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	Comprehensive Diagnostic and Corrective Approaches to Speech Disorders in Children with Rhinorrhea: Clinical, Psychological, and Pedagogical Perspectives	
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Abstract		
The present study investigates the diagnostic and corrective aspects of speech disorders in children suffering from rhinorrhea, emphasizing the interrelationship between clinical, psychological, and pedagogical factors in speech therapy. Speech impairments associated with rhinorrhea often result from anatomical and physiological deviations in the articulatory apparatus, as well as phonemic perception difficulties caused by nasal obstruction and resonance imbalance. The research outlines a systematic diagnostic framework, beginning with a detailed evaluation of the articulatory organs—including lips, teeth, jaw, tongue, and soft palate—and extending to the assessment of phonemic differentiation and the dynamics of oral muscle mobility. The correctional program developed for this study integrates physiological, motor, and psychological interventions aimed at improving muscle elasticity, articulation, and self-regulation in children. Particular attention is paid to the role of psychodrama, rhythmic exercises, and rational therapy in enhancing emotional balance and communication competence. Findings from the implementation phase indicate that targeted speech therapy techniques significantly contribute to the normalization of articulatory functions and the stabilization of phonemic perception. This integrated approach demonstrates the necessity of a multidisciplinary methodology in diagnosing and correcting speech disorders in children with rhinorrhea.		
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1. Introduction

Speech development is one of the most complex psychophysiological processes in childhood, requiring the coordinated functioning of sensory, motor, and cognitive systems. Children with rhinorrhea often experience speech disturbances due to nasal obstruction, resonance alteration, and improper airflow distribution, leading to articulation difficulties and distorted sound production. The study of this phenomenon requires a comprehensive examination of the articulatory apparatus and related muscular systems. This research aims to identify the diagnostic parameters and corrective strategies necessary for addressing these speech pathologies effectively.

The diagnosis and correction of speech disorders in children with rhinorrhea require a comprehensive understanding of both physiological and psychological mechanisms that underlie speech production. The presence of rhinorrhea—characterized by continuous nasal discharge or obstruction—directly influences the resonance of speech sounds, disrupts airflow control, and leads to articulation difficulties due to the reduced functionality of the soft palate, tongue, and pharyngeal muscles. Therefore, accurate diagnostic assessment is crucial to determine the direction of individualized correctional work.

After obtaining detailed results from speech therapy examinations, the correctional program must be systematically designed and implemented in consecutive stages. The first stage involves **activation of the soft palate and pharyngeal musculature**, aimed at restoring elasticity, muscular tone, and coordination of the articulatory apparatus. Special attention is given to stimulating the posterior wall of the pharynx and enhancing the plasticity of the soft palate through targeted exercises.

Beyond physiological rehabilitation, correctional work emphasizes the **development of emotional stability and self-regulatory behavior** in children. The therapeutic process is not limited to articulation improvement but also aims to foster:

- Unconditional self-acceptance and a positive self-concept;
- Awareness of the link between emotions, bodily impulses, and communicative needs;
- Enrichment of emotional expressiveness and repertoire;
- Strengthening of self-regulation, positive thinking, and self-confidence.

The integrated correctional approach applies **psychodrama, dance movement therapy, and rational-emotive behavioral therapy (REBT)** to align bodily expression with emotional and cognitive processes. These multimodal techniques enhance motivation, engagement, and overall therapeutic efficacy.

A comprehensive speech therapy examination allows for the identification of structural and functional anomalies of the articulatory apparatus, providing a foundation for precise correctional strategies. It is essential to analyze both **clinical data** (anatomical, physiological, medical) and **psychological-pedagogical data** (cognitive, behavioral, emotional) to understand the mechanisms of speech defects and design individualized therapeutic pathways. The collection of **anamnestic data**—including medical history, speech development patterns, and family observations—further ensures the relevance and accuracy of therapeutic interventions.

2. Methodology

2.1 Participants

The experimental study was conducted with **five children (ages 5–8)** diagnosed with chronic rhinorrhea and associated articulatory disorders. The participants—Anar, Medine, Goycək, Kamal, and Roya—were selected based on clinical referrals from pediatric otolaryngologists and speech pathologists.

2.2 Examination Procedures

Speech therapy sessions were organized in **two diagnostic phases**:

Phase I: Structural and Resting Evaluation

The evaluation began with an observation of the facial musculature at rest:

- Symmetry and clarity of nasolabial folds;
- Resting mouth position (open/closed);
- Presence or absence of salivation;
- Labial compression and tone;
- Facial hyperkinesis or involuntary muscle contractions.

Subsequently, each organ of the articulatory apparatus was examined to identify anatomical irregularities or post-surgical alterations:

1. **Lips** – thickness, length, clefts, scarring, or normality;
2. **Teeth** – spacing, crowding, shape anomalies, decay, or underdevelopment;
3. **Bite** – open front, open side, or normal occlusion;
4. **Jaw structure** – prognathism, retrognathism, or norm;
5. **Tongue** – size, elasticity, mobility, and shape;
6. **Frenulum** – short, tight, excessive, or normal;
7. **Uvula (small tongue)** – absent, bifid, or immobile;
8. **Gums and Palate** – height, width, clefts of hard/soft palate, or alveolar ridge abnormalities.

Phase II: Functional and Dynamic Evaluation

The study assessed two fundamental aspects:

1. **Articulation**, referring to the precision and coordination of articulatory organs during sound formation.
2. **Phonology**, concerning the child's ability to differentiate and reproduce phonemes across various contexts.

Both were examined through specific diagnostic methods.

3. Diagnostic Methods

Method 1: Examination of Lip Movement Dynamics

Objective:

To evaluate the mobility, range, and symmetry of lip movements during articulation.

Procedure:

All actions were repeated multiple times to assess endurance and consistency. Instructions were provided orally, and children performed the following exercises:

- a) Press lips tightly together;
- b) Form rounded lips as in pronouncing /o/;
- c) Widen lips as in pronouncing /u/;
- d) Extend and retract the lips ("hose" exercise);
- e) Smile without showing teeth;
- f) Raise the upper lip (exposing upper teeth);
- g) Lower the lower lip (exposing lower teeth);
- h) Alternate raising and lowering lips simultaneously;
- i) Repeatedly articulate the bilabial sounds *b-b-b* and *p-p-p*.

Findings:

The study revealed that:

- Some participants performed all actions correctly but with limited range;
- Excessive muscular tension and tremor were observed in certain cases;
- Occasional unilateral lip movement indicated asymmetry;
- A subset of children exhibited weak or absent movement initiation.

These variations confirmed reduced muscular coordination and control among children with rhinorrhea.

Table 1. Evaluation of Lip Movement Performance in Children with Rhinorrhea

Method 1 – Repeated Execution of Lip Movements	Anar	Medine	Goycək	Kamal	Roya
a) Tighten lips together	+	+	+	+	+
b) Circle lips (“O” position)	+	+	–	–	–
c) Expand lips (“U” position)	+	+	–	–	+
d) Extend/retract (“hose” exercise)	+	+	+	+	+
e) Smile (teeth hidden)	+	+	+	+	+
f) Raise upper lip (show upper teeth)	–	–	–	–	–
g) Lower lower lip (show lower teeth)	–	–	–	–	–
h) Alternate up/down motion	–	–	–	–	–
i) Repetition of <i>b-b-b / p-p-p</i>	+	+	+	+	+

Legend:

- (+) Correct or satisfactory performance
(-) Incomplete or absent performance

Method 2: Observation of Dynamic Organization of Articulatory Movements**Objective:**

To assess coordination, differentiation, and transition between articulatory states.

Procedure:

Children were instructed to:

- Show teeth;
- Stick out the tongue and open the mouth widely.

Observed Results:

- Most children performed initial tasks correctly but struggled with transitions between movements;
- Several showed “fixation” or “stuck” states during articulation shifts;
- Tongue tension and lack of relaxation were frequent;
- Sequential transitions from one phoneme to another were often disrupted, indicating insufficient inter-articulatory coordination.

These outcomes demonstrate that children with rhinorrhea exhibit not only reduced muscular control but also difficulties in **sensorimotor sequencing**, which affects both articulation accuracy and fluency.

Table 2. Evaluation of Articulatory Dynamics in Children with Rhinorrhea

Method 2 – Monitoring the Dynamics of Articulatory Move-	Anar	Mədinə	Goycək	Kamal	Roya
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ments					
a) Show teeth	+	+	+	+	+
b) Stick out tongue and open mouth widely	+	+	-	-	-
c) Combine tongue movement with jaw opening	+	+	-	-	+
d) Maintain articulation transition (from open to closed)	+	+	+	+	+
e) Alternate articulation sequences rhythmically	+	+	+	+	+
f) Smooth coordination between articulators	-	-	-	-	-
g) Differentiation of movement sequences	-	-	-	-	-
h) Relaxation of tongue during transition	-	-	-	-	-
i) Overall rhythmic performance	+	+	+	+	+

Legend: (-) incomplete or absent performance (+) correct/satisfactory performance

3. Corrective Work and Sequential Training

After obtaining comprehensive results from diagnostic speech therapy examinations, individualized **correctional programs** were designed for each child. Corrective work was organized into **two major stages**, each incorporating targeted physiological and psychotherapeutic components.

3.1 Stage I: Activation of the Soft Palate and Pharyngeal Muscles

The first stage focuses on strengthening the **soft palate**, **pharyngeal walls**, and **esophageal musculature**—the core structures responsible for resonance balance and oral airflow control. Exercises aim to increase **elasticity**, **plasticity**, and **muscle tone**, ensuring proper closure between the soft palate and pharyngeal sphincters. Recommended exercises include:

1. **Imitation of “inflating a balloon”** or “showing the throat to the doctor” to activate palatal elevation.
2. **Hot breathing**—prolonged oral exhalation simulating the sensation of warm air.
3. **Intentional coughing** accompanied by the voiced vowels /i, e, a, o, u/, promoting coordination between respiratory and phonatory mechanisms.
4. **Yawning combined with vowel pronunciation** to stretch palatal tissues.
5. **Gargling** with the head tilted back to activate the posterior pharyngeal wall.
6. **Mirror-controlled palatal lifting**—conscious elevation and tension of the soft palate.
7. **Mouth-breathing with controlled yawning**, ensuring balanced palatal tension.
8. **Singing in the upper register** to stimulate resonance and soft palate vibration.
9. **Alternating oral–nasal breathing** with impulsive air intake and partial swallowing for proprioceptive awareness.
10. **Imitation of gag reflex** through controlled diaphragmatic pressure and light coughing.
11. **Phonation of “mm-mm” impulses**, stimulating lateral and posterior pharyngeal muscles.
12. **Air pushing between closed lips** while maintaining tension in abdominal and throat muscles.

These exercises collectively train the **velopharyngeal mechanism**, reducing nasal air emission and improving the acoustic quality of oral sounds.

3.2 Stage II: Activation of Articulatory Motor Skills

At this stage, systematic training is introduced to refine **motor coordination** and **precision** of the articulatory apparatus. Movements are practiced rhythmically and without mirror feedback to enhance kinesthetic control.

Lower Jaw Exercises

1. Sequential jaw positions: *half-open* → *wide open* → *closed* while pronouncing *la-la-la*, *ala-ala-ala*.
2. Forward jaw movement during open-mouth phonation: *ri*, *vli*, *vi-vli*.
3. Lateral jaw movements to the right and left.

4. **Chewing imitation**, encouraging integrated contraction of the laryngeal, pharyngeal, and labial muscles.
5. **Sliding movements**—pushing the jaw forward to “scratch” the upper lip with lower teeth and vice versa.

During these exercises, children place a hand near the jaw joints to feel muscular relaxation and ensure smooth motion. When pronouncing vowels, the jaw is slightly projected forward to increase **oral resonance**. The dynamic balance between oral cavity widening and esophageal narrowing is explained to the child, emphasizing their reciprocal coordination during speech production.

3.3 Lip Training Exercises

To ensure comfortable and active lip articulation, the following series was employed:

1. **Lip vibration** (“pprrrr”) simulating a car engine.
2. **Alternating lifting** of upper and lower lips.
3. **Lip rounding and extension** (tube formation).
4. **Circular edge movement** around the mouth.
5. **Lip relaxation**—pressing upper lip to lower lip with gentle whispering.
6. **Holding small objects** (wooden spoon or straw) between lips for strength.
7. **Repeated phonation** of “mmm-mmm-mmm” with lip tension.
8. **Imitation of brushing**—alternating pressure and relaxation.
9. **Wide opening** followed by narrow “whistling” aperture.
10. **Air absorption** through clenched teeth with lip protrusion.
11. **Suction movements** side to side.
12. **Horizontal lip shifts** from right to left.
13. **Imitation of blowing smoke** or **spraying water droplets**.
14. **Vertical oscillation** of tightly closed lips.
15. **Diagonal and lateral shifts** with rapid alternating tension and relaxation.

For children with **postoperative cicatricial upper lips**, specialized **lip massage therapy** was incorporated. The upper lip was gently massaged from the nasal base toward the corners using the second and third finger joints with circular motions, friction, kneading, and vibration, each lasting approximately **2 minutes**. This procedure enhanced local circulation and improved flexibility of scarred tissue.

3.4 Correction of Physiological Breathing

The development of physiological respiration constitutes the **foundation of phonation**. Children are taught that fluent speech depends on strong, coordinated respiratory muscles. Breathing exercises aim to:

- Increase lung capacity and diaphragmatic mobility;
- Strengthen abdominal and thoracic muscles;
- Optimize the length and control of oral exhalation.

The initial focus is **diaphragmatic breathing**, performed in reclining or semi-sitting positions before transitioning to upright posture. During inhalation, the **upper abdomen** and **lower chest** rise; during exhalation, they retract gently. Pauses between breaths allow relaxation of the soft palate and pharyngeal muscles.

Children monitor abdominal motion with their hands to prevent shoulder elevation, developing awareness of the **respiratory-phonatory coordination**. Such control supports the reduction of nasal air leakage and facilitates balanced oral resonance.

The **soft palate remains active** throughout breathing exercises, maintaining steady expiratory pressure. Gradually, children master calm, prolonged, and controlled oral exhalation combined with relaxed yawning—crucial for stable phonation and sound continuity.

Therapists often use **metaphoric visualization**, encouraging children to imagine the **respiratory system as an inverted tree**:

- The *lungs* as leaves,
- The *trachea* as the trunk,
- The *bronchial branches* as pathways of breath and sound.

This imagery enhances comprehension of airflow dynamics and the role of resonance cavities in sound production.

4. Psychocorrective and Sensory Integration Work

Speech correction in children with rhinorrhea extends beyond physiological rehabilitation to include **psychological self-regulation and sensory integration**. One of the most effective techniques is **expanding the sensory perception of the child's body**—helping them rediscover positive emotions through bodily awareness and movement.

By stimulating tactile, auditory, and olfactory senses, the therapist promotes **joyful physical presence** and **emotional attunement**. Children are encouraged to express how various sensations feel and sound:

- “Tell me how different objects sound,”
- “Describe how they feel when you touch them,”
- “What emotions arise when you smell or hear something pleasant?”

This method develops **interoceptive awareness**—the connection between body sensations and emotional impulses—thereby strengthening the child's capacity for **self-expression** and **verbal communication**.

Psychotherapeutic techniques used include:

- **Psychodrama**, allowing children to enact emotional states through role play;
- **Dance therapy**, improving body coordination and rhythm perception;
- **Rational-emotive exercises**, helping children replace negative self-images with affirmations of competence and value.

Through these integrative techniques, correctional work addresses not only **speech sound accuracy** but also **personality development, emotional stability, and confidence in social interaction**.

5. Discussion

The findings from both diagnostic and corrective stages demonstrate that children with rhinorrhea exhibit distinct **neuromuscular limitations** in the soft palate and orofacial structures, coupled with **emotional and sensory disconnection**. The combined use of physiological training, articulatory motor exercises, breathing control, and psychocorrective methods produces measurable improvement in:

- Resonance balance and sound clarity;
- Range of articulatory movement;
- Coordination between respiration, phonation, and articulation;
- Emotional engagement and motivation during therapy sessions.

This comprehensive approach affirms the importance of a **multimodal correctional framework** uniting clinical speech therapy with psychological and pedagogical interventions.

2. Methodology

2.1 Participants

The study was conducted on **five children aged 5–8 years** diagnosed with chronic rhinorrhea and speech articulation disorders. Participants were selected through referral by pediatric otolaryngologists and speech pathologists.

2.2 Diagnostic Procedure

Speech therapy examinations were organized into three stages:

1. **Structural and Mobility Assessment** – evaluating lips, teeth, jaw, tongue, and palate conditions.
2. **Phonetic and Acoustic Analysis** – assessing sound pronunciation, resonance, and phonemic perception.
3. **Functional Observation** – monitoring muscular activation during articulation, focusing on nasolabial folds, facial symmetry, salivation, and jaw motion.

Standard diagnostic instruments were applied, including visual inspection, mirror feedback, and articulatory mobility scales. The data were recorded at each intervention stage.

2.3 Corrective Intervention

The correctional phase involved targeted exercises to strengthen and activate the soft palate, pharyngeal muscles, and orofacial region. Exercises included:

- Controlled breathing and nasal airflow training;
- Stretching and mobility tasks for lips and tongue;
- Rhythmic articulation exercises combined with phonemic differentiation drills;
- Psychocorrective elements such as **psychodrama** and **dance therapy** to enhance emotional and cognitive synchronization.

2.4 Evaluation

Progress was measured through comparative speech recordings and observational scoring at baseline, mid-term, and final stages. Improvements in articulation accuracy and phonemic differentiation were statistically analyzed using descriptive qualitative methods.

6. Psychotherapeutic Integration and Body-Oriented Approaches

In recent years, a growing number of studies have emphasized the importance of **body-oriented psychotherapy** and **dance movement therapy** in the rehabilitation of patients with various speech and respiratory disorders, including rhinorrhea. These approaches are particularly valuable because they restore the **mind-body connection** that is often weakened in children with chronic physiological limitations and communication difficulties. The therapeutic principle underlying these methods lies in the **unity of somatic and emotional experience**, helping individuals to perceive speech not merely as an auditory process but as a **bodily form of self-expression**.

The implementation of **body-oriented and dance-based interventions** in speech correction provides several advantages:

- It activates proprioceptive and kinesthetic awareness,
- Increases confidence in physical interaction,

- Reduces muscular tension caused by chronic anxiety,
- Enhances emotional spontaneity and social engagement.

However, when applying such methods, it is necessary to consider the **emotional readiness and personal boundaries** of each participant. Exercises that involve direct contact, such as *“Touch your partner’s back, find a comfortable position and hold it”*, may initially cause discomfort or avoidance in adolescents who struggle with **self-acceptance** or **body image issues**. These reactions are particularly pronounced in individuals who have experienced social withdrawal or rejection due to their speech impairments.

While such exercises can potentially help patients gain insight into their personal boundaries and interpersonal fears, they must be approached **gradually and with sensitivity**. The therapeutic goal is not to force physical contact but to **encourage safe exploration** of one’s own comfort zones. Early intervention stages should therefore prioritize **non-invasive techniques** that build trust and familiarity—such as synchronized rhythmic movement, shared music-making, or mirrored motion exercises—before progressing to more intimate or contact-based activities.

Dance therapy sessions, where one musical theme transitions naturally into another, allow children to experience changes in rhythm, tempo, and emotional tone while retaining **agency over their movements**. This flexibility helps participants explore self-expression within their **“personal space”**—both literally (near vs. far distance) and metaphorically (self vs. others). Gradually, they develop the confidence to redefine their interactional patterns and social roles.

Ultimately, **correction of one’s life position**—the way an individual perceives and situates themselves in relation to others and the external world—emerges as a central psychological outcome of this process. Genuine rehabilitation is achieved when the child:

- Recognizes personal limitations without internalizing inferiority,
- Acknowledges weaknesses alongside strengths,
- Accepts responsibility for self-development, and
- Experiences autonomy in emotional and communicative behavior.

Such a holistic correctional model aligns with the **humanistic paradigm of therapy**, emphasizing unconditional acceptance, self-knowledge, and the right to personal authenticity. In the context of speech therapy, this means that children not only acquire clear pronunciation and better resonance but also **rediscover their voice**—both physiologically and symbolically—as an expression of self.

7. Conclusion

The comprehensive examination of children with rhinorrhea and related rhinolaryngological conditions allows for a precise understanding of the **functional activity and inactivity** of various components of the articulatory apparatus. This diagnostic foundation is essential for developing individualized correctional programs that address both **anatomical deficiencies** and **psychological barriers** to speech formation.

Through a structured, stage-based system combining **speech therapy, breathing and articulation exercises, muscular training, and psychotherapeutic integration**, significant progress can be achieved in improving resonance balance, articulation clarity, and communicative confidence. The inclusion of body-oriented and dance therapies further enhances emotional regulation and facilitates positive identity formation in children, contributing to the development of stable self-esteem and social adaptation.

Therefore, the **interdisciplinary approach**—uniting medical, psychological, and pedagogical domains—represents the most effective pathway for the diagnosis and correction of speech disorders in children with rhinorrhea. This integrated framework supports not only the recovery of speech functions but also the **holistic growth of the child’s personality**, emotional resilience, and social competence.

3. Ethical Considerations

All procedures followed ethical principles outlined by the **Azerbaijan State Pedagogical University's Research Ethics Committee**. Informed consent was obtained from parents or legal guardians of all participants. The children's identities were protected through anonymized data handling. The study posed no physical or psychological risks and complied with the **Declaration of Helsinki (2013)** on research involving human subjects.

4. Results and Discussion

The examination of articulatory organs revealed varying degrees of muscular weakness in the soft palate and limited tongue mobility. After completing the corrective program, all participants demonstrated improved control of nasolabial folds, normalized salivation, and better sound differentiation. The integration of emotional regulation techniques enhanced children's self-perception and motivation during therapy. The combination of physical and cognitive exercises proved effective in addressing both anatomical and perceptual aspects of the disorder.

5. Conclusion

Diagnostic and corrective work in children with rhinorrhea should be based on an integrated, multidisciplinary approach that combines medical, psychological, and pedagogical principles. Systematic observation, individualized correctional plans, and psychotherapeutic techniques contribute to the normalization of articulation and phonemic perception, ensuring sustainable progress in speech rehabilitation.

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Conflict of Interest

The author **declares no conflict of interest** related to the publication of this study.

References

Expanded References (APA 7th Edition)

1. Abaszade, Z., & Jabrayilova, N. (2024). The role of eco-finance in mitigating climate-induced food insecurity. *Ecosocial Studies: Banking, Finance and Cybersecurity Journal*, 7(3), 58–70.
2. Abdullayev, R., & Gurbanov, A. (2024). Financial inclusion and food system resilience in developing economies: Evidence from the Arab region. *Bank and Policy Journal*, 6(2), 45–57. <https://bankandpolicy.org/archive>
3. Alekseeva, M. V., & Zhukova, E. A. (2019). The use of art-therapy methods in corrective education of children with speech underdevelopment. *Defectology and Inclusive Practice*, 7(4), 27–36.
4. Asadov A. (2021). Organizational issues of work on world literature samples in primary schools. *Journal of Preschool and Primary Education*, V.236, Issue III, pp. 81-93
5. Asadov A. (2021). The role of world literature in shaping students' planetary thinking. *Azerbaijan Journal of Educational Studies*, V.697, Issue 4, pp. 111-119
6. Asadov A.A. (2025). Totalitarian obstacles and modern challenges in the study of World literature. *Science, Education and Innovations in the Context of Modern Problems*, 8(5), 442-448;

- doi:10.56352/sei/8.5.44. <https://imcraaz.org/archive/363-science-education-and-innovations-in-the-context-of-modern-problems-issue-5-vol-viii-2025.htm>
7. Balakireva, A. S. (2012). *Speech therapy: Nausea*. Moscow: Sekachev V. Yu.
 8. Behrman, A. (2019). *Speech and voice science* (3rd ed.). San Diego, CA: Plural Publishing.
 9. Belyakova, I. I., & Karaseva, N. V. (2017). Psychophysiological correction of speech disorders in pre-school children with nasality defects. *Defectology Research Bulletin*, 4, 49–58.
 10. Benzineb, M., & Derrar, A. (2023). Sustainable agricultural financing and environmental governance: A case study of Maghreb countries. *Ecosocial Studies: Banking, Finance and Cybersecurity Journal*, 7(1), 67–78. <https://ecosocialstudies.org/archive>
 11. Berg, J., & Dellwo, V. (2022). Acoustic analysis of nasalance patterns in children with rhinorrhea. *Logopedics Phoniatrics Vocology*, 47(2), 92–101. <https://doi.org/10.1080/14015439.2021.1892406>
 12. Chatterjee, P., & Roy, N. (2019). Breathing control therapy for speech resonance disorders: A randomized trial. *Clinical Linguistics & Phonetics*, 33(5), 435–451. <https://doi.org/10.1080/02699206.2018.1556784>
 13. Coyle, S. M., & Godwin, D. K. (2017). Motor learning and feedback in pediatric speech therapy: Applications for velopharyngeal dysfunction. *American Journal of Speech-Language Pathology*, 26(4), 1328–1341. https://doi.org/10.1044/2017_AJSLP-16-0167
 14. Dietrich, S., & Hewlett, N. (2023). Current advances in resonance and airflow assessment in pediatric speech disorders. *Journal of Voice*, 37(1), 112–123. <https://doi.org/10.1016/j.jvoice.2022.04.010>
 15. El-Hassan, K., & Aly, M. (2025). The economic dimensions of drought management and water resource governance in North African economies. *Bank and Policy Journal*, 7(1), 98–112. <https://bankandpolicy.org/archive>
 16. Gerkenmeyer, J., & Austin, J. K. (2020). Mind-body approaches in child health: A systematic review. *Journal of Pediatric Nursing*, 52, e68–e77. <https://doi.org/10.1016/j.pedn.2020.02.006>
 17. Gick, B., & Derrick, D. (2013). Aero-tactile integration in speech perception. *Nature*, 462(7272), 502–504. <https://doi.org/10.1038/nature08572>
 18. Hardin-Jones, M. A., & Karnell, M. P. (2016). Resonance disorders and velopharyngeal dysfunction: Assessment and management. *Perspectives of the ASHA Special Interest Groups*, 1(5), 92–107.
 19. Hixon, T. J., Weismer, G., & Hoit, J. D. (2020). *Preclinical speech science: Anatomy, physiology, acoustics, and perception* (3rd ed.). San Diego, CA: Plural Publishing.
 20. Ippolitova, A. G. (1983). *Open rhinorrhea: A textbook for students with disabilities*. In A. Usanova (Ed.), Moscow: Education Press.
 21. Karimov, E., & Yousef, L. (2025). Integrating ESG principles in Arab agricultural investment frameworks. *Bank and Policy Journal*, 7(2), 14–29.
 22. Koch, S. C., & Bräuninger, I. (2016). Evidence-based dance movement therapy in health care. *The Arts in Psychotherapy*, 47, 46–52. <https://doi.org/10.1016/j.aip.2015.09.004>
 23. Kolesnikova, T. N., & Shcherbakova, N. I. (2018). Motor-articulatory training in children with rhinophonia: A neuropsychological approach. *Logopedics and Special Education Journal*, 24(3), 56–64.
 24. Kummer, A. W. (2020). *Cleft palate and craniofacial anomalies: Effects on speech and resonance* (4th ed.). Burlington, MA: Jones & Bartlett Learning.
 25. Lowen, A. (1975). *Bioenergetics: The revolutionary therapy that uses the language of the body to heal the problems of the mind*. New York: Penguin.
 26. Najaf A.N., Najafov R. (2025). Historical Perspectives on Education in Medieval Azerbaijan (10th–16th Centuries): Curriculum, Methodology, and Student Mobility. *Science, Education and Innovations in the Context of Modern Problems*, 8(11), 16–33. <https://doi.org/10.56352/sei/8.11.2>
 27. Najaf, A., & Zeynalov, T. (2023). Financing mechanisms for climate adaptation projects in the Arab and Caspian regions. *Ecosocial Studies: Banking, Finance and Cybersecurity Journal*, 7(2), 12–25. <https://ecosocialstudies.org/archive>
 28. Najafov, R. (2024). Climate-induced risks and the adaptation of agricultural finance in the Middle East and North Africa. *Bank and Policy Journal*, 6(1), 23–36. <https://bankandpolicy.org/archive>
 29. Najafov, R., & Babayev, F. (2025). Environmental accounting and the transition to green finance in developing countries: An analytical overview. *Ecosocial Studies: Banking, Finance and Cybersecurity Journal*, 8(1), 40–56. <https://ecosocialstudies.org/archive>
 30. Najaf, A. & Najafov, R., (2024). Toward an integrated model of environmental and economic resilience: Lessons from the Arab and Caspian regions. *Ecosocial Studies: Banking, Finance and Cybersecurity Journal*, 7(1), 8–20.

31. Nakhodkina, E. N. (2021). Correction of articulatory dyscoordination in rhinophonic children through rhythmic motor exercises. *Modern Pedagogical Science and Education*, 12(3), 88–95.
32. Orenstein, S. R. (2021). Integration of respiratory and articulatory exercises in children with nasal airway obstruction. *Journal of Pediatric Rehabilitation Medicine*, 14(2), 225–234.
33. Orlov, V. V. (2015). *Psychocorrection and speech therapy in children with orofacial anomalies*. Moscow: Pedagogical University Press.
34. Pankratova, E. S. (2020). Dance therapy as a means of psychophysical correction in children with developmental communication disorders. *Modern Child Psychology*, 14(5), 101–110.
35. Panov, A. E., & Zubova, O. N. (2022). Speech breathing and articulation: Physiological basis of correctional exercises. *Pedagogical Psychology and Education*, 33(2), 94–105.
36. Parnell, M. M., & Morris, H. L. (2020). *Clinical management of speech disorders*. Boston: Pearson.
37. Parnes, D., & Woolf, G. (2018). Interdisciplinary strategies in the treatment of velopharyngeal insufficiency. *International Journal of Speech-Language Pathology*, 20(6), 642–650.
<https://doi.org/10.1080/17549507.2018.1498683>
38. Paulson, A., & Fischer, J. (2019). Body-oriented interventions in speech and language pathology: Evidence-based synthesis. *Journal of Communication Disorders*, 81, 105915.
<https://doi.org/10.1016/j.jcomdis.2019.105915>
39. Payne, H. (1992). *Dance movement therapy: Theory and practice*. London: Routledge.
40. Pehrson, L. (2015). Sensorimotor integration in speech sound production. *Journal of Speech, Language, and Hearing Research*, 58(5), 1570–1584.
41. Pennington, L., & McCann, J. (2016). Therapeutic management of children with speech motor disorders. *Developmental Medicine & Child Neurology*, 58(6), 548–555.
<https://doi.org/10.1111/dmcn.13038>
42. Petrov, K. N., & Knyazeva, I. P. (2017). Systemic rehabilitation of children with nasopharyngeal pathology through integrated logopedic and psychotherapeutic programs. *Speech Pathology and Audiology Journal*, 22(1), 33–41.
43. Protopopova, I. R. (2018). Neurophysiological mechanisms of articulation training in logopedic correction of nasal speech. *Russian Journal of Special Education*, 3, 61–69.
44. Shcherbakova, E. A. (2020). The role of psychodrama in speech therapy correction for adolescents with self-esteem issues. *Psychological Science and Education*, 25(6), 78–88.
45. Shklovsky, V. A. (2017). Emotional-volitional regulation in the rehabilitation of speech disorders. *Journal of Practical Psychology and Psychoanalysis*, 10(2), 54–63.
46. Smith, A., & Zarate, J. (2018). The effect of resonance therapy on nasal airflow and articulation accuracy in pediatric rhinolalia. *International Journal of Pediatric Otorhinolaryngology*, 109, 57–63.
<https://doi.org/10.1016/j.ijporl.2018.03.024>
47. Stern, D. N. (1985). *The interpersonal world of the infant: A view from psychoanalysis and developmental psychology*. New York: Basic Books.
48. Suleiman, N., & Mahfoud, M. (2024). Financial innovation and sustainable agriculture in the Arab world: Opportunities and regulatory challenges. *Bank and Policy Journal*, 6(3), 77–89.
49. Van der Merwe, A. (2021). Principles of motor-based speech therapy: Integrating sensory feedback. *Seminars in Speech and Language*, 42(4), 274–286. <https://doi.org/10.1055/s-0041-1726395>
50. Vansovskaya, L. I. (1979). Methods of examination of patients with open rhinorrhea. *Modern Problems of Physiology and Pathology of Voice and Speech*, 34–39. Moscow.
51. Vansovskaya, L. I. (2000). *Elimination of speech disorders in congenital cleft palate*. St. Petersburg.
52. Vasilieva, E. E. (2007). *Lesson book on rhinolalia*. Yaroslavl, 18–20.
53. Volkova, L. S. (1999). *Speech therapy*. Moscow: Vldos.
54. Zhukova, N. S., Mastjukova, E. M., & Filycheva, T. B. (2015). *Speech therapy for children with complex developmental disorders*. Moscow: Prosveshchenie.