



# Feeding & Swallowing - Collaborative Approach

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MS MANSI P., SENIOR SPEECH LANGUAGE AND FEEDING  
THERAPIST, VFSS AND FEES CERTIFIED.

MS BHANUPRIYA M, FEEDING THERAPIST

# Feeding vs Swallowing

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What is Feeding

- The act or process of eating or being fed.

What defines Swallowing

- Defined as the **semiautomatic motor action** of the muscles of the respiratory and GI tracts that propels food from the oral cavity into the stomach (Miller, 1986).

# Feeding Disorder vs Swallowing Disorder/ Dysphagia

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Feeding disorder refers to inappropriate development of oral intake and its associated medical, nutritional, and psychosocial consequences.

Swallowing disorders are more specific to the process of deglutition/swallowing.

**Hence, all children with swallowing impairments have feeding disorders, but not all children with feeding disorders have swallowing disorders.**

**Swallowing disorder can lead to the development of feeding disorders.**



# Feeding

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Essentials for an adequate feeding and Swallowing skill:

- ✓ Adequate respiration
- ✓ Adequate swallowing mechanism
- ✓ Adequate coordination of other mechanism (Overall health gastrointestinal, ear-nose-throat, neurology)

# Respiration

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## If **Respiration** is affected

- ✓ Having an adequate breath support- swallow apnea happens 1 to 1.5 seconds gets affected suck swallow reflex gets delayed.
- ✓ If child's **breath support is affected** it results in delayed **cough expectoration** which increases chances for aspiration.
- ✓ **Mouth breathing-**
  - ✓ Often results in **drooling, poor lips seal, spillage** while eating or drinking, low pressure in oral cavity which delay in swallow reflex
  - ✓ Child **tends to gulp their food fast** without chewing or refuse food at all in their oral cavity as mouth is being used as a breathing channel
  - ✓ Indicates presence of lip tie, tongue tie.
- ✓ **Lack of energy** for the work of oral feeding- tires easily, prolonged meal time, rejecting solid food as chewing takes lots of effort



# Ear-Nose-Throat and Feeding

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- ✓ **Otitis media effusion**
- ✓ **Tonsillitis**
  - ✓ If the lingual tonsil becomes enlarged, it can encroach on the valleculae and cause significant airway, feeding, and swallowing problems.
  - ✓ Enlargement may be seen when severe gastroesophageal reflux disease (GERD)/extra-esophageal reflux disease (EERD) is present.
  - ✓ Other tonsillitis that obstruct the respiratory path and causing feeding difficulties.
  - ✓ **Odynophagia** (pain while swallowing)
- ✓ **Adenoids** - Excessive enlargement of the adenoid may cause nasal obstruction and feeding difficulties, even in older children. ( Most common cause seen in children)
- ✓ **Vocal fold functions**
- ✓ **Laryngeal cleft**

# Gastrointestinal Health

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- GERD
- Trachea-esophageal fistula
- Esophageal atresia (EA)
- Esophageal webs/strictures

# Neurology

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**Swallowing** is considered one of the most **complex functions** because it includes several anatomic areas, has **voluntary and involuntary components**, and requires simultaneous inhibition of respiration.

Neuromuscular coordination must engage the

- **CNS**
- **afferent sensory input, motor responses of voluntary and involuntary muscles,**
- **the brain stem,**
- **the enteric nervous system (ENS).**

Hence children with neurological impairments many a times are at high risk of aspiration due to delayed responses of velopharyngeal closure, or epiglottis deflection or False Vocal cord and True Vocal Fold closure.



# Swallowing

The act of swallowing is complex because respiration, swallowing, and phonation all occur at one anatomic location the region of the pharynx and larynx.

4 phases of swallowing:

- Pre-oral phase or Oral Preparatory phase- Voluntary control
- Oral phase-Voluntary Control
- Pharyngeal phase- Involuntary Control
- Esophageal phase-Involuntary Control



# Swallowing

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## PRE ORAL PHASE

Accepting the food visually, via smell, tactile

Salivation

Interest

## ORAL PHASE

Oral motor skills

Anatomy of the lips, tongue, palate, jaw, teeth

Range of movements of lips, tongue, jaw

Food manipulation

Chewing and biting



# Pharyngeal Phase

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Soft palate approximation with the pharyngeal walls to prevent nasal regurgitation.

The three layer protective mechanism during the pharyngeal stage of swallowing often prevent in aspiration of food.

- 1) Epiglottis deflection
- 2) False vocal fold closure
- 3) True vocal fold closure

\*In case if the food goes into the larynx, a good cough expectoration will be able to push the food out of the larynx

Hence Coughing is very important factor while assessing swallowing functions.

# Esophageal Phase

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It's the last phase of swallowing and starts from bolus entering into the esophagus from pharynx.

- ✓ Ability to push the food down to the stomach
- ✓ Adequate peristalsis
- ✓ Avoid reflux

# Feeding and Swallowing Therapy

## Clinical Protocol

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Step 1: Feeding questionnaire Forms for parents

Step 2: First Initial Evaluation Wherein Therapist interacts with parents regarding child's developmental history and feeding milestones and if any associated medical conditions.

Step 3: Oral Cavity Examination: Structures and Functions of the oral anatomical Structures( Lips, Jaw, Tongue, Teeth, Palate(soft and hard))

Step 4: Informal Assessment: Four food test wherein child is provided different consistency of food (SOLIDS\SEMISOLIDS or Puree\Thick LIQUIDS\Thin LIQUIDS) and observe child on his or Motor, Sensory and Psychological aspects towards food, **cervical auscultation, general observation** of the child\babies especially posture of the child while feeding.



## Continue

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### Step 5: Diagnostic Evaluation

1. VFSS (Video Fluoroscopy Swallow Study)-The **videofluoroscopic swallowing study (VFSS)**, also known as the **modified barium swallow study**, is a **radiographic procedure** that provides a direct, dynamic view of oral, pharyngeal, and upper esophageal function .

A VFSS is typically conducted in a hospital by a **speech-language pathologist (SLP) and radiologist allowing for professional collaboration.**

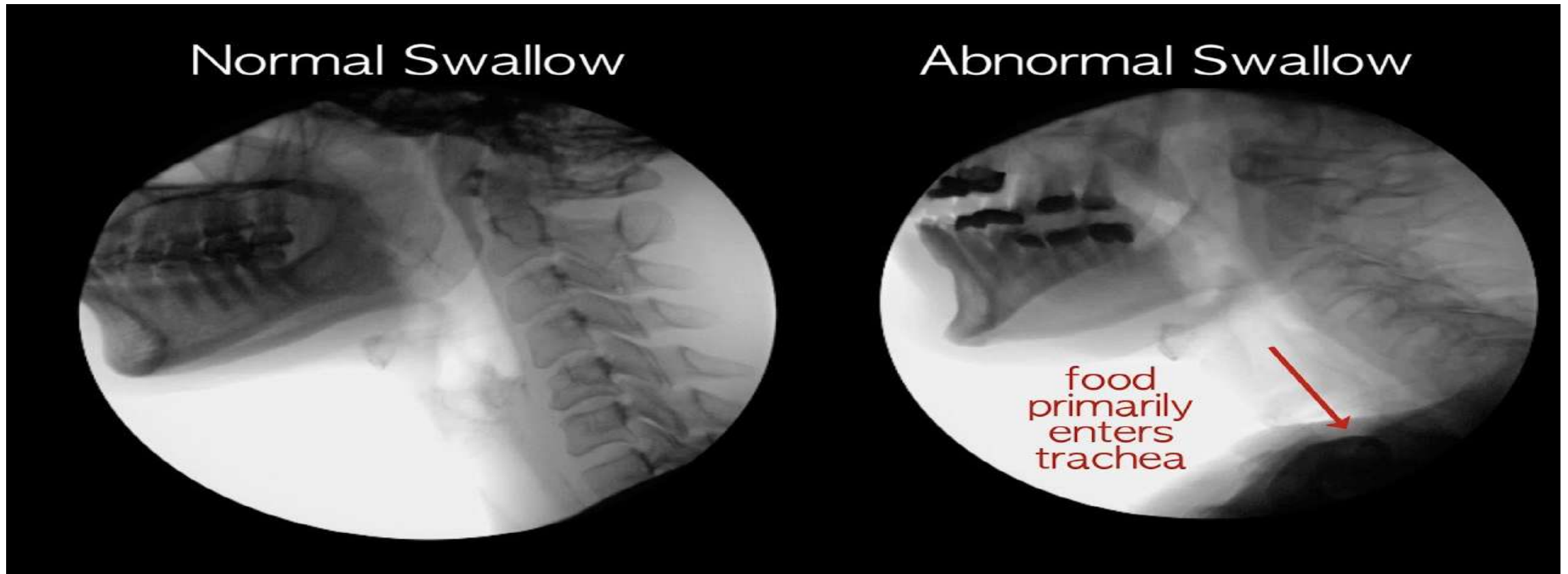
The patient is given various consistencies of food and liquid mixed with barium (or other contrast material), which allows the bolus to be visualized in real time on an X-ray during the swallow.

The VFSS determines

- the **presence, timing and amount of aspiration**
- assess the **anatomy and pathophysiology of oropharyngeal swallow function.**
- The VFSS can also be used to gather information on the influence of compensatory strategies. This information is clinically useful in the development of a treatment plan

# Continue

VFSS (Video Fluoroscopy Swallow Study)-





## Continue

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2.FEES (Flexible Endoscopy Evaluation of Swallowing) : Flexible-endoscopic evaluation of swallowing (FEES) is a feasible and safe instrumental swallowing assessment procedure in children of all ages

A FEES is typically conducted in a hospital by a **speech-language pathologist (SLP) and ENT's and Neurologist allowing for professional collaboration.**

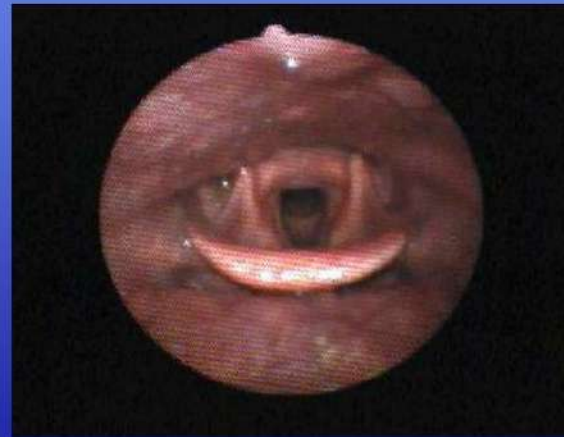
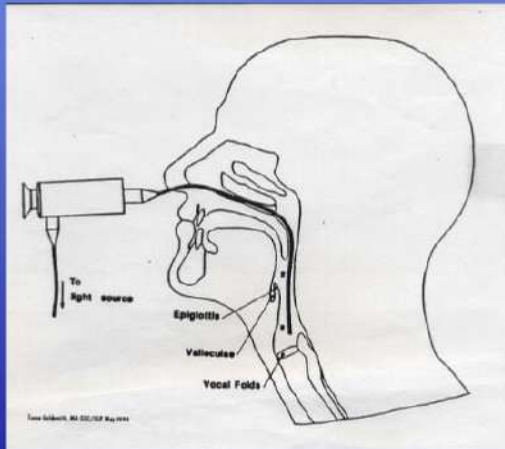
The benefits are:

- the identification of anatomical abnormalities,
- the ability to assess the exact diet with food and liquids rather than barium in the child's preferred position
- the opportunity to examine while breastfeeding
- types of swallowing modifications including compensatory strategies.



# Continue

## *Fiberoptic Endoscopic Evaluation of Swallowing (FEES)*





## Continue

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**3. Blue-dye test in tracheostomy cases:** The aim of this study is to identify the prevalence and type of swallowing problems in children with a tracheostomy tube.

If the child is on trach and suctioned if presence of blue dye, indicates aspiration present.

This test is majorly performed in association with other diagnostic test.

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**4. Barium Swallow test:** Is a Special Swallow test which uses barium and x rays to create images of upper GI tract.

**A Barium Swallow test is typically conducted in a hospital by a speech-language pathologist (SLP) and radiologist and Gastroenterologist allowing for professional collaboration.**

**It helps to detect**

GERD

Trachea-esophageal fistula

Esophageal atresia (EA)

Esophageal webs/stricture

Other esophageal disorders.



## Continue

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Hence it is very important to have an appropriate diagnostic swallow test done to plan a treatment program for the child.

**Step 6: Counselling Parents and appropriate referrals**  
as per the child's need(ENT, Neurologist, PT, OT,  
Dietician)

**Step 7: Management of the disorder**

# Feeding Milestones

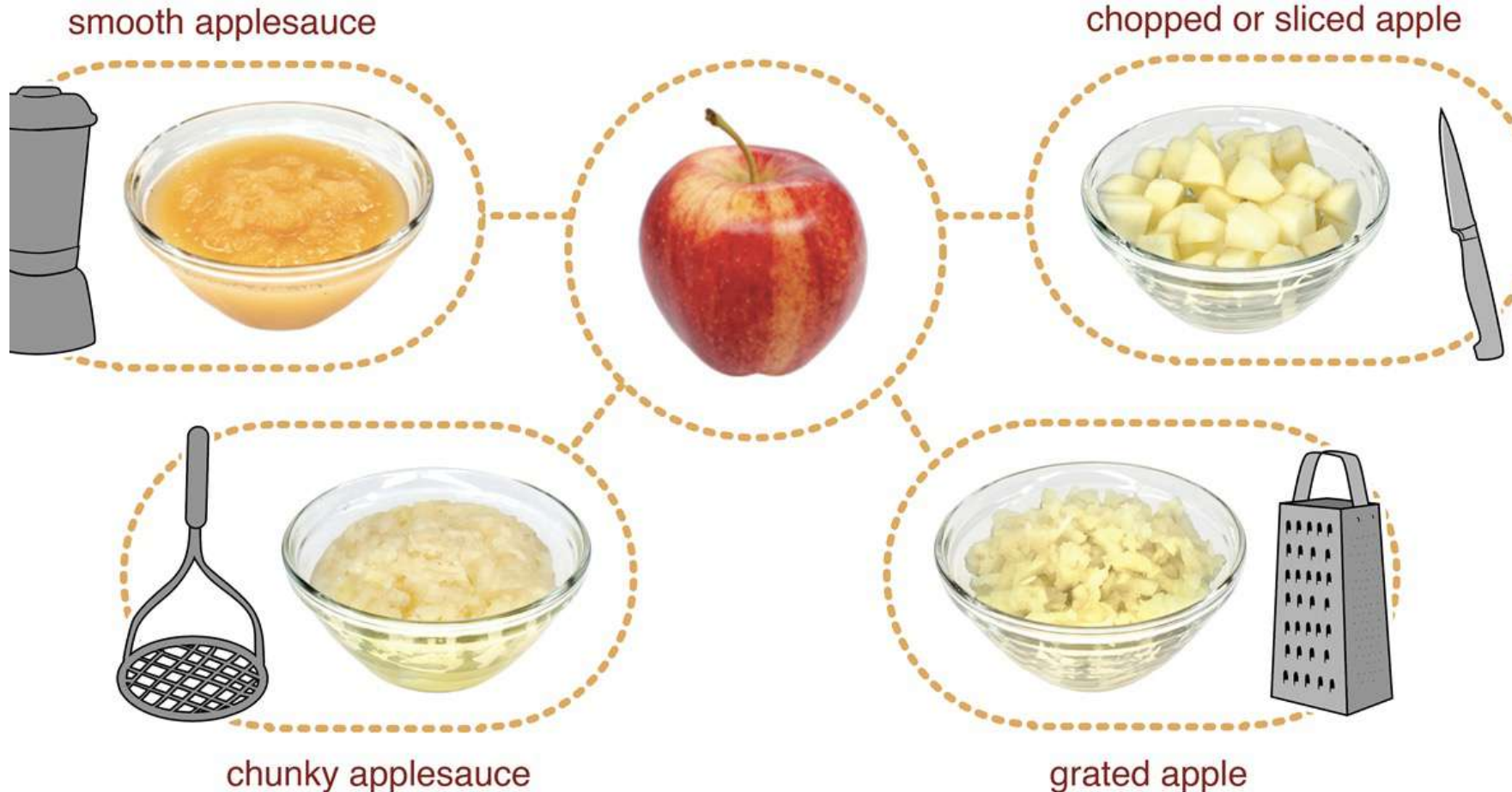
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- ✓ **Liquid only by nipple** first **4 to 6 months** (breast milk and/or formula).
- ✓ **Strained smooth food by spoon**(6 months) when typical children are sitting with minimal support and their gastrointestinal tracts have matured so that they can tolerate additional types of food.
- ✓ **Lumpy foods by 10 to 11 months** (avoid mixed textures, e.g., vegetable soup, yogurt with fruit bits)
  - ✓ Increase texture gradually in small steps to thicker, grainier, and slightly lumpy, but not chunky, foods.
- ✓ **Finger foods** that are introduced as easily dissolvable foods or soft solids may range from 7 to 8 months to **11 to 12 months**.
- ✓ **Cup drinking** before **12 months of age** (although that does not mean that children have to be totally weaned from breast- or bottle-feeding).

\*The American Academy of Pediatrics (2018) recommends eliminating nighttime eating and drinking by 12 months of age and weaning from bottle-feeding before.

# Increase the consistency progressively



# Feeding and Swallowing Intervention

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- ✓ Environment changes
- ✓ Medical Line of treatment
- ✓ Support and stability
- ✓ Creative Utensils
- ✓ Progressively increase in consistency
- ✓ Accept the food in all senses (visually, touch, smell, taste)
- ✓ Behavior
- ✓ Oral motor exercises

# ENVIRONMENT



Family dynamics-  
**counselling**

Calm

No distractions-  
Reducing screen time

Routine-Meal time

## **SUPPORT AND STABILITY-IN COLLABORATION WITH PHYSIOTHERAPIST.**

A neutral head position (symmetry, midline stability)

Neck elongation, but not hyperextension

Pelvis stability, with the child's hips symmetrical in neutral position

Hips, knees, and ankles each at 90°

Symmetrical feet supported by a firm surface







Hope 

**ACCEPT THE FOOD IN ALL SENSES IN COLLABORATION WITH OCCUPATIONAL THERAPIST, ESPECIALLY FOR CHILDREN WITH SENSORY DIFFICULTIES.**

## CREATIVE UTENSILS

Spoon squeezer

Fruit squeezer

Creative/colored plate and spoon

Creative straws

Honey bear bottle



Child accepts the food visually

Able to touch and smell the food

Doesn't gag when placed on tongue

Doesn't show any discomfort playing with the food

Hypersensitivity or hyposensitivity of oral cavity- to work on desensitization

# Behavioral Strategies

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- ✓ Positive reinforcement for each trials
- ✓ Rewards
- ✓ Social story
- ✓ Responds to hunger cues
- ✓ Describe what food they are eating, making them aware of food is approaching them
- ✓ Place the food visually near to them

I should  
only eat food



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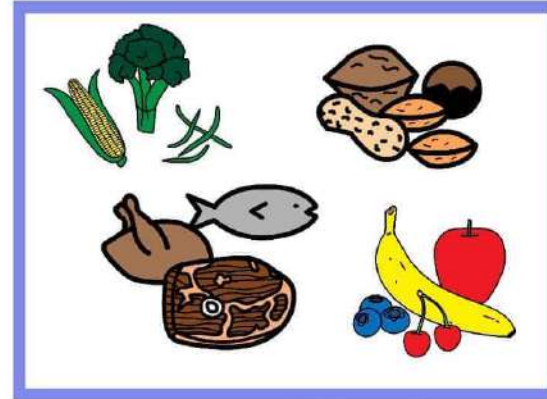


Every day, people eat food. Food  
keeps me healthy and gives me  
energy to run and play.

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Too much of my favourite  
is not good for me.



I need to eat lots of different foods to  
be healthy and grow.

Hope



# Nutrition and calorie intake

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Dietitian and SLTS \FTs collaborate to design an appropriate nutrition intake depending on child's age, height, body weight and medical conditions.

- ✓ Necessary diet needed
  - ✓ Ketogenic diet
  - ✓ Gluten-free diet
  - ✓ Dairy free diet
- ✓ Calorie intake (calorie per day)
- ✓ Enteral feeds + oral feeds (calorie compensation)
- ✓ Nutrition needed
- ✓ Food allergy

# Feeding/Swallowing Therapy - Team approach



Hence Feeding /Swallowing therapy is **not only limited** to **feeding therapist** but it comprises of a **strong team**

1. Child
2. Parents\caretakers
3. Feeding\Swallowing therapist
4. Pediatricians
5. Neurologist
6. ENT's
7. Physical Therapist
8. Occupational Therapist
9. Nutritionist\Dietician

**Feeding therapy is a team effort,  
Yes its rightly said “UNITED WE  
STAND DIVIDED WE FALL”  
Hence parents, the child, medical  
faculties and therapists are  
united progress is bound to  
happen .....**

Hope 



Hope



THANK YOU

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