Choking & Airway Obstruction

Choking

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When food or other items cause an obstruction in the throat or respiratory tract which may or may not cause difficulty breathing, regardless of individual's ability to clear own airway or their need for assistance from others.

The Swallowing process

Preventable injury-related deaths 2022

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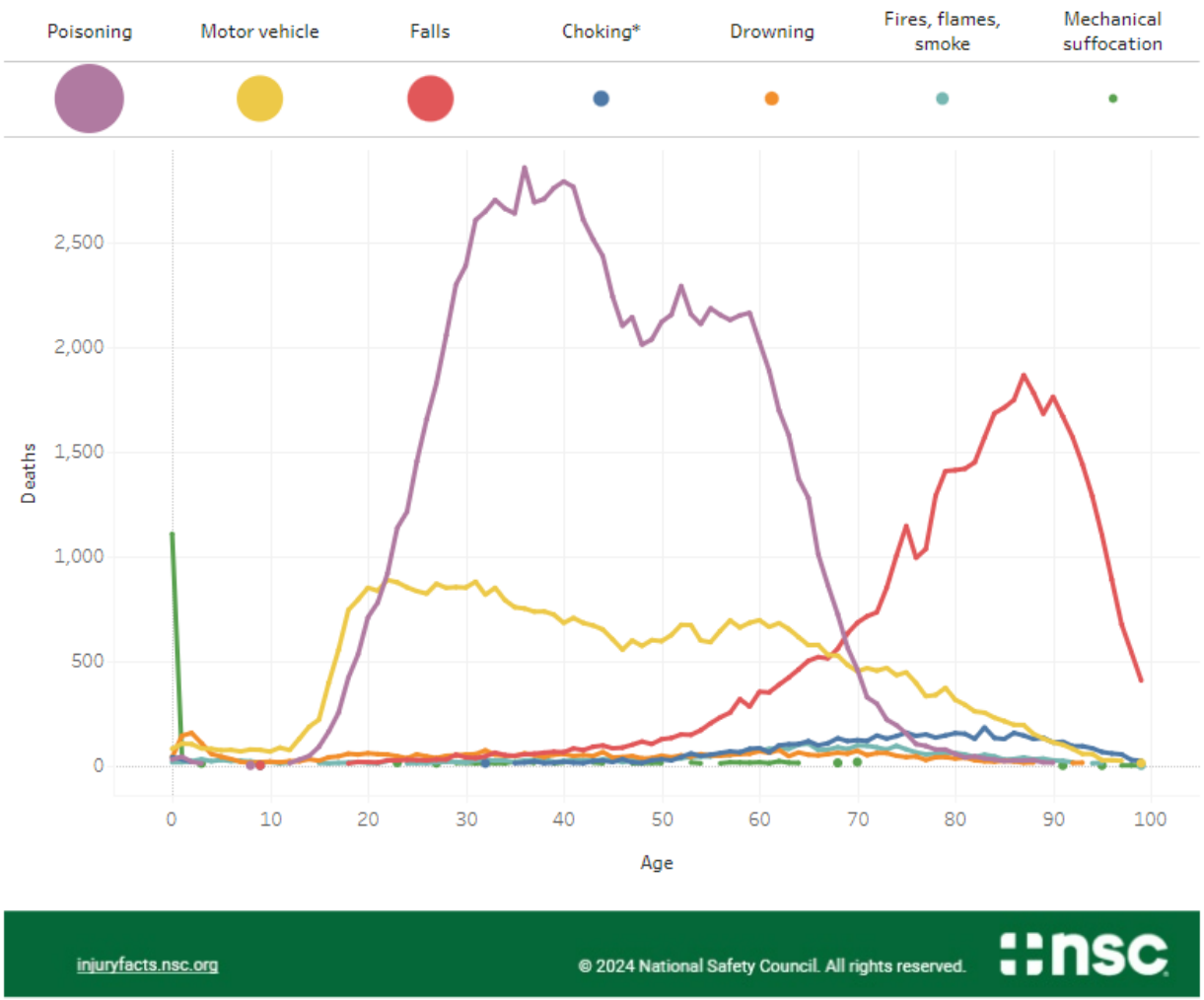
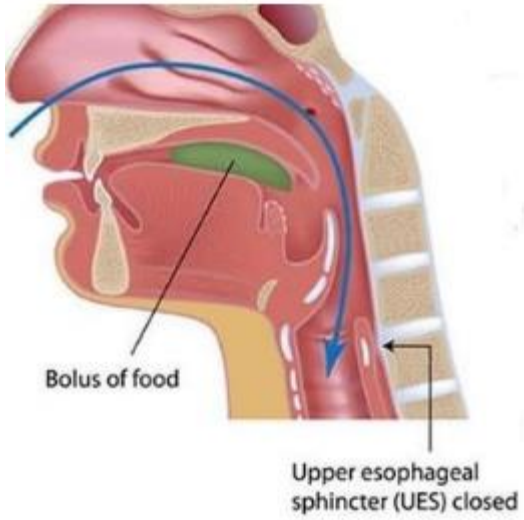


Stage 1 - Oral Preparatory Phase

The oral preparatory phase or buccal phase

- The tongue collects the food or liquid.
- Food is chewed and mixed with saliva to form a soft consistency called a bolus.
- The tongue then moves the bolus toward the back of the mouth.
- Individuals with impairment of the oral phase may experience difficulty with creating a lip seal around the fork or spoon, chewing solid consistencies, forming chewed food into a bolus or moving the bolus to the back of the mouth.

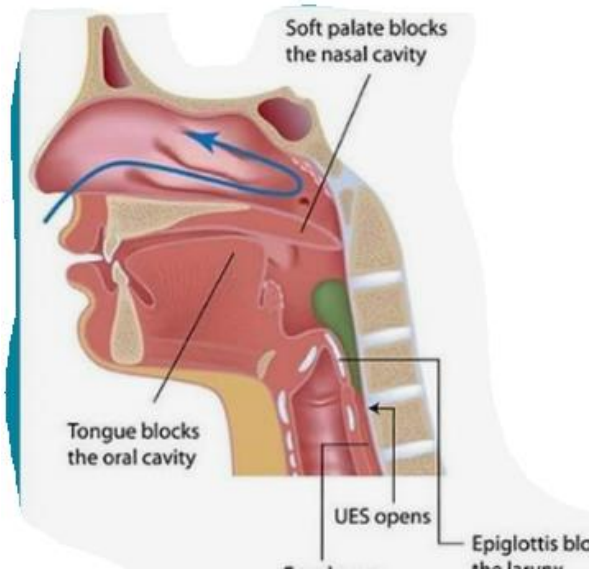


Stage 2 - Pharyngeal Phase

• The tongue pushes the bolus of food or liquid to the back of the mouth. This motion triggers a swallowing response which passes the food through the pharynx, or throat.

• During this phase, the vocal cords close to keep food and liquids from entering the airway.

The larynx rises inside the neck and the epiglottis moves to cover it, providing even more airway protection.



• If the pharyngeal phase is impaired, food or liquid can move into the throat before the automatic swallow is triggered, resulting in food or liquid touching the vocal folds and or penetrating the vocal folds then moving into the lungs.

Stage 3 - Esophageal Phase

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• It begins when food or liquid enters the esophagus, the tube that carries food and liquid to the stomach.

• This phase usually lasts about three seconds, depending on the texture or consistency of the food, but can takes lightly longer in some cases, such as when swallowing a pill.

• If the esophageal phase is affected, the patient might experience heartburn, vomiting, burping or abdominal pain.

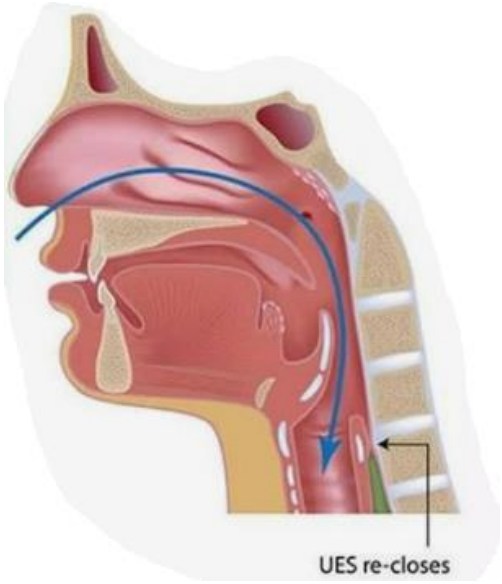

Image of swallowing

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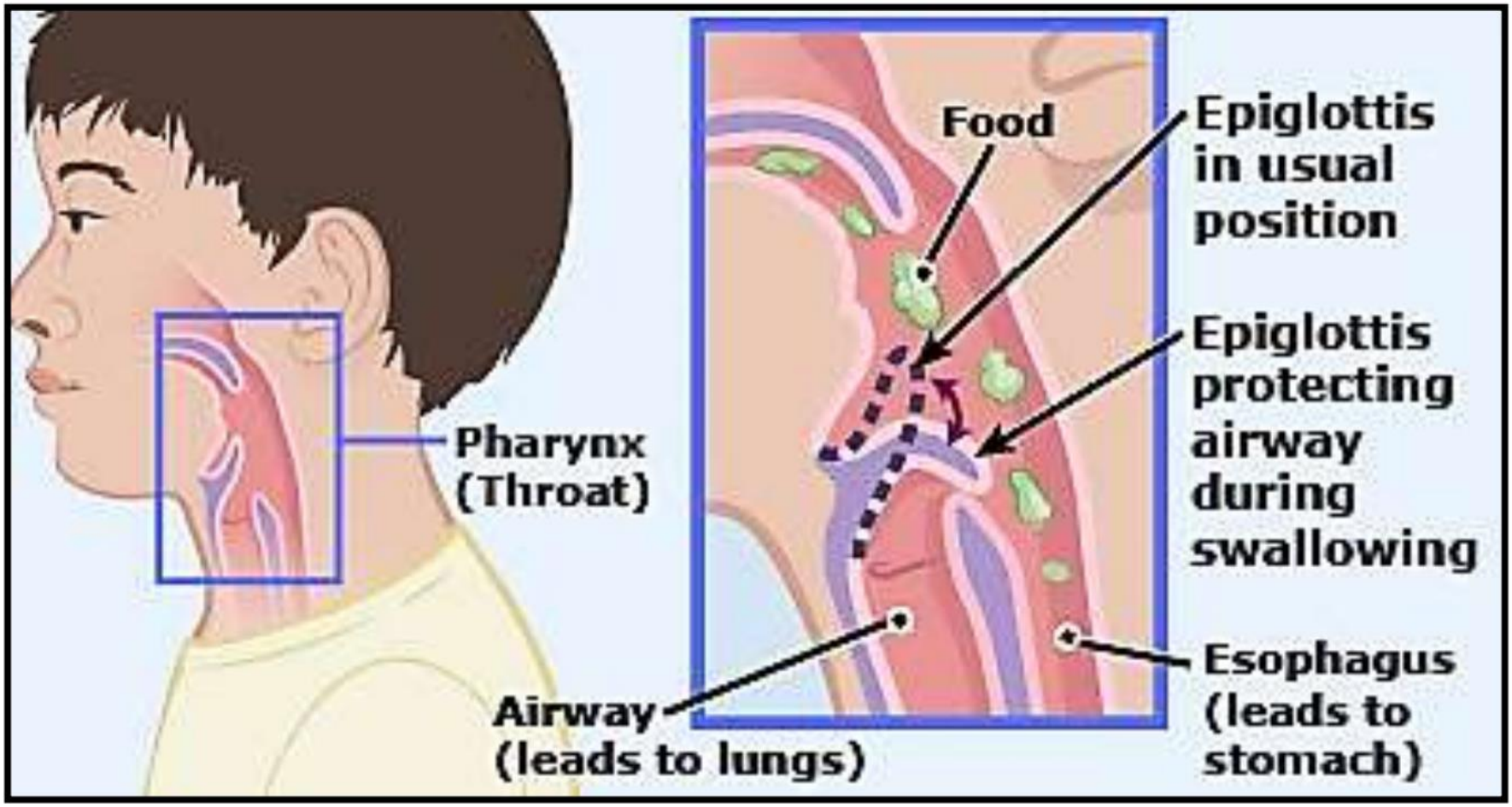

Correct food path

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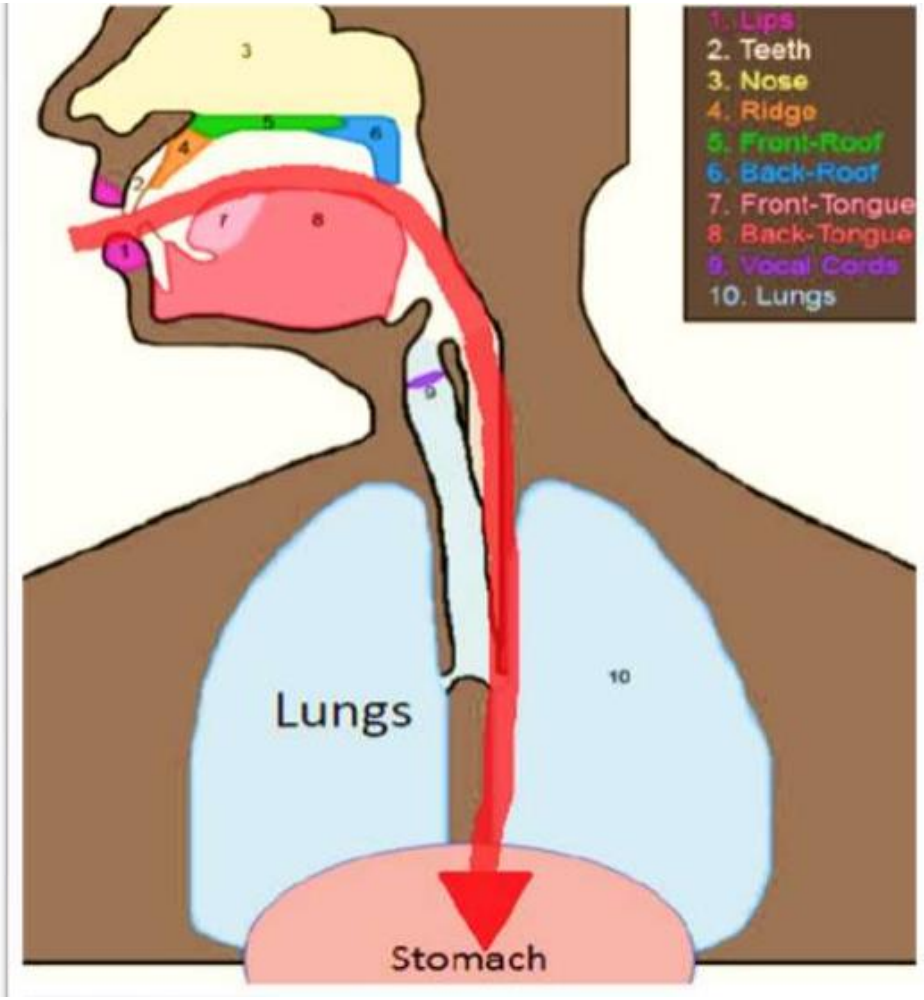
Leads to the stomach, where food is digested.



Incorrect food path

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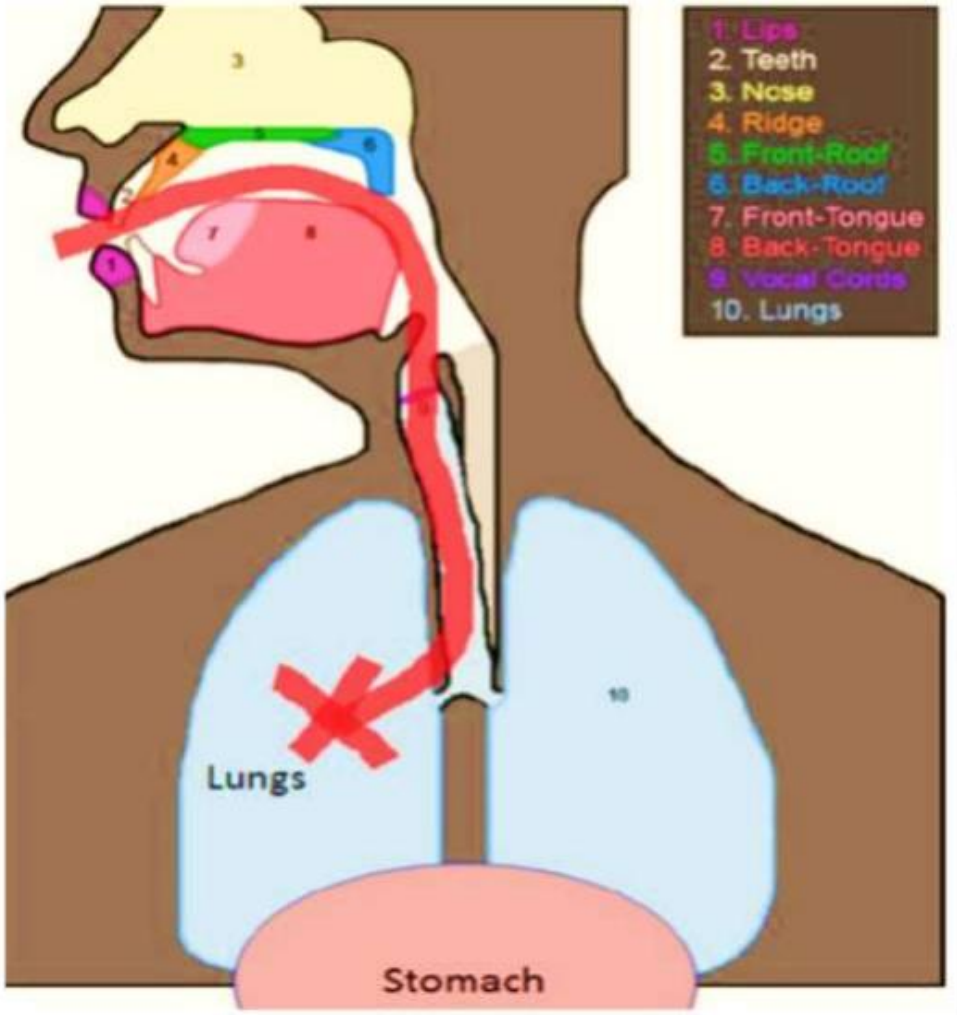
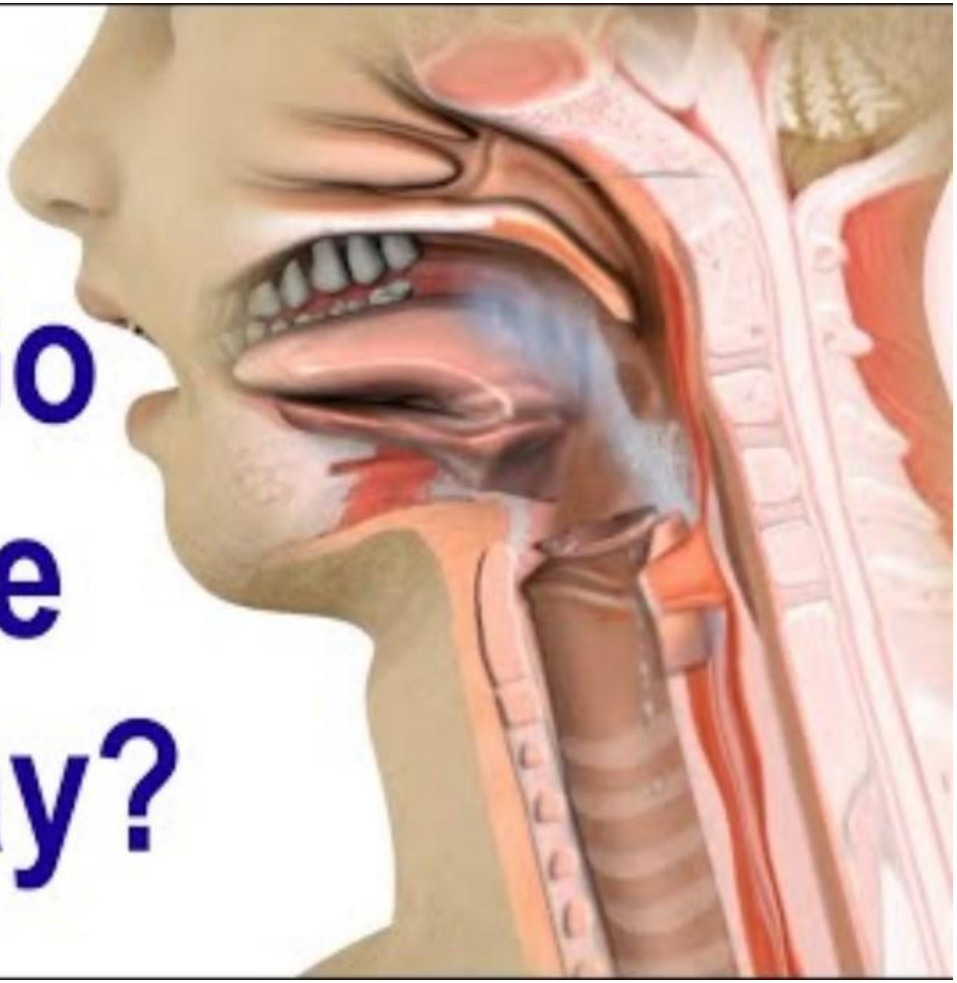
Leads to the lungs, resulting in aspiration pneumonia.



Why do Things Go Down the Wrong Way?



Increased risk factors

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Medical diagnoses which can increase the risk for choking:

- Age: 65+
- Dentures.
- **Dysphagia** (difficulty swallowing).
- **Cleft Palate**.
- Alzheimer's.
- Parkinson's.
- Cerebral Palsy.
- Seizure disorders.
- Muscular disorders.
- Multiple Sclerosis.
- Motor neuron disease.
- Any neurological disorder.
- A history of aspiration pneumonia.
- Amyotrophic lateral sclerosis (ALS).
- **Rumination disorder (RD)**
- Misalignment of the jaw or teeth.
- History of stroke (cerebral hemorrhage).
- Congenital laryngeal web (a rare disorder of the laryngeal area).
- Neoplasm (cancer) in the head, neck or throat area.
- Muscular Dystrophy (a neuromuscular disorder).
- Tardive dyskinesia (a condition caused by long-term use of neuroleptic drugs).
- **Missing teeth** (poor dentition), no teeth (edentulous), loose teeth, or decayed teeth.
- Gastroesophageal reflux disease (GERD) and or a history of GERD.
- **Down syndrome** (a genetic disorder characterized by intellectual disability).
- **Prader Willi syndrome** (a genetic disorder characterized by intellectual disability).
- Thryromegaly (a disorder characterized by an enlarged thyroid gland in the neck).
- Cervical spine injuries (a neuromuscular condition caused by trauma).
- **Individuals with Avoidant Restrictive Food Intake Disorder** (ARFID):
- Polymyositis (an inflammatory disease that causes muscle weakness) (Berzlanovich et al., 2005).

Oral health & choking

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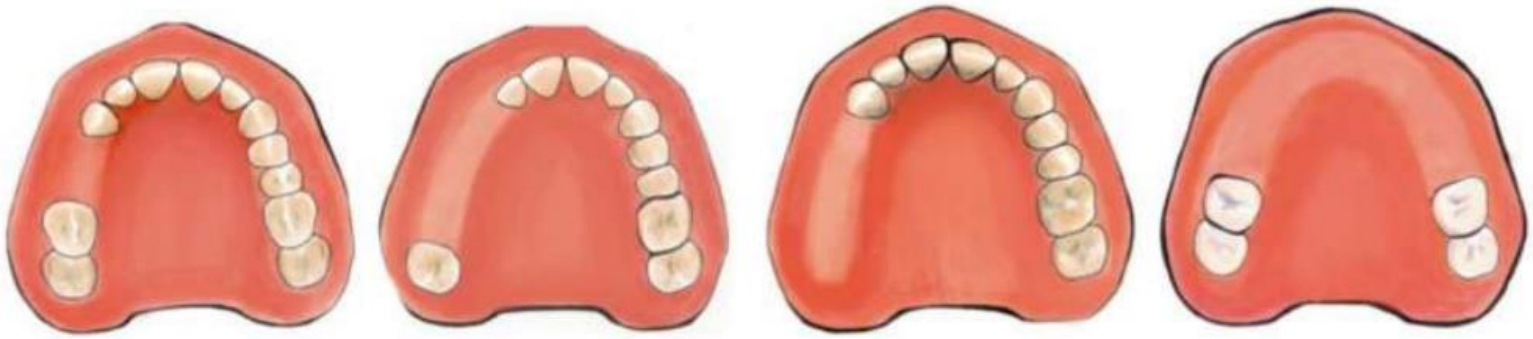
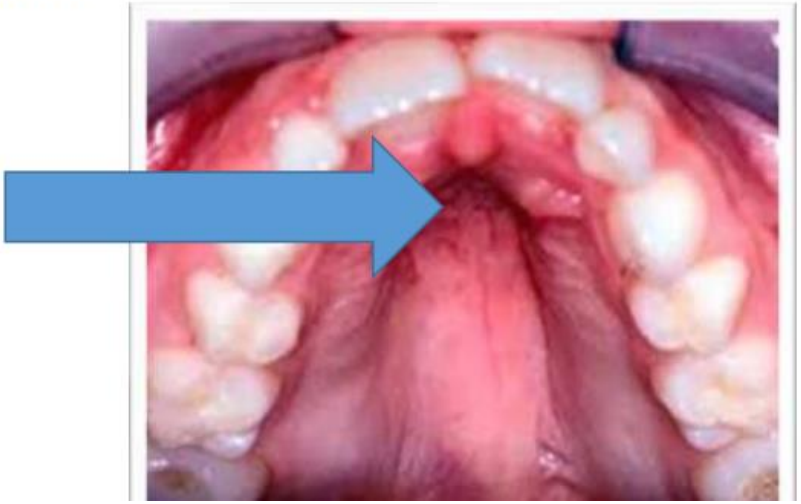
- Loss of any teeth reduces masticatory (chewing) performance resulting in a bolus which may be too large to safely swallow.
- Loose, decayed or missing teeth all increase the risk for choking and or airway obstruction.

Less Teeth = Lessened Ability to Grind, Chop, and Process Food

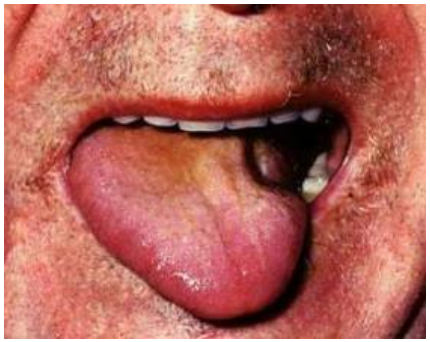


Structural Abnormalities: High Palate

- A high (but closed) palate can also result in an increased choking risk. Why?
- Because food can be trapped in a high palate while eating, but fall down into the mouth when the individual reclines.
- A high arched palate is a symptom of numerous congenital syndromes.



Functional Abnormalities: Tongue Dysfunction



- Tongue dysfunction results in:
  - Impaired mastication.
  - Impaired bolus formation.
  - Impaired bolus transport.
  - Excessive retention of food in oral cavity.
- Tongue dysfunction increases choking risk because food can become dislodged when the individual reclines and can cause an airway obstruction.
- Tongue dysfunction occurs in numerous congenital syndromes.

Increased Risk Factors cntd

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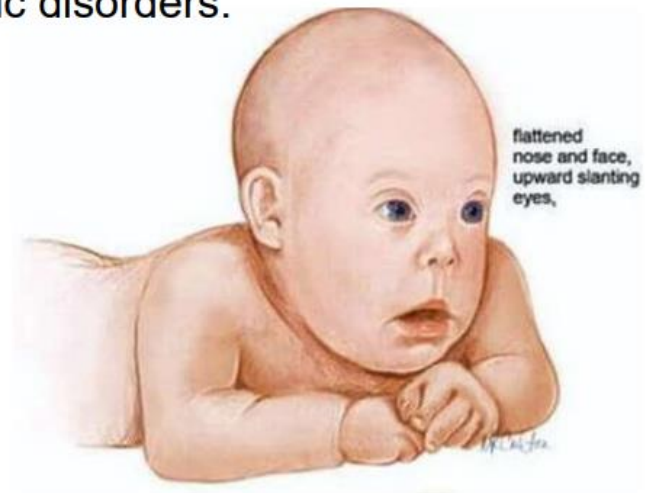
Down Syndrome

- Individuals lack tongue control and frequently have an underdeveloped jaw, leading to impaired chewing, and poor ability to use their tongue thrust to assist during swallowing.
- Are at exceptionally higher risk for choking when compared to other genetic disorders.



(Stevenson et al., 2007; Thacker et al., 2008).

Feeding challenges

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Table 2. Feeding Problems in Down Syndrome

Cause	Result	Feeding problem
Periodontal disease	Tooth loss	Poor chewing, pain
Reduced saliva	Dry mouth	Poor feeding
Large tongue	Oral food loss	Difficulty swallowing
Small Oral Cavity	Poor chewing	Incomplete chewing of food, choking
Narrow, short palate	Nasal aspiration	Pain; sneezing, choking
Severe bruxism	Dental damage	Pain; poor feeding
Oral hypotonia	Poor suck	Choking; poor feeding
Abnormal tongue movement	Pocketing of food	Retention of food; choking
Poor suck & swallowing	Poor swallowing	Choking; aspiration, emesis

(Van Dyke et al., 1990; Sterling et al., 1992)

Increased Risk Factors cntd

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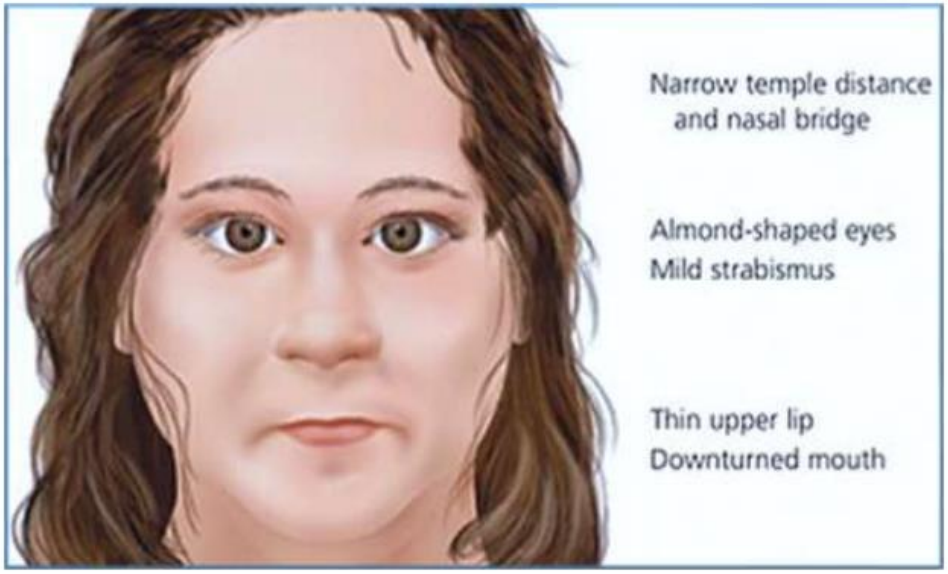
Prader Willi Syndrome

- Increased risk for choking due to poor oral and or motor coordination, poor gag reflex, hypotonia, polyphagia or hyperphagia an abnormally strong sensation of hunger or desire to eat, decreased mastication and voracious eating habits.



(Stevenson et al., 2007; Thacker et al., 2008).

Eating Disorders & Choking

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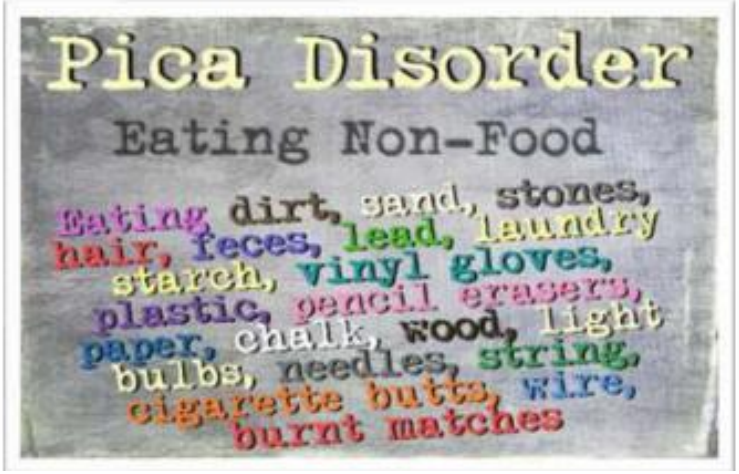
- Pica
  - An abnormal drive or appetite for non food items such as chalk, clay, and laundry detergent.
  - Although rare, some individuals have such severe Pica, they must wear a specially designed helmet with a mouth guard to keep them safe.



Medications which increase risk

People who take medicines associated with swallowing problems may be at risk of choking while eating or drinking.

People taking antipsychotic medicines may be at a particular risk of muscular reactions that can affect swallowing:

- in the first few days after starting the medicine
- after an increase in the dosage of antipsychotic medicine, or
- when they have been taking antipsychotic medicines for a long time, or taking combinations of antipsychotic medicines or antipsychotic medicines in combination with other drugs that can affect swallowing.

NDIS Quality and Safeguards Commission

Medications which increase risk cntd

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What medicines are associated with swallowing problems?

The major types of commonly prescribed medicines that have the potential to affect swallowing and cause problems while eating or drinking are:

01 **Antipsychotic** medicines that can cause swallowing problems.

02 **Benzodiazepines** medicines that can cause drowsiness.

03 **Antiepileptic** medicines that can cause drowsiness.

04 **Combinations** of any of these medicines.

NDIS Quality and Safeguards Commission

Medications which increase risk cntd

Several Medications increase risk for choking. Be aware of medication side effects prior to administration.

- Medications affecting the muscles of the esophagus *may cause dysphagia*. Example: Cogentin (there are many others).
- Medications which cause dry mouth (xerostomia) *interfere with swallowing*. Example: Antihistamines.
- Antipsychotic/Neuroleptic medications for treatment of psychiatric disorders *affect swallowing*, and impact the muscles of the face and tongue. Example: Risperdal
- Central Nervous System (CNS) medications *decrease awareness and voluntary muscle control*. Example: Tegretol.
- High dose steroids and chemotherapeutic (anti-cancer) preparations may *cause muscle wasting or damage to the esophagus.*
- Anti-dopaminergic or anti-cholinergic medications *may increase risk for choking*.

(Lu et al., 2017; Manduchi, et al., 2020).

Eating Behaviors which increase risk

Certain behaviors increase the risk for choking.

- Be educated about any high risk eating habits (stuffing food, isolation, etc.) an individual might have.
- If high risk eating behaviors are observed notify your direct supervisor immediately.
- The individual's PCP should also be notified of high risk eating behaviors.
- A meal time and or eating protocol including, (at a minimum), observations, should be developed.

Foods deemed “high-risk” for choking

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Corn

Grapes

Bananas

Hard nuts

Marshmallows

Peanut butter (any kind)

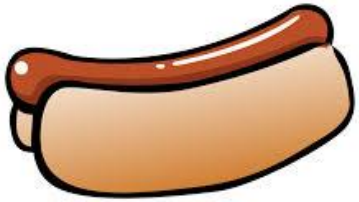
Chicken on the bone

Candy with large nuts

Hotdogs served whole

Whole, hard fruits like apples or pears

Peanut butter sandwiches on soft bread



(Sidell, et al., 2013).

Nut Butters & Other Sticky Foods

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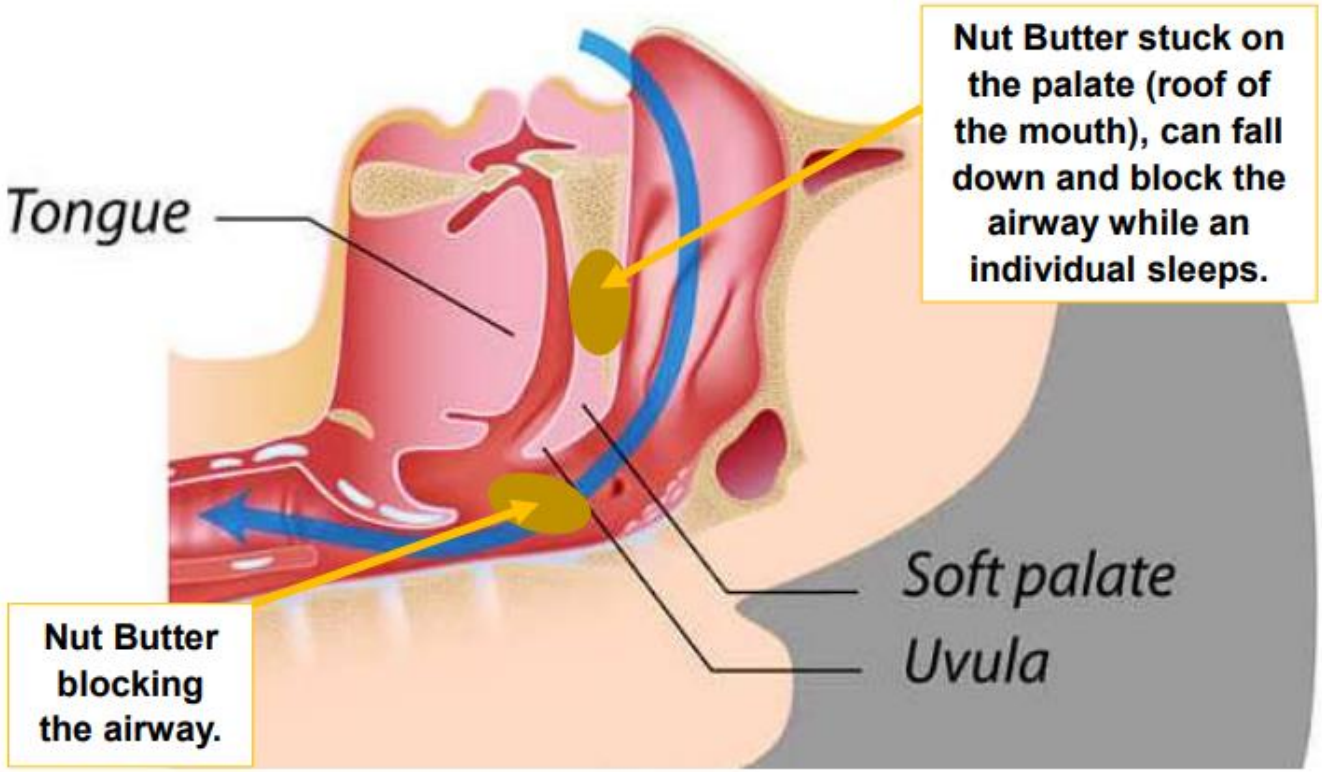
Nut butters present a significant risk of choking, especially for individuals with intellectual and developmental disabilities (IDD) and/or those with dysphagia.

Congenital syndromes associated w/ IDD
can result in both anatomical and neurological precursors for dysphagia, including
Down syndrome
Rubinstein-Taybi syndrome and
Rett syndrome.



(Shashi and Fryburg, 1995; O'Neill & Richter, 2013; Smith, Teo, & Simpson, 2014; Abraham,Taragin, & Djukic, 2015).

Nut Butter Consumption

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Muscle Strength & Coordination are <u>essential</u> to safety consume nut butters!

In a study of nine semi-solid food textures, **<u>peanut butter was the most difficult food to swallow requiring more muscle strength and tongue coordination.</u>**

- Participants reported remnants of food within the oral cavity and a sense of residue coating the oral cavity.
- Individuals with physician ordered Pureed, Minced & Moist, and Soft & Bite Size diet modifications should avoid eating nut butters, as well as other foods seen on the avoid lists.

(Parks, Lee, Yoo, & Nam, 2020).

Firm, smooth, or slippery foods that slide down the throat before chewing, such as:

- **Whole grapes, cherries, berries, ball-shaped melons, or cherry and grape tomatoes**
- **Whole pieces of canned fruit**
- **Hot dog-shaped foods, including sausages, meat sticks, or cheese sticks (even when cut into round slices)**
- **Peanuts and nuts**
- **Whole beans**
- **Hard or round candy, jelly beans**

Non-Negotiables

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NEVER

- ✓ **rush mealtimes**
- ✓ **engage in other activities during mealtimes, even if they are within arms length or eyesight of the individuals you are supporting**
- ✓ **allow individuals to eat or drink while in a moving vehicle, reclining or lying down**
- ✓ **assist individuals to bed if it has been less than 30 minutes since their last meal or drink**

Choking is an Emergency

Treat every choking instance as an emergency!

If you witness someone choking, call 9-1-1 immediately. If you are familiar with life saving techniques, such as abdominal thrusts, use them to try to clear the airway. Do not attempt to drive a choking person to the hospital emergency room yourself **unless** the 9-1-1 operator instructs you to.