

PEDIATRIC FEEDING AND SWALLOWING DISORDERS: IT'S NOT BEHAVIORAL

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DISCLOSURES

- Non-financial: Brianna is a volunteer ambassador for Feeding Matters. Brianna is also the co-founder and secretary of the Miluk Forward Foundation. She co-hosts the podcast The Feeding Pod and runs the Instagram page @pediatricfeedingSLP
- Financial: Unfortunately, Brianna has no relevant financial disclosures ;)

ABOUT ME

- Located in Greenville, SC
- MS from Marshall University
 - First taste of pediatric feeding and swallowing
- I married my high school sweetheart
- I am working on becoming a BCS-S
- I love nerding out on all things PFD and teaching, so please don't be afraid to reach out so we can chat!
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LEARNING OUTCOMES

DESCRIBE THE FOUR MAIN AREAS OF A PEDIATRIC FEEDING DISORDER

IDENTIFY SIGNS/SYMPTOMS THAT PRIORITIZE REFERRALS TO SPECIFIC DISCIPLINES (E.G. ENT, GI)

APPLY FEEDING AND SWALLOWING STRATEGIES FOR TREATMENT TO CURRENT CASELOAD

DID YOU KNOW?

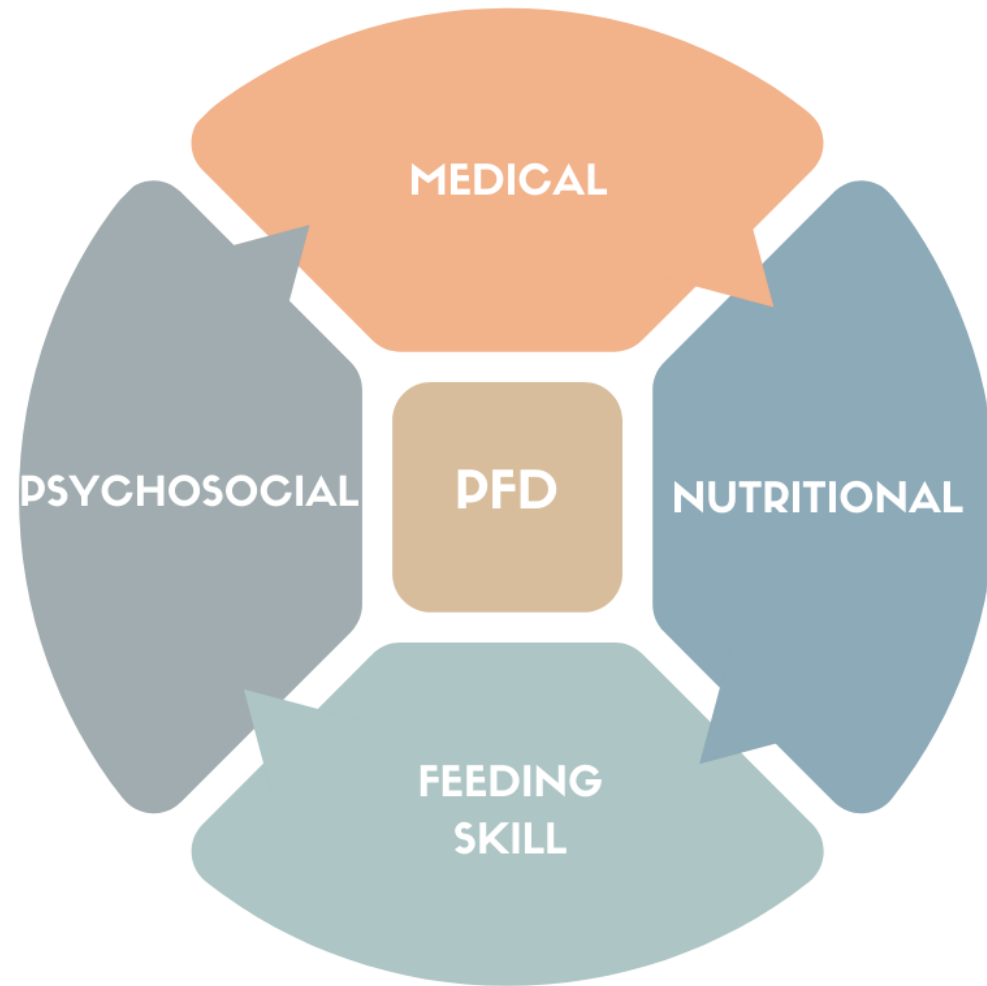
Up to 1 in 23 children under 5 years are diagnosed with a pediatric feeding disorder?

AND

97.42% of children referred for a behavioral feeding program, had an underlying medical issue(s) interfering with feeding!

WHAT IS A PFD?

- Impaired oral intake that is not age-appropriate, associated with medical, nutritional, feeding skills, and/or psychosocial dysfunction
- U.S. Centers for Disease Control and Prevention (CDC) has officially approved PFD to be a stand-alone diagnostic code (R code) in the next edition of the U.S. International Classification of Diseases (ICD) on October 1, 2021



FOUR DOMAINS OF PFD

MEDICAL

Impaired structure/function of the gastrointestinal, cardiorespiratory, and neurological systems are frequently associated with dysphagia

NUTRITIONAL

Restricted quality, quantity, and/or variety of beverages and foods consumed, placing them at risk of malnutrition, overnutrition, micronutrient deficiency or toxicity, and dehydration

FEEDING SKILL

Altered feeding experiences
due to illness, injury, or
developmental delay

PSYCHOSOCIAL

Factors within the child,
caregiver, and the feeding
environment



QUESTION TIME

SLP'S ROLE

- Assessment, diagnosis, and treatment
 - Clinical/educational services
 - Prevention and advocacy
 - Education
 - Administration
 - Research
- Experience in adult swallowing disorders does not qualify an individual to provide swallowing assessment and intervention for children.

COMPREHENSIVE EVALUATION

- Case History
- Assessment of physical, social, behavioral, and communicative development
- Structural assessment of the face, jaw, lips, tongue, hard and soft palate, oral pharynx, and oral mucosa
- Functional assessment of swallowing ability
- Assessment of behavioral factors, including but not limited to (a) acceptance of pacifier, nipple, spoon, and cup and (b) range and texture of developmentally appropriate foods and liquids tolerated.
- Assessment of consistency of skills across the feeding opportunity
- Impression of airway adequacy and coordination of respiration and swallowing
- Assessment of developmentally appropriate secretion management
- Assessment of modifications in bolus delivery and/or use of rehabilitative/habilitative or compensatory techniques
- Consideration for interventions and **referrals**

CASE HISTORY

- Caregiver Concerns
- When did difficulties begin?
- What do you hope to achieve through treatment?

CASE HISTORY

- Pregnancy and Birth History
- Medical Diagnoses
- Medications
- Surgeries, procedures,
hospitalization
- Specialists

CASE HISTORY

- Digestion
- Sleep
- Allergies
- Sensory
- Developmental Milestones

FEEDING HISTORY

- At birth
- Changes
- Age of Introduction
- When did difficulties begin?
- Current Feeding Status
- Management of Secretions
- Additional Questions/Information

FEEDING MODE AND SCHEDULE

- Enteral Feed or Oral
- Frequency Intervals
- Length of Meals
- Modified Diet

ORAL FOOD AND DRINK INTAKE

- Bottle
- Open cup
- Straw
- Fed by others
- Self-feeds – finger feeds or with utensils

DIET CONSISTENCY AND TYPES

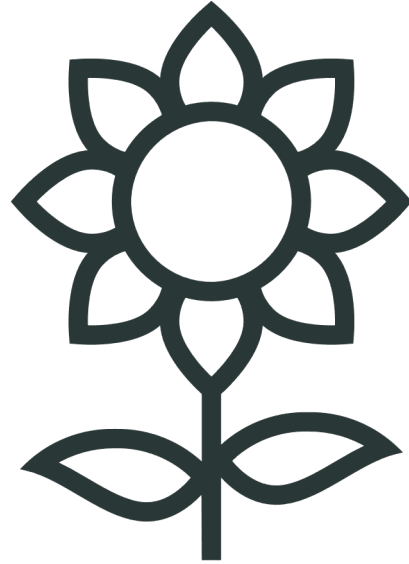
- Food groups
 - Fruits, vegetables, grains, proteins, dairy
- Textures
 - Crunchy, chewy, pureed, cold, hot, etc.

STRUCTURES AND FUNCTION

- Oral/Facial
- Neurology
- Gastrointestinal
- Respiration/Airway/Swallowing
- Genetics
- Gross and Fine Motor

OBSERVATIONS

- Feeding trials
- Caregiver/child led
- Modifications/strategies



BREAK TIME!

RED FLAGS FOR REFERRAL

- Neurology
- Developmental Pediatrician
- Gastroenterology
- Allergist
- ENT
 - Pulmonologist
 - Cardiologist

RED FLAGS FOR REFERRAL

- Genetics
- Endocrinology
- Craniofacial team
- Dietitian
- Psychologist/Counselor
- Physical Therapy
- Occupational Therapy
- Lactation – CLC or IBCLC
- Instrumental – FEES or MBSS/VFSS

HOW TO MAKE REFERRAL

- Make connections
- Find out how they prefer to receive communications
- Send to specialist AND pediatrician
- Include reasons why and most recent progress note (and any other relevant documentation)

BUILD YOUR TEAM

- Be a human... honestly
- Reach out
- Lunch and learn – COVID friendly
- Don't be afraid!
- Share your contact information
- Find out how they prefer – I have some that seriously prefer text updates while others want documents faxed.
 - Of course, always clarify means of communication approved with family and HIPPA compliant

GOALS OF INTERVENTION

Support	Support safe and adequate nutrition and hydration
Determine	Determine the optimum feeding methods and techniques to maximize swallowing safety and feeding efficiency
Collaborate	Collaborate with family to incorporate dietary preferences
Attain	Attain age-appropriate eating skills in the most normal setting and manner possible (e.g. mealtimes with family)
Minimize	Minimize the risk of pulmonary complications
Maximize	Maximize the quality of life
Prevent	Prevent future feeding issues with positive feeding-related experiences to the extent possible, given the child's medical situation

TREATMENT PHILOSOPHIES

Responsive
Feeding

Experience-
dependent
neuroplasticity

Interdisciplinary
Collaboration

RESPONSIVE FEEDING



The diagram consists of three identical rectangular boxes arranged horizontally. Each box has a dark teal background with a lighter teal rounded rectangle in the center. The words 'Autonomy', 'Competence', and 'Relatedness' are written in black text inside the light teal areas of the first, second, and third boxes respectively.

Autonomy

Competence

Relatedness

RESPONSIVE FEEDING

- Innate Intrinsic Motivation
- Caregiver attunement to the child and assessment of cues
- Avoidant behaviors are viewed as reactions/responses
- Behavioral feeding therapy tactics are potentially problematic

EXPERIENCE- DEPENDENT NEUROPLASTICITY

- Relearning
 - Limit the severity of the initial injury to minimize loss of function
 - Reorganize the brain to restore and compensate for function that has been compromised or lost
- Compensatory strategies
 - Adaptive or maladaptive
- Changes in learning processes

EXPERIENCE
DEPENDENT
NEUROPLASTICITY:
10 PRINCIPLES

1. Use it or Lose it
2. Use it and improve it
3. Specificity
4. Repetition matters
5. Intensity matters
6. Time matters
7. Salience matters
8. Age matters
9. Transference
10. Interference

INTERDISCIPLINARY COLLABORATION

- Encompasses all aspects of PFD for assessment and treatment
 - Medical – GI, ENT, PCP, ENT, genetics, neuro, pulmonology, sleep medicine
 - Nutritional – Dietitian
 - Feeding Skill – SLP, OT, PT
 - Psychosocial – Social worker, counselor, psychologist
- Most children will need a combination
- If you do not find out the underlying WHY, treatment will not be successful

CASE STUDIES

The graphic for Case K consists of a dark teal rounded rectangle in the background, a light gray rounded rectangle in the middle, and a white rounded rectangle in the foreground. The text "Case K" is centered in the white rectangle.

Case K

The graphic for Case D consists of a dark teal rounded rectangle in the background, a light gray rounded rectangle in the middle, and a white rounded rectangle in the foreground. The text "Case D" is centered in the white rectangle.

Case D

The graphic for Case B consists of a dark teal rounded rectangle in the background, a light gray rounded rectangle in the middle, and a white rounded rectangle in the foreground. The text "Case B" is centered in the white rectangle.

Case B

CASE K

- Born @ 30 weeks; 44 day NICU stay
- Now: 4 years old
- Refuses all solid food. Only drinks Pediasure from bottle. Will lick crackers/cookies, but does not take any bites
- Started as soon as they introduced solid foods
- Inadequate oral motor skills
- Had adenoids removed, but still snores and has trouble sleeping
- Environment allergies, asthma, eczema
- Coughs a lot, gags, and almost always leads to vomiting
- Always congested/"has a cold"
- Hits, kicks, yells, throws food, cries, and spits when caregivers attempt to get him to eat solid food

CASE D

- Born 38.5 weeks
- Now: 10 months old
- Hospital stay for bronchiolitis at 2 weeks old
- H/o respiratory infections
- Tongue and lip ties released by ENT as recommended by IBCLC
- Snoring while sleeping, went away short time after release, but it is back
- Coughing on liquids and solids
- Gagging and vomiting
- Anterior loss with bottle
- Refuses any solids except smooth purees
- Difficulty drinking from straw and open cup

CASE B

- Born 33 weeks; Grade 4 hemorrhage at birth
- Now: 2 years 1-month-old
- Spastic quadriplegia cerebral palsy
- Medications: ranitidine for reflux, Flovent inhaler daily
- Constipation
- Vomits after eating
- Poor weight gain
- Wakes up a lot at night
- Drooling, bites and chews non-food items
- Drinks from bottle or sippy cup; no straw or open cup
- Eats purees and some chewable solids, such as veggie sticks and spaghetti O's
- Swallows whole, pocketing
- Mealtimes 45-60 minutes
- Supplements with 1 Carnation mixed with ice cream and whole milk
- Already see: ENT, Neuro, Pulmonology, Neurosurgeon, Ophthalmology, OT, and PT

QUESTIONS



REFERENCES

1. American Speech-Language-Hearing Association. (2002). Knowledge and Skills Needed by Speech Language Pathologists Providing Services to Individuals with Swallowing and/or Feeding Disorders. ASHA supplement 22, 81-88.
2. American Speech-Language Hearing Association. (n.d.) Pediatric Dysphagia. Retrieved from <https://www.asha.org/practice-portal/clinical-topics/pediatric-dysphagia/>
3. Agarwal, A., & Verma, I. (2012). Cerebral palsy in children: An overview. *Journal of Clinical Orthopaedics and Trauma*, 3(2), 77-81. doi:10.1016/j.jcot.2012.09.001
4. Arvedson, J. C., Brodsky, L., & Lefton-Greif, M.A. (2020). *Pediatric swallowing and feeding assessment and management*. 3rd Ed. Plural Publishing, Inc.
5. Benfer, K. A., Weir, K. A., Bell, K. L., Ware, R. S., Davies, P. S., & Boyd, R. N. (2013). Oropharyngeal Dysphagia and Gross Motor Skills in Children With Cerebral Palsy. *Pediatrics*, 131(5). doi:10.1542/peds.2012-3093
6. Bouma, S. (2017). Diagnosing pediatric malnutrition: Paradigm shifts of etiology-related definitions and appraisal of the indicators. *Nutrition in Clinical Practice*, 32(1), 52-67. doi:10.1177/0884533616671861
7. Carl, L. C., & Johnson, P. R. (2006). *Drugs and dysphagia: How medications can affect eating and swallowing*. Austin, TX: PRO-ED.
8. Ceunen, E., Vlaeyen, J. W., & Diest, I. V. (2016). On the Origin of Interoception. *Frontiers in Psychology*, 7. doi:10.3389/fpsyg.2016.00743
9. Chang, S. H., Park, K. Y., Kang, S. K., Kang, K. S., Na, S. Y., Yang, H. R., Uhm, J. H., & Ryoo, E. (2013). Prevalence, clinical characteristics, and management of functional constipation at pediatric gastroenterology clinics. *Journal of Korean Medical Science*, 28, 1356-1361.
10. Comberiati, P., Cipriani, F., Schwarz, A., Posa, D., Host, C., & Peroni, D. (2015). Diagnosis and treatment of pediatric food allergy: an update. *Italian Journal of Pediatrics*, 41, 13. <https://doi.org/10.1186/s13052-014-0108-0>
11. Cooney, M., Lieberman, M., Guimond, T., & Katzman, D. K. (2018). Clinical and psychological features of children and adolescents diagnosed with avoidant/restrictive food intake disorder in a pediatric tertiary care eating disorder program: A descriptive study. *Journal of Eating Disorders*, 6(1). doi:10.1186/s40337-018-0193-3
12. Cooper-Brown, L., Copeland, S., Dailey, S., Downey, D., Petersen, M. C., Stimson, C., & Dyke, D. C. (2008). Feeding and swallowing dysfunction in genetic syndromes. *Developmental Disabilities Research Reviews*, 14(2), 147-157. doi:10.1002/ddrr.19

REFERENCES

13. Cormack J, Rowell K, Postăvaru GI. Self-Determination Theory as a Theoretical Framework for a Responsive Approach to Child Feeding. *J Nutr Educ Behav*. 2020 Jun;52(6):646-651. doi: 10.1016/j.jneb.2020.02.005. Epub 2020 Apr 2. PMID: 32247759.
14. Delaney, A. L., & Arvedson, J. C. (2008). Development of swallowing and feeding: Prenatal through first year of life. *Developmental Disabilities Research Reviews*, 14(2), 105-117. doi:10.1002/ddrr.16
15. Feeding Matters (2020, September 1). *Feeding Matters announces establishment of ICD-11 code for pediatric feeding disorder by the U.S. Centers for Disease Control and Prevention* [Press release]. Retrieved from https://www.feedingmatters.org/press_release/feeding-matters-announces-establishment-of-icd-11-code-for-pediatric-feeding-disorder/
16. Field, D., Garland, M., & Williams, K. (2003). Correlates of specific childhood feeding problems. *Journal of Paediatrics and Child Health*, 39(4), 299-304. doi:10.1046/j.1440-1754.2003.00151.x
17. Genetic Disorders Symptoms & Causes: Boston Children's Hospital. (n.d.). Retrieved October 1, 2020, from <http://www.childrenshospital.org/conditions-and-treatments/conditions/g/genetic-disorders/symptoms-and-causes>
18. Goday, P., Huh, S., Silverman, A., Lukens, C., Dodrill, P., Cohen, S., . . . Phalen, J. (2019). Pediatric Feeding Disorder: Consensus Definition and Conceptual Framework. Retrieved from <https://pubmed.ncbi.nlm.nih.gov/30358739/>
19. Cormack J, Rowell K, Postăvaru GI. Self-Determination Theory as a Theoretical Framework for a Responsive Approach to Child Feeding. *J Nutr Educ Behav*. 2020 Jun;52(6):646-651. doi: 10.1016/j.jneb.2020.02.005. Epub 2020 Apr 2. PMID: 32247759.
20. Delaney, A. L., & Arvedson, J. C. (2008). Development of swallowing and feeding: Prenatal through first year of life. *Developmental Disabilities Research Reviews*, 14(2), 105-117. doi:10.1002/ddrr.16
21. Feeding Matters (2020, September 1). *Feeding Matters announces establishment of ICD-11 code for pediatric feeding disorder by the U.S. Centers for Disease Control and Prevention* [Press release]. Retrieved from https://www.feedingmatters.org/press_release/feeding-matters-announces-establishment-of-icd-11-code-for-pediatric-feeding-disorder/
22. Field, D., Garland, M., & Williams, K. (2003). Correlates of specific childhood feeding problems. *Journal of Paediatrics and Child Health*, 39(4), 299-304. doi:10.1046/j.1440-1754.2003.00151.x
23. Genetic Disorders Symptoms & Causes: Boston Children's Hospital. (n.d.). Retrieved October 1, 2020, from <http://www.childrenshospital.org/conditions-and-treatments/conditions/g/genetic-disorders/symptoms-and-causes>
24. Goday, P., Huh, S., Silverman, A., Lukens, C., Dodrill, P., Cohen, S., . . . Phalen, J. (2019). Pediatric Feeding Disorder: Consensus Definition and Conceptual Framework. Retrieved from <https://pubmed.ncbi.nlm.nih.gov/30358739/>

REFERENCES

25. Gómez-Aldana, A., Jaramillo-Santos, M., Delgado, A., Jaramillo, C., & Lúquez-Mindiola, A. (2019). Eosinophilic esophagitis: Current concepts in diagnosis and treatment. Retrieved from <https://www.wjgnet.com/1007-9327/full/v25/i32/4598.htm>
26. Hodge, L., Swaine, A., & Faulkner-Hogg, K. (n.d.). Food allergy and intolerance. Retrieved from <https://pubmed.ncbi.nlm.nih.gov/19893799/>
27. The International Dysphagia Diet Standardisation Initiative (2019). Retrieved from <https://iddsi.org/framework/>
28. James, K., Miller, L. J., Schaaf, R., Nielsen, D. M., & Schoen, S. A. (2011). Phenotypes within sensory modulation dysfunction. *Comprehensive Psychiatry*, 52(6), 715-724. doi:10.1016/j.comppsy.2010.11.010
29. Kleim J.A. & Jones T.A (2008). Principles of experience-dependent neural plasticity: implications for rehabilitation after brain damage. *J Speech Lang Hear Res*. 51(1):S225-39. doi: 10.1044/1092-4388(2008/018). PMID: 18230848.
30. Kovacic, K., Elfar, W., Rosen, J.M., Yacob, D., Raynor, J., Mostamand, S., Punati, J., & Saps, M. (2019). Update on pediatric gastroparesis: A review of the published literature and recommendations for future research. *Neurogastroenterology & Motility*. DOI: 10.1111/nmo.13780
31. Lifshitz, F. (2007). *Pediatric endocrinology: Growth, adrenal, sexual, thyroid, calcium, & fluid balance disorders*. (Vol. 2). Taylor & Francis Group, Llc.
32. McComish C, Brackett K, Kelly M, Hall C, Wallace S, Powell V. Interdisciplinary Feeding Team: A Medical, Motor, Behavioral Approach to Complex Pediatric Feeding Problems. *MCN Am J Matern Child Nurs*. 2016 Jul/Aug;41(4):230-236. doi: 10.1097/NMC.0000000000000252. PMID: 27710993.
33. Miller, A. J. (2008). The neurobiology of swallowing and dysphagia. *Developmental Disabilities Research Reviews*, 14(2), 77-86. doi:10.1002/ddrr.12
34. Morris, S. E. & Klein, M. D. 2000. Pre-feeding skills, 2nd ed. San Antonio, TX: Therapy Skill Builders, A Harcourt Health Sciences Company.
35. Pavithran, J., Puthiyottil, I.V., Narayan, M., Vidhyadharan, S., Menon, J.R., & Iyer, S. (2019). Observations from a pediatric dysphagia clinic: Characteristics of children at risk of aspiration pneumonia. *The Laryngoscope*, 129(11), 2614-2618. doi:10.1002/lary.27654
36. "Pediatric Dysphagia." *Overview*, ASHA, www.asha.org/Practice-Portal/Clinical-Topics/Pediatric-Dysphagia/.

REFERENCES

31. Piccione J, Boesch RP. The Multidisciplinary Approach to Pediatric Aerodigestive Disorders. *Curr Probl Pediatr Adolesc Health Care*. 2018 Mar;48(3):66-70. doi: 10.1016/j.cppeds.2018.01.002. PMID: 29571542.
32. Rivera-Nieves, D., Conley, A., Nagib, K., Shannon, K., Horvath, K., & Mehta, D. (2019). Gastrointestinal Conditions in Children With Severe Feeding Difficulties. *Global Pediatric Health*, 6. doi:10.1177/2333794x19838536
33. Rosen, R., Vandenplas, Y., Singendonk, M., Cabana, M., DiLorenzo, C., Gottrand, F., . . . Tabbers, M. (2018). Pediatric gastroesophageal reflux clinical practice guidelines: Joint recommendations of the north american society for pediatric gastroenterology, hepatology, and nutrition and the european society for pediatric gastroenterology, hepatology, and nutrition. *Journal of Pediatric Gastroenterology and Nutrition*, 66(3), 516-554. doi:<http://dx.doi.org.marshall.idm.oclc.org/10.1097/MPG.0000000000001889>
34. Seiverling, Laura & Towle, Patricia & Hendy, Helen & Pantelides, Joanna. (2018). Prevalence of Feeding Problems in Young Children With and Without Autism Spectrum Disorder: A Chart Review Study. *Journal of Early Intervention*. 40. 105381511878939. 10.1177/1053815118789396.
35. Sharp WG, Volkert VM, Scahill L, McCracken CE, McElhanon B. A Systematic Review and Meta-Analysis of Intensive Multidisciplinary Intervention for Pediatric Feeding Disorders: How Standard Is the Standard of Care? *J Pediatr*. 2017 Feb;181:116-124.e4. doi: 10.1016/j.jpeds.2016.10.002. Epub 2016 Nov 8. PMID: 27843007.
36. Scott, B. L., Lam, D., & Macarthur, C. (2019). Laryngomalacia and Swallow Dysfunction. *Ear, Nose & Throat Journal*, 98(10), 613-616. doi:10.1177/0145561319847459
37. Walton, K., Kuczynski, L., Haycraft, E., Breen, A., & Haines, J. (2017). Time to re-think picky eating?: A relational approach to understanding picky eating. *The International Journal of Behavioral Nutrition and Physical Activity*, 14(1), 62-62. doi:10.1186/s12966-017-0520-0