



# Oral Aversions in a Tube Fed Child and Indications for Weaning Tube Feeds

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# Disclosures

- I have no conflicts of interest to disclose

# Learning Objectives

1. Describe the role of the dietitian in a tube fed dependent child.
2. List 2 indicators on when to appropriately wean tube feeds to progress oral feeds.
3. Review two case examples highlighting the importance of appropriate indicators on when and how to wean tube feeds to progress oral feeds.

# Indications for Tube feeds

**Prolonged inadequate PO intake** → Poor growth/FTT/Malnutrition

**Feeding difficulties**  
(i.e. Neurologic disorders w/ dysphagia, trauma, etc.)

**High risk for aspiration**

**Medical Conditions**  
(i.e. GI, Pulmonary, Neurologic, Cardiac, Oncology)

**Increased Nutrient Needs**  
(CF, Burns, CHD, ESLD, wound healing, etc)

1. Ackroyd R, Saincher M, Cheng S, El-Matary W. Gastrostomy tube insertion in children: the Edmonton experience. *Can J Gastroenterol.* 2011 May;25(5):265-8. doi: 10.1155/2011/821019. PMID: 21647461; PMCID: PMC3115007.
2. Bechtold, M. L., Brown, P. M., Escuro, A., Grenda, B., Johnston, T., Kozeniecki, M., Limketkai, B. N., Nelson, K. K., Powers, J., Ronan, A., Schober, N., Strang, B. J., Swartz, C., Turner, J., Tweel, L., Walker, R., Epp, L., & Malone, A. (2022). When is enteral nutrition indicated? *Journal of Parenteral and Enteral Nutrition*, 46(7), 1470–1496. <https://doi.org/10.1002/jpen.2364>

# Types of Tube feeds

- **Nasogastric tube (NGT)**
  - Short term <4-6 weeks
- **Gastronomy tube (GT)**
  - Long term >4-6 weeks
- **Gastrojejunal tube (GJT)**
  - Long term >4-6 weeks
  - Indicated for gastric motility, pancreatitis, or any time enteral feeding into the small bowel requires simultaneous stomach decompression
- **Jejunostomy tube (JT)**
  - Long term >4-6 weeks

# Role of the Dietitian in a Tube Fed dependent child



Optimize growth and nutrition status



Adjust feeding regimen to improve, reduce, or prevent symptoms of intolerance



Identify challenges with feeding/eating and implement intervention to meet daily nutrition needs



Provide education and counseling on optimal nutrition plan to support families



Advocate for continuity of care by ensuring ongoing nutrition care

# Nutrition Assessment

## Diet/Feeding History

- Modality of nutrition (PO, EN, PO+EN)
- Type of formula
- Continuous/Bolus feeds
- Tolerance/feeding issues
- Feeding skills (i.e. currently in feeding therapy?)
- Behavioral barriers to feeding?

## Anthropometrics

- **Weight**
  - Growth velocity adequate?
- **Length**
  - Appropriate indicator of chronic malnutrition
- **Weight-for-Length or BMI for age**
  - Assess if reliable or not based on visual assessment and chronic medical condition
- **Mid-Upper Arm Circumference**
  - Good indicator of malnutrition status
  - Less affected by fluid status

# Nutrition Assessment

## Labs

- Can be useful in identifying some nutritional deficiencies
- Electrolytes, Vitamin and mineral levels

## Medications

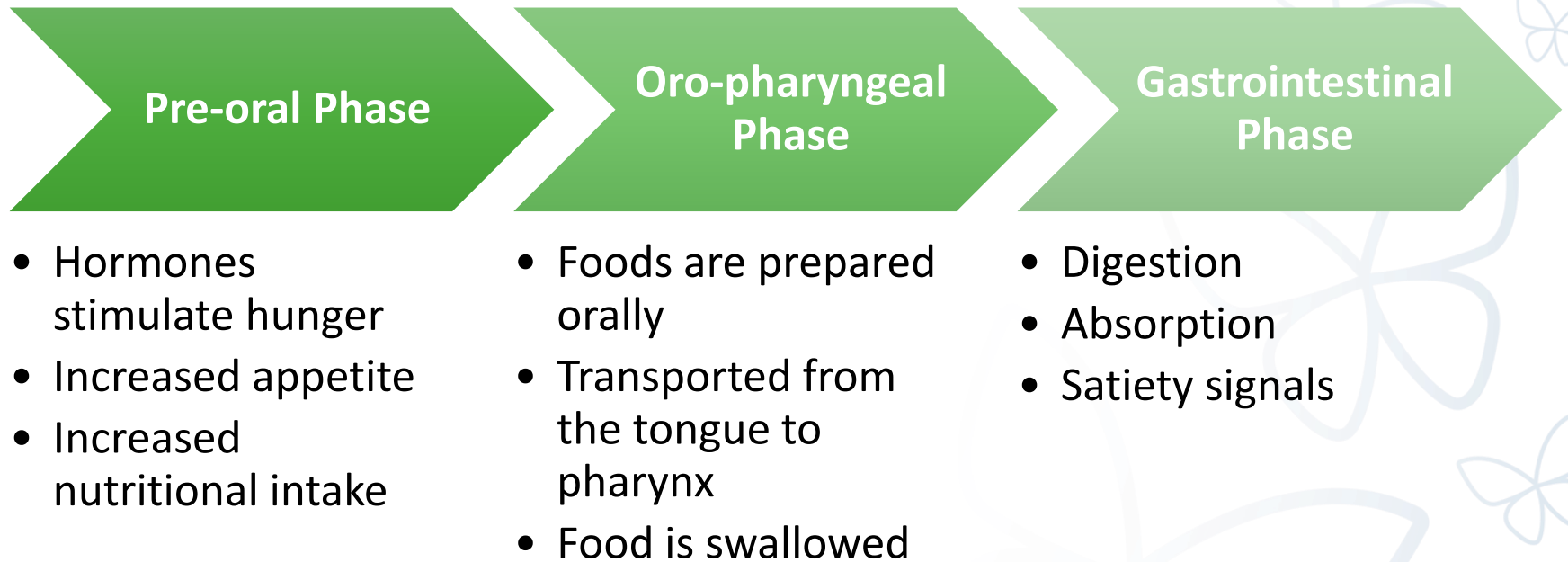
- Bowel regimen
- Appetite stimulants (cyproheptadine)
- Medications to improve tolerance of feeds (gut motility stimulants, reflux, emesis)

## Nutrition Focused Physical Exam

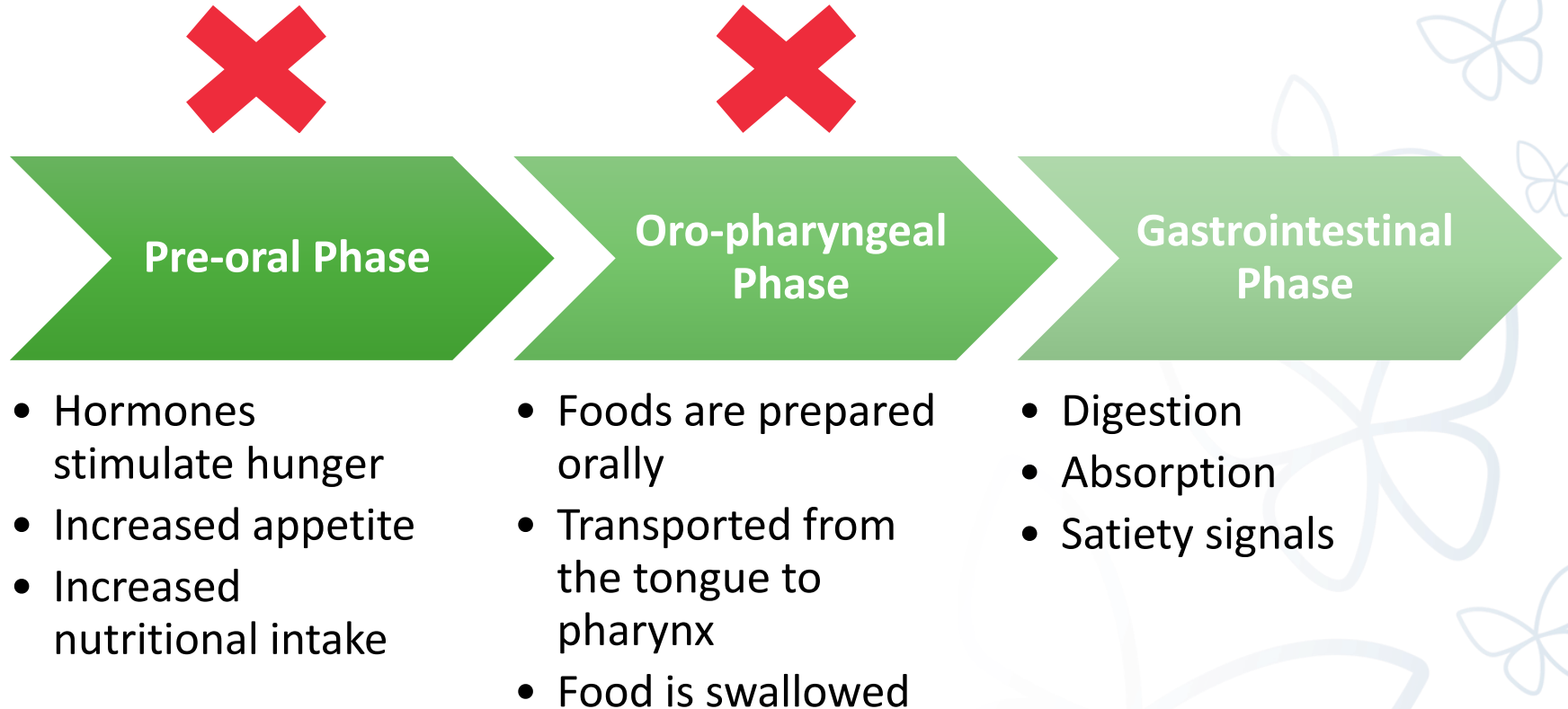
- Subcutaneous fat stores
- Muscle mass
- Signs/symptoms of vitamin/mineral deficiencies
- Proportionality



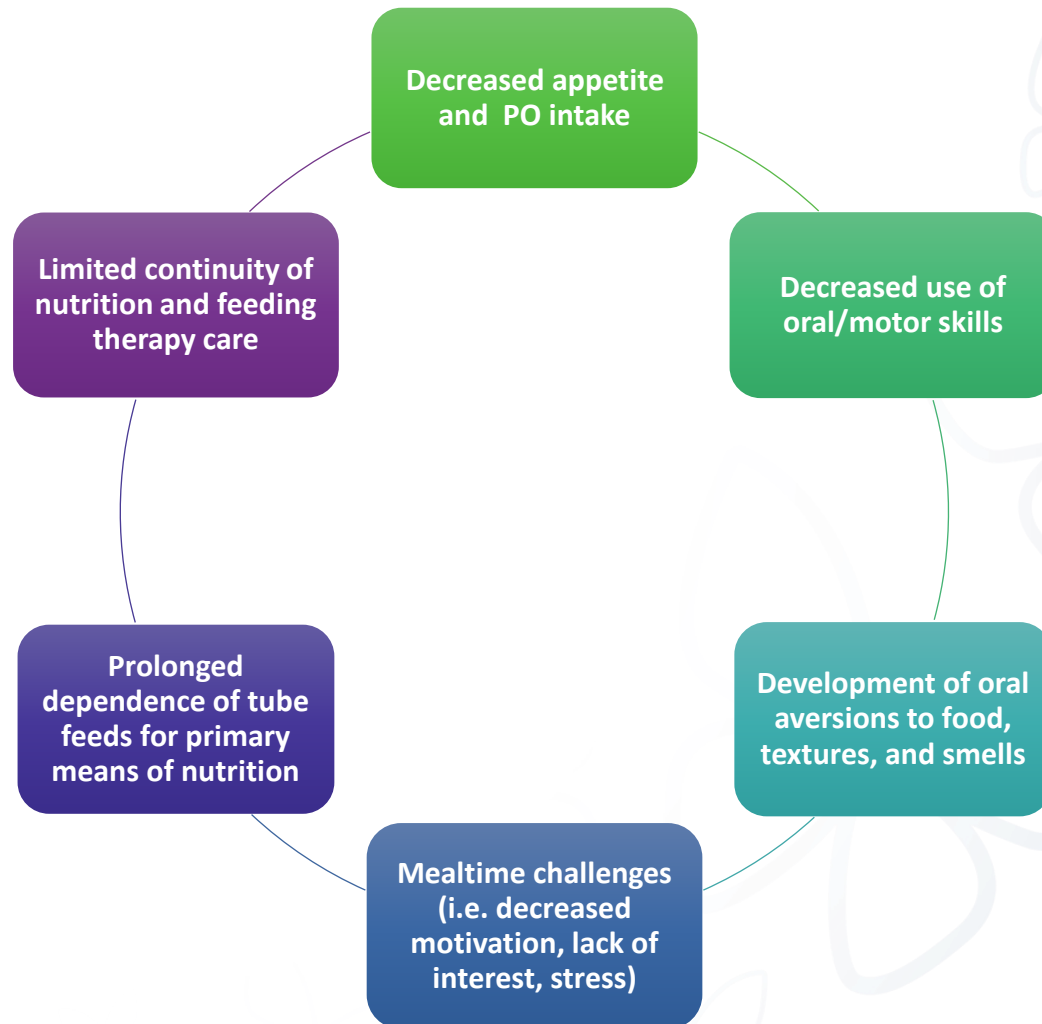
# Normal Feeding Process



# Feeding Process with EN



# Potential Oral Consequences of Long-term Tube feeds

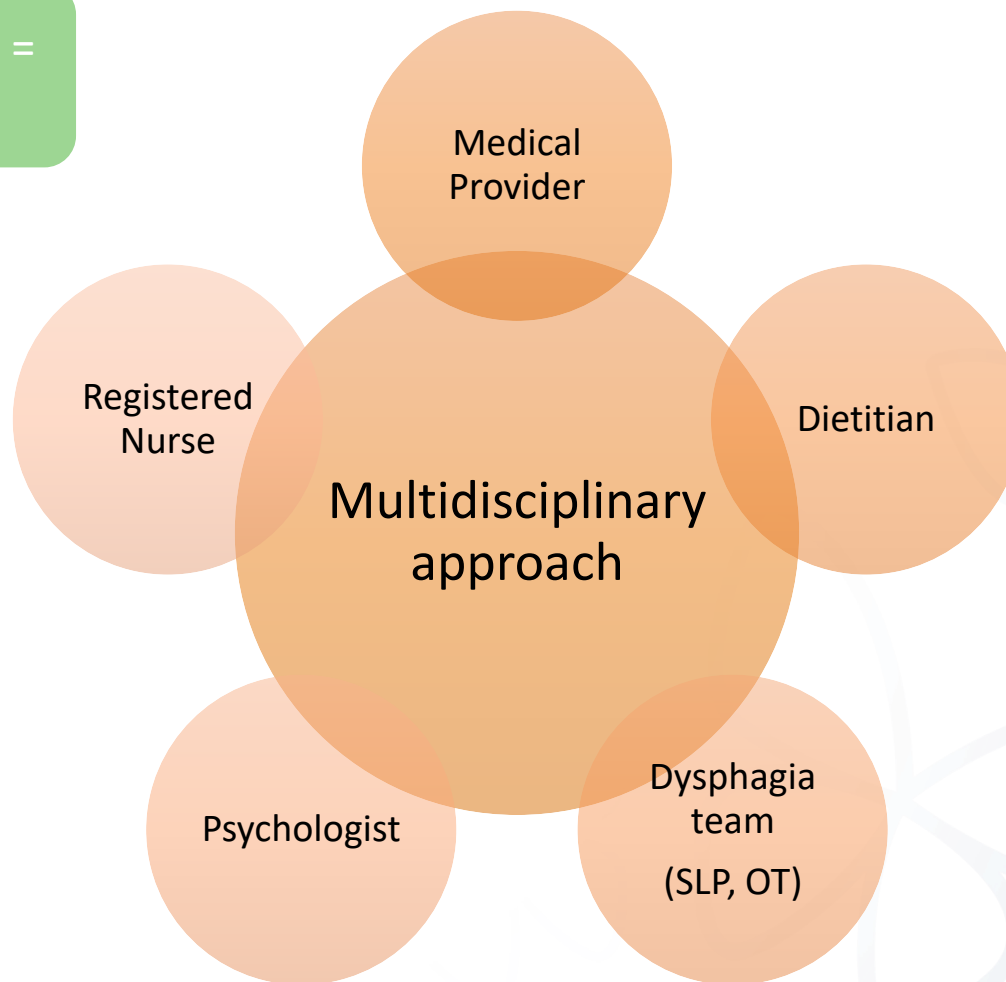


# Oral aversions

- “The reluctance or refusal of a child to be breastfed or eat, manifested as gagging, vomiting, turning head away from food or avoidance of sensation in or around the mouth.”
- Estimated 20-50% of children can develop an oral aversion.
- Incidence of oral aversions can increase up to 80% for children with developmental disabilities and complex medical conditions.

# Treatment of Oral Aversions

Early treatment =  
key!



# Indicators for Weaning Tube Feeds

## Nutritional

- Tolerance of feeds at goal, ideally bolus feeds
- Well-nourished and good nutrition stores
- Demonstrating adequate growth for age (weight & height/length)

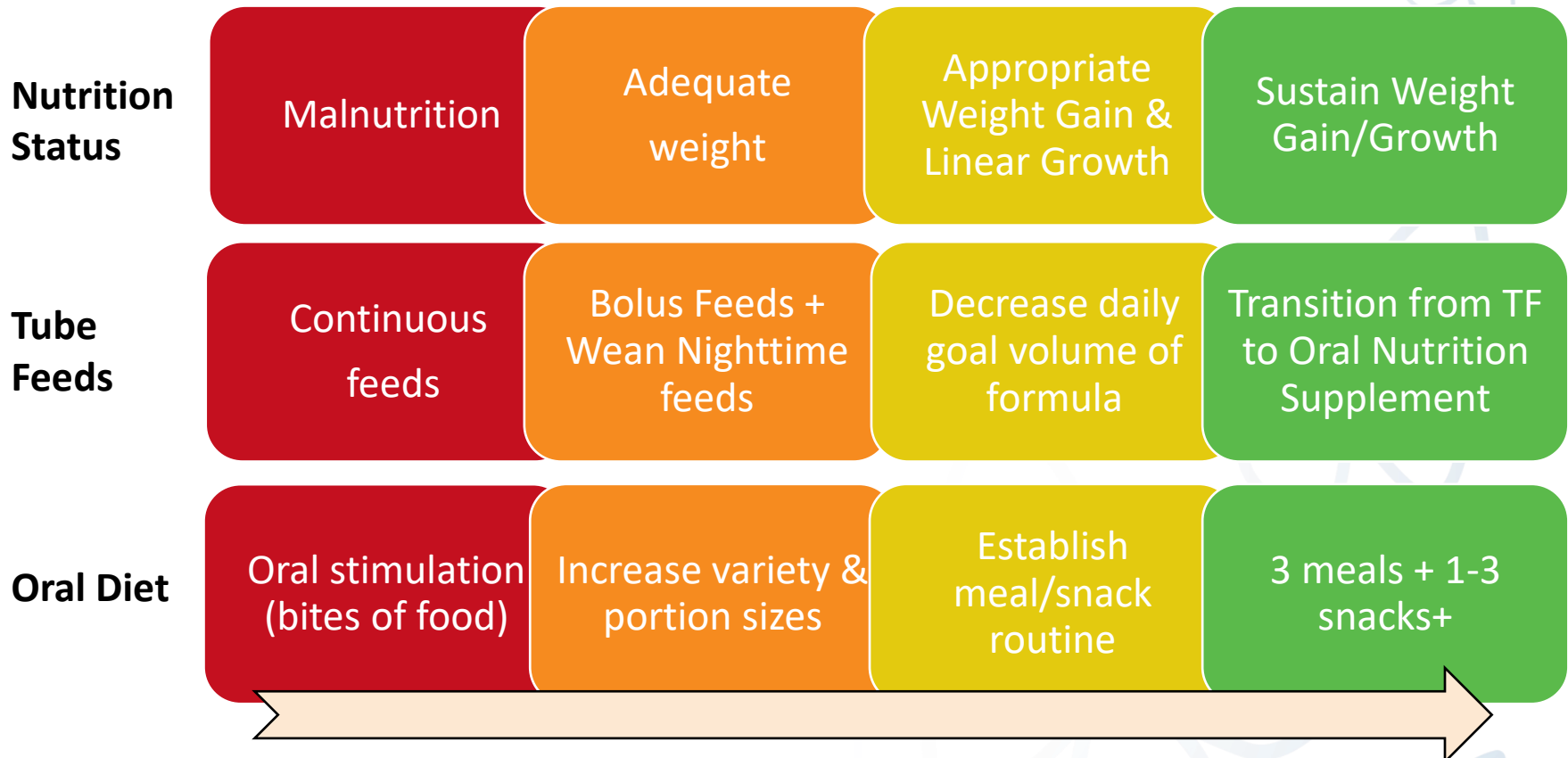
## Mechanical

- SLP assessment indicating that oral feeds are safe and appropriate
- Ongoing support with feeding therapy

## Developmental/Behavioral

- Developmental milestones (ability to support head while sitting upright, showing hunger cues)
- Reported interest in oral foods
- Acceptance of oral foods
- Support from psychologist to address any negative behaviors associated with feeding
- Supportive family, demonstrating readiness with trialing oral feeds for patient

# Nutrition Road Map



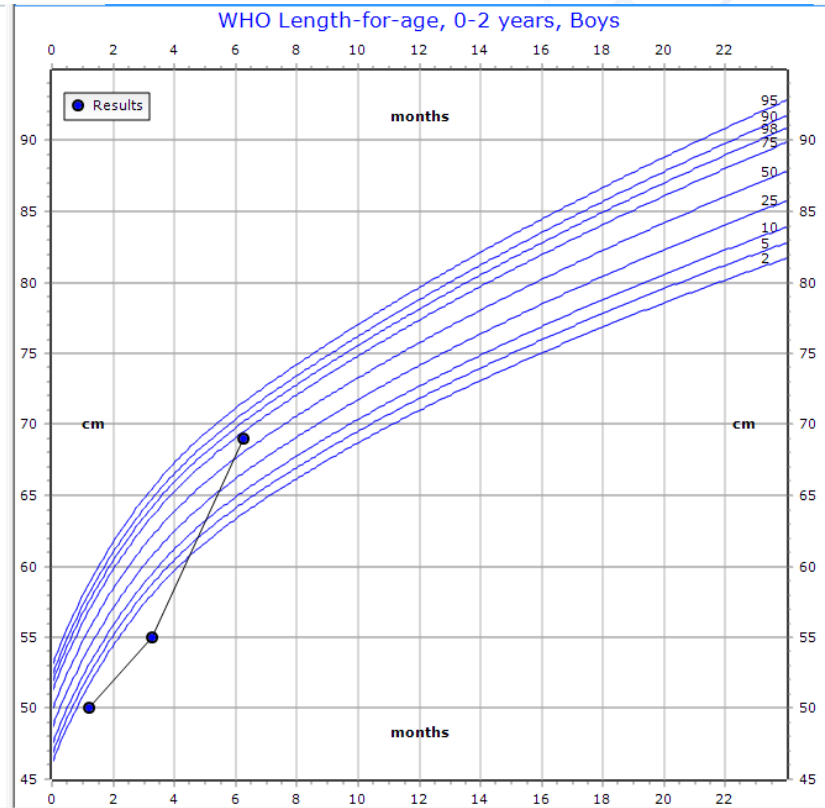
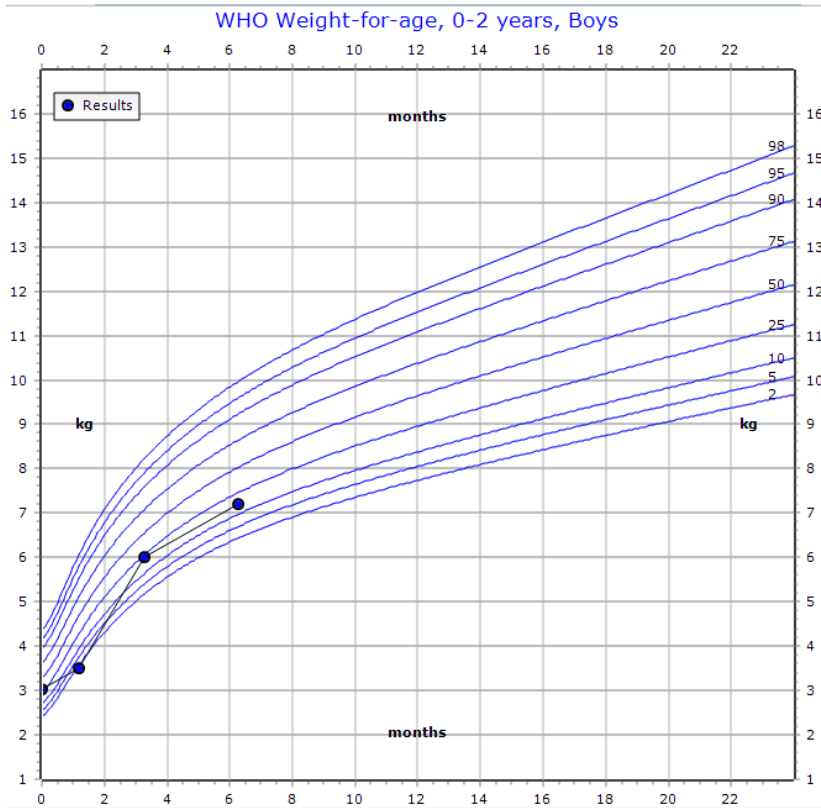
# Challenges with Weaning Tube Feeds

- Minimal improvement with appetite or minimal interest in eating
- Poor mealtime behaviors (>30 minutes/meal, distractions during mealtimes)
- Poor growth & potential for weight loss during wean
- Minimal engagement/support from family
- Interruption/loss of team care



# Case Study #1

- 6-month-old boy with laryngomalacia, GERD, vomiting, suspected milk protein allergy, history of poor weight gain, GT dependence.



# Case Study #1

## Weight and growth:

- +13g/d in last 2 months (10-16g/d is appropriate)
- Weight-for-length: 51%ile, visually appears well nourished

## GT dependence

- meeting 100% of estimated needs via GT
- (Nutramigen 20kcal, 150ml q4hrs)

## PO diet

- Minimal intake: 1-2 spoonfuls of pureed veggies and fruits 3-4x/day

## Dysphagia

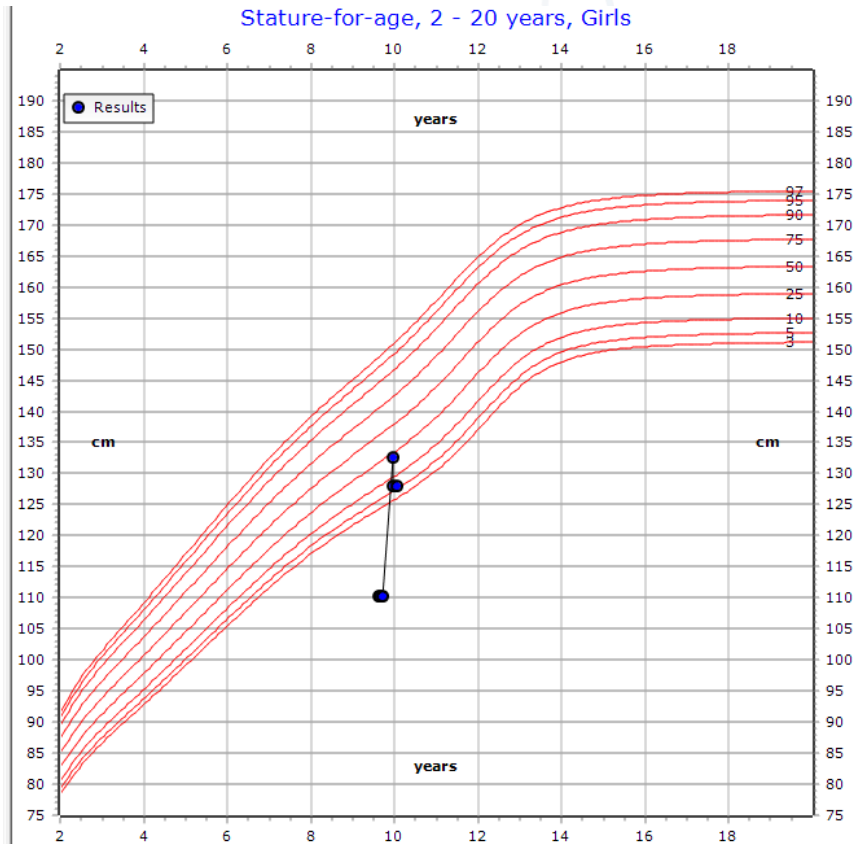
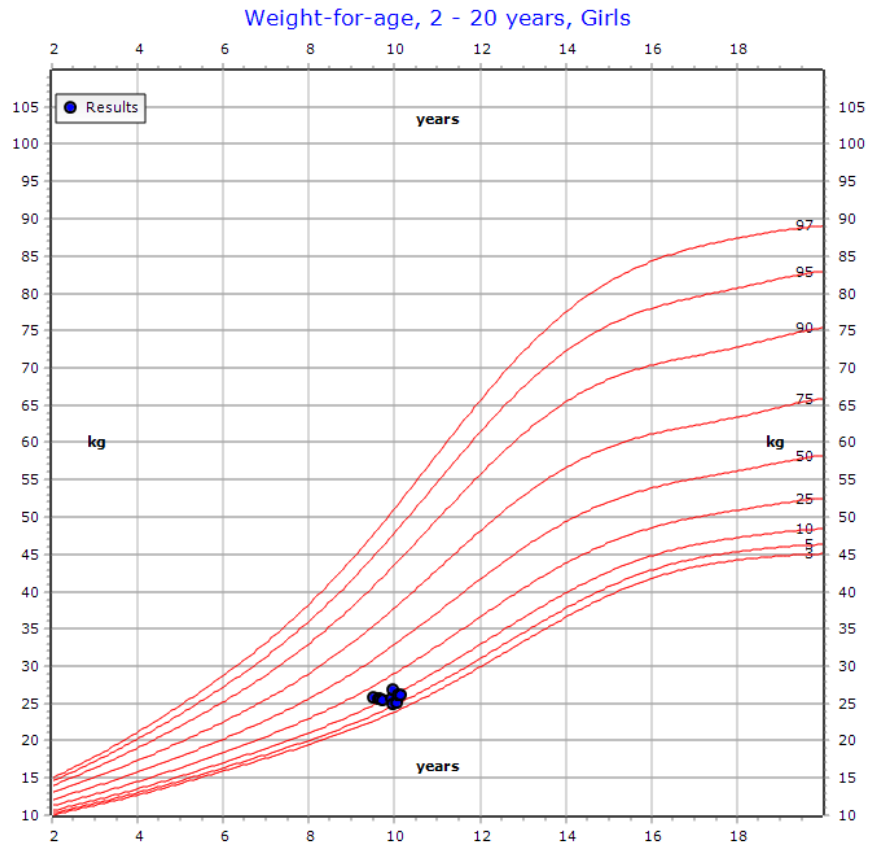
- MBSS completed: no aspiration noted, able to tolerate IDDSI 0 via Evenflow Med nipple and introduction of IDDSI 4 textures ok. Ongoing follow up with SLP.

## Nutrition goals

- Plans to decrease tube feeds by 10% was made given oral interest in foods, safe to take PO, with adequate growth, well nourished. Continue to monitor growth during wean. Follow up in 1-2 months.

# Case Study #2

- 10yo Female ex-26 week premie, w/ PMH of CP, developmental delay, feeding difficulties, GT dependence, hydrocephalus s/p shunt placement



# Case Study #2

## Weight and growth:

- Weight loss of 2%UBW in last 5 months
- Weight-for-length: 22%ile, visually appears slender with adequate stores
- History of low potassium and vitamin D

## GT dependence

- Unclear given non-CHLA formulary BTF but likely meeting <75% of estimated needs via GT given weight loss
- On homemade BTF, likely not nutritionally complete, parent declining BTF formulas or CHLA formulary

## PO diet

- Minimal intake: 2-3 spoonfuls of pureed veggies and fruits but not consistent amounts

## Dysphagia

- No documentation of MBSS or oral recommendations from SLP/OT. Plugged into intensive feeding therapy for 3 weeks in outpatient setting

## Nutrition goals

- No plans to decrease tube feeds given weight loss. Encourage parent to consider trial of formula BTF or CHLA formulary BTF for better nutritional adequacy. Provided education on high calorie, high protein diet with oral foods. Closer follow up of 2-3 months to monitor weight and intake.

# Summary

- Oral aversions and weaning tube feeds takes a multidisciplinary approach.
- There are limited studies that provide standard guidelines on how to wean tube feeds. Using clinical judgement on case-by-case basis is key.
- Caloric intake of PO foods alone is not a good indicator for weaning tube feeds.
- Advocating for continuity of care with the multidisciplinary team is crucial.

# References

1. Ackroyd R, Saincher M, Cheng S, El-Matary W. Gastrostomy tube insertion in children: the Edmonton experience. *Can J Gastroenterol*. 2011 May;25(5):265-8. doi: 10.1155/2011/821019. PMID: 21647461; PMCID: PMC3115007.
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3. Krom H, de Winter JP, Kindermann A. Development, prevention, and treatment of feeding tube dependency. *Eur J Pediatr*. 2017 Jun;176(6):683-688. doi: 10.1007/s00431-017-2908-x. Epub 2017 Apr 13. PMID: 28409284; PMCID: PMC5432583.
4. Lau C. To Individualize the Management Care of High-Risk Infants With Oral Feeding Challenges: What Do We Know? What Can We Do? *Front Pediatr*. 2020 Jun 9;8:296. doi: 10.3389/fped.2020.00296. PMID: 32582596; PMCID: PMC7297031.
5. Edwards, S., Davis, A. M., Ernst, L., Sitzmann, B., Bruce, A., Keeler, D., Almadhoun, O., Mousa, H., & Hyman, P. (2015). Interdisciplinary strategies for treating oral aversions in children. *Journal of Parenteral and Enteral Nutrition*, 39(8), 899–909. <https://doi.org/10.1177/0148607115609311>

# Questions?

