. Therapists often design individualized, goal-oriented intervention plans that incorporate play-based activities, reinforcement systems, and opportunities to practice communication in meaningful contexts. Collaboration with families is also critical, as it encourages language use across various daily environments and supports the generalization of skills.

Enhancement of expressive language skills significantly contributes to improved social interaction, academic achievement, and overall quality of life in individuals with ASD. For intervention to be effective, it must be individualized to align with each person's learning profile, communication needs, and sensory preferences. Structured and consistent therapeutic approaches tailored to factors such as age, language proficiency, and sensory sensitivities enable individuals with ASD to make substantial gains in expressive communication. Such progress not only strengthens their ability to interact meaningfully with others but also supports broader developmental and educational outcomes.

5-4 Receptive Language Skills:

In addition to targeting expressive language, therapeutic interventions also focus on receptive language, which encompasses the individual's ability to comprehend spoken language, follow instructions, and interpret both verbal and non-verbal cues. Therapists implement a range of methods to improve comprehension, such as focusing on attention, processing auditory input, and interpreting social communication.

Receptive language development involves engaging activities such as matching pictures to words or sentences, identifying key information in a story, and responding to questions based on contextual understanding. Therapists use visual supports, repetition, structured routines, role-playing, and social scenarios to enhance comprehension.

These interventions are tailored to meet each individual's developmental stage, communication level, interests, and sensory profile. A structured and individualized approach enables individuals with ASD to strengthen their receptive language abilities, thereby promoting greater autonomy and social inclusion (Goyal.,M.Goyal.,K,2025).

6- Conclusion

In conclusion, the orthophonic treatment of individuals with ASD plays a crucial role in addressing the communication challenges inherent to the condition. Given the heterogeneous nature of ASD, therapeutic approaches must be highly individualized, drawing on a variety of models and methods to best support each individual's unique communicative needs. From behaviorally oriented methods such as Applied Behavior Analysis (ABA) to developmental approaches like the TEACCH program and DIR/Floortime, each therapeutic school offers valuable insights that can enhance the communicative competence of persons diagnosed with autism spectrum disorder.

Moreover, the complexity of the causes of ASD —spanning genetic, environmental, and neurological factors—underlines the importance of a multifaceted approach in both diagnosis and treatment. A deeper understanding of these factors helps refine therapeutic strategies, allowing for more tailored and effective interventions.

As research continues to evolve, there is hope that more personalized and integrated models of care will emerge, further advancing our ability to promote communication skill acquisition among individuals with ASD and fostering greater social integration. Ultimately, a collaborative and interdisciplinary approach to orthophonic treatment, combined with a nuanced understanding of ASD's causes, Will be fundamental in promoting an improved quality of life for individuals with ASD.

This conclusion wraps up the main points discussed in the article, highlighting the importance of personalized treatment and future directions in orthophonic care for individuals with ASD.

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