



LIVING WELL

PARKINSON'S DISEASE CONFERENCE

WHY IS YOUR SALIVA SO IMPORTANT?

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OVERVIEW

- Saliva 101
- Too much
- Not Enough
- Swallowing Problems

SALIVA 101

- Average normal production of 1L per day, 25K quarts per lifetime
- Decreases production during the night, laying down and during times of stress
- Components and Function
 - Enzymes to help with digestion in the mouth and the stomach
 - Mucus – binds and lubricates food to help with swallowing
 - Lysozyme – enzyme that help kill bacteria
 - Immunoglobulin A –
 - antibodies that inhibit bacterial/viral/fungal growth
 - Helps with wound healing
 - Electrolytes – potassium, sodium, chloride, phosphate and bicarbonate
 - Helps with tooth mineralization and buffers mouth acid
 - Water – keeps the mouth moist, lubricates for speaking and swallow



TOO MUCH?

- Sialorrhea
 - What is this?
 - Why does this occur?
 - So what?
 - What can we do about it?



TOO MUCH

- Sialorrhea
 - What is this?
 - AKA “drooling” or excessive saliva beyond the margin of the lip
 - **80%** of patients with Parkinson’s disease experience sialorrhea
 - Nocturnal drooling (52%) – can occur early in the disease
 - While awake (28%) – occurs later in the disease



TOO MUCH?

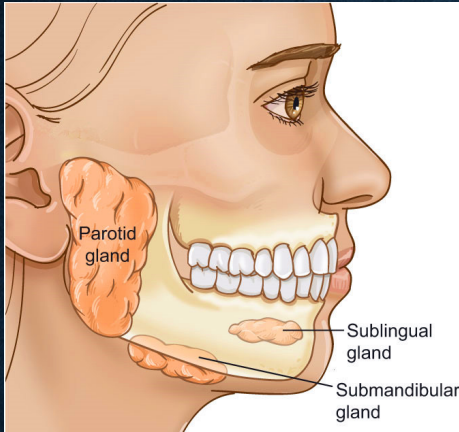
- Sialorrhea
 - Why does this occur?
 - Hypersalivation or excessive saliva production?
 - Sialometry studies show that PD patient tend to produce less saliva than non-PD patient
 - Reduction in the removal of the saliva
 - Oropharyngeal muscle slowing
 - Gravity + stooped posture from PD
 - Decreased facial movements, mouth stays open
 - Older patients more at risk as well as longer duration of the disease
 - Men are 2x more likely to drool than women



TOO MUCH?

- Sialorrhea
 - So what?
 - can lead to:
 - Embarrassment
 - social isolation
 - Depression
 - skin infection
 - Odor
 - aspiration pneumonia





TOO MUCH?



- Sialorrhea
 - What can we do about it?
 - Medications – amantadine, trihexyphenidyl (Artane), benztropine, hyoscine, glycopyrrolate, scopolamine patches, Benadryl, atropine eye drops (topically)
 - Anticholinergic effects can cause worsening of constipation, urinary retention, and cloudy thinking/confusion/hallucinations
 - Glycopyrrolate has the least amount of side effects for the CNS
 - Botulinum toxin injection – into the parotid and submandibular glands every 3 months
 - Speech therapy

THICK SALIVA/PHLEGM

- Causes
 - Mouth breathing
 - dehydration
- Treatment
 - Increase hydration – 2 quarts per day
 - Drinks that can thin the secretions
 - Pineapple/papaya juice/ginger/honey
 - Club soda
 - Medications that can thin secretions
 - Robitussin
 - Avoid caffeine/ETOH
 - Avoid dairy

NOT ENOUGH SALIVA

- Xerostomia
 - What is this?
 - Why does this occur?
 - Why is this important?
 - What can we do about this?



NOT ENOUGH SALIVA

- Xerostomia
 - What is this?
 - Dry mouth
 - Frequency 55%
 - PD patients experience this 2x more than non-PD patients

NOT ENOUGH SALIVA

- Why does this occur?
 - Dehydration
 - On medications that have a side effect of "drying"
 - Anticholinergics
 - Benztropine/Cogentin
 - Trihexyphenidyl/Artane
 - Benadryl
 - Amantadine
 - Amitriptyline/Elavil

NOT ENOUGH SALIVA

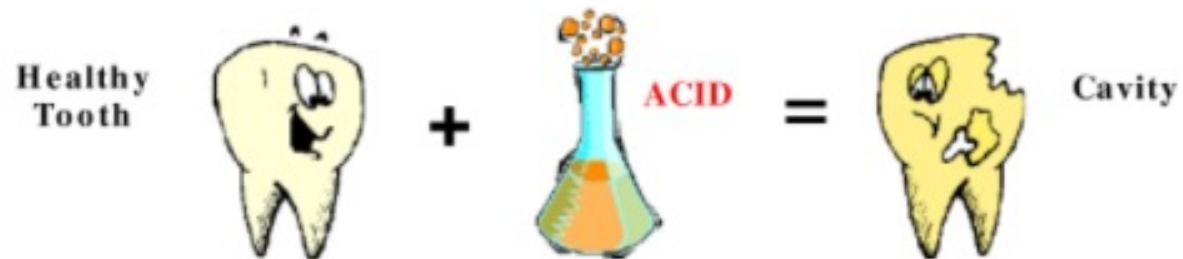
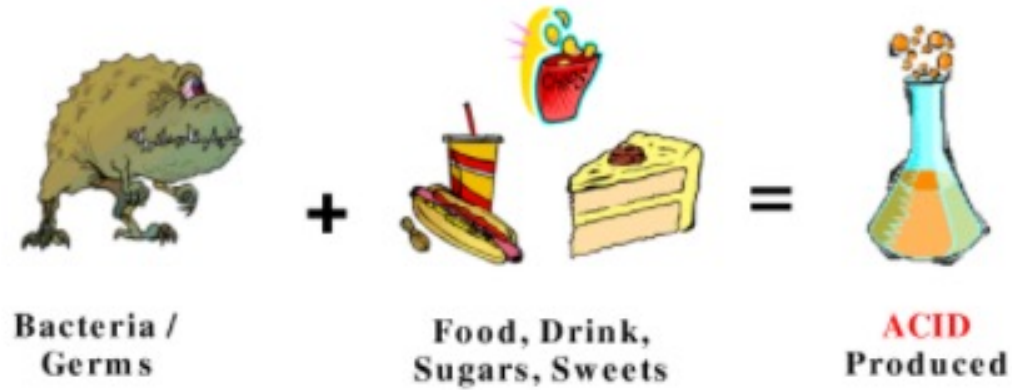
- Why is this important?
 - Lubrication of your food helping with swallow
 - Can affect your speech/slurred words
 - Immunity
 - Digestion
 - Dental health

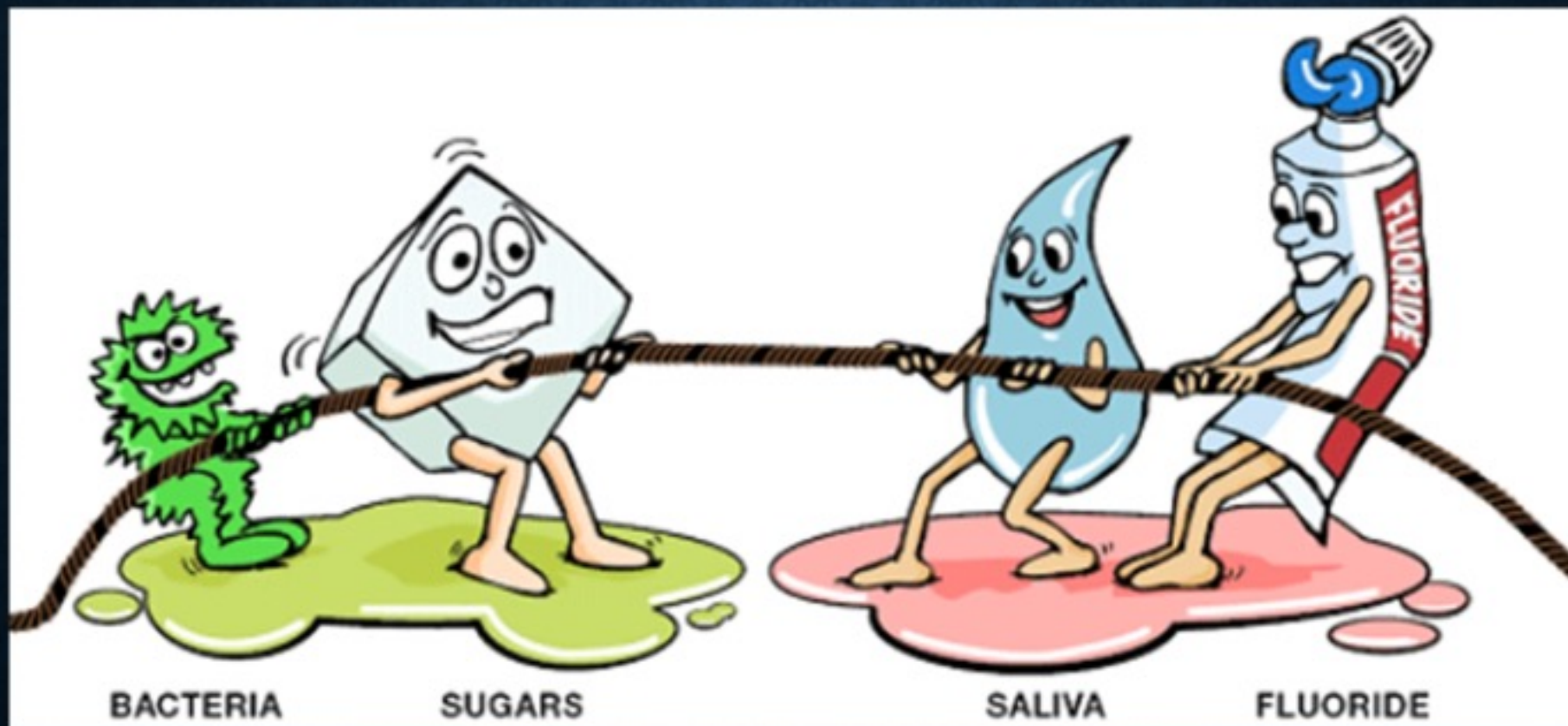
SALIVA AND CAVITIES

- Function of saliva
 - Helps clear the mouth of food and bacteria when we swallow
 - Forms a protective mucus layer in the mouth
 - Glycoprotein
 - Protects teeth from erosion and plaque build up
 - Helps to regulate the mouth pH
 - Saliva contains calcium and phosphate that helps maintain the integrity of the teeth
 - Helps with remineralization
 - Anti-bacterial and anti-viral properties
 - Contains secretory IgA antibodies and lysozyme, lactoferrin and lactoperoxidase

CAVITIES

DENTAL DECAY PROCESS





PD AND ORAL HYGIENE

- Medications
- Movement problems
- Depression
- Apathy
- Memory problems



WHAT TO DO ABOUT DRY MOUTH?

- Avoid sugary or acidic snacks, foods, and drinks
- Suck on candy that contains xylitol, a natural sweetener that reduces tooth decay
- Chew sugar-free gum that can stimulate saliva
- Sip water to keep the mouth moist and hydrated
- Limit caffeine
- Brush with a fluoride toothpaste
- Use a fluoride rinse or brush-on fluoride gel before bedtime
- Avoid mouthwash that contains alcohol which increases dry mouth
- Medications – pilocarpine, Coenzyme Q10 100mg/day
- Use a humidifier to add moisture to the air
- Use saliva substitutes - liquid or aerosol products sprayed into the mouth that are designed to moisten and relieve pain. Look for products with xylitol, carboxymethylcellulose or hydroxyethyl cellulose
- Try a mouthwash designed for dry mouth. Products are made by Act, Biotene, Colgate, Gum, SmartMouth, and TheraBreath
- Don't use antihistamines and decongestants that can dry you out, check with your doctor about what is best for you.
- Breathe through your nose, not your mouth.
- See your dentist twice a year
- Electric toothbrush if mobility is a problem

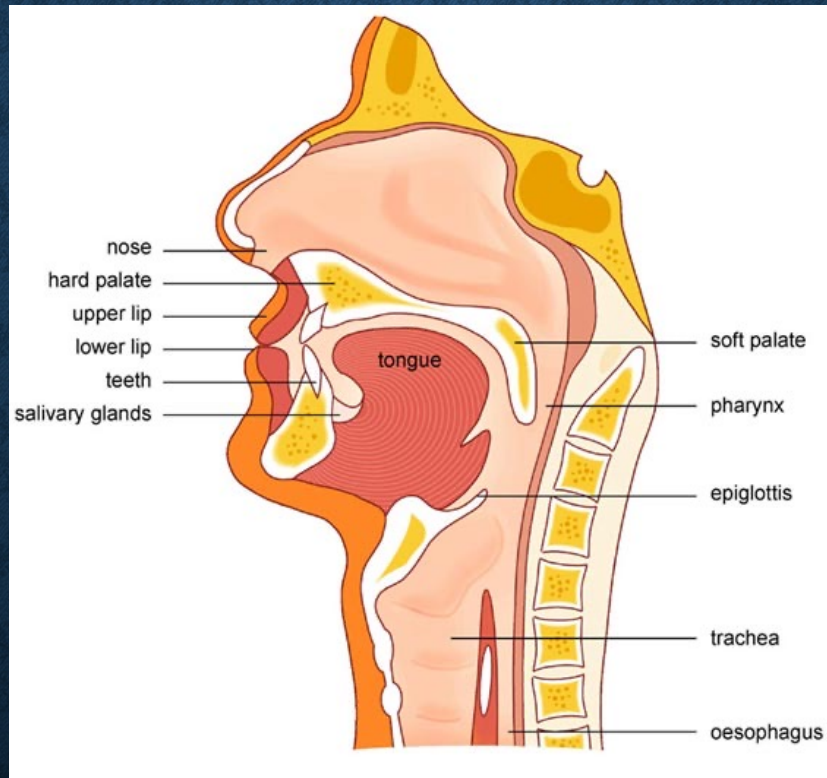
SPEECH LANGUAGE PATHOLOGY ROLE IN PARKINSON'S DISEASE

Speech

Cognition

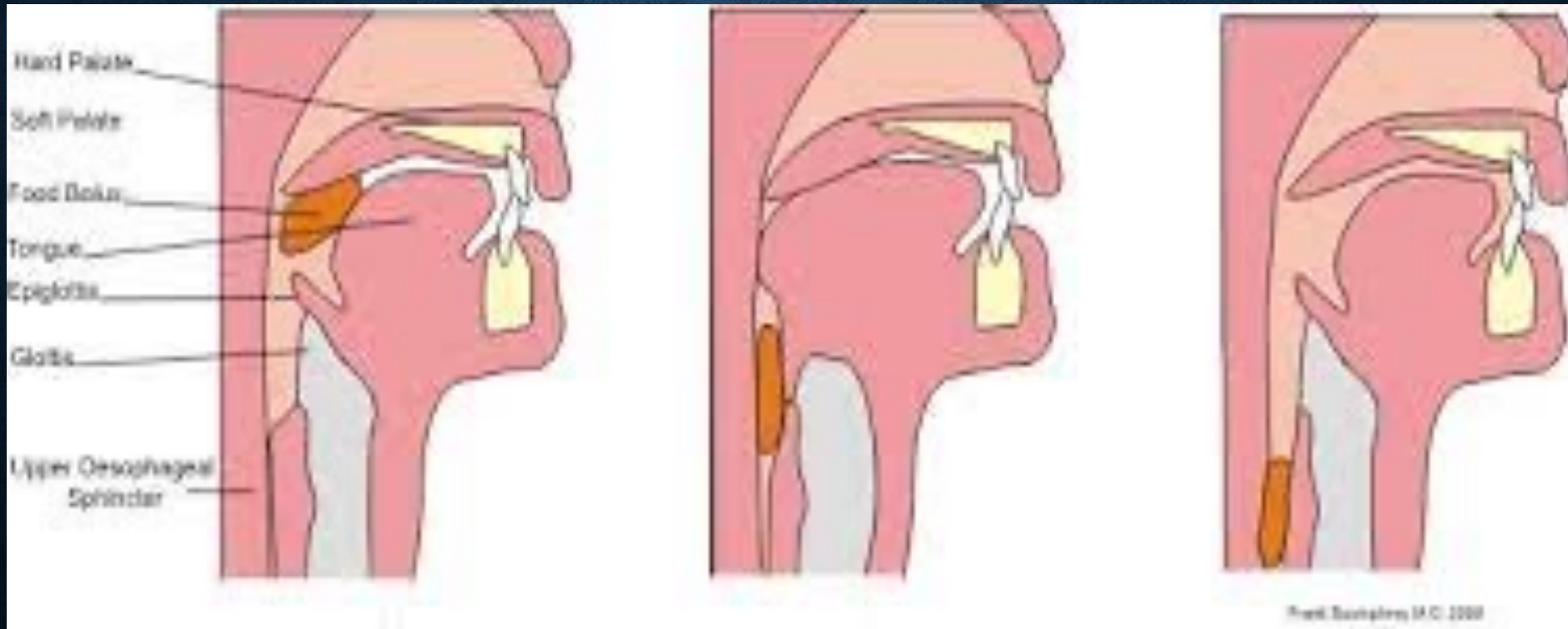
Swallowing

SWALLOWING



THREE PHASES OF SWALLOWING

- Oral- voluntary, movement of the bolus from the oral cavity into the oropharynx
- Pharyngeal-voluntary, movement of the bolus from the oral cavity into the oropharynx
- Esophageal-voluntary, movement of the bolus from the oral cavity into the oropharynx



COMMON DIFFICULTIES WITH SWALLOWING WITH PARKINSON

Oral Phase

- Drooling
Tongue pumping
- Tongue Tremor
Difficulty initiating lingual movement
- Slowed oral transit

Pharyngeal Phase

- Delay in swallow
Reduced pharyngeal Strength
- Decreased relaxation
Decreased Laryngeal Elevation
- Incomplete airway protection
Aspiration

Esophageal Phase

- Esophageal peristalsis

SIGNS & SYMPTOMS OF DYSPHAGIA

Coughing during
eating/drinking

Wet/gurgled vocal
quality before, during,
or after eating,
drinking, or taking
meds.

Extra effort or time
needed to chew or
swallow

Food or liquid leaking
from the mouth or
getting stuck in the
mouth

Holding food/liquid in
mouth or pocketing

Nasal leakage

“Stuck” feeling in the
throat or esophagus

Weight loss

Dehydration

Excessive Dry Mouth

Sudden disinterest in
eating; Changes in
eating habits; Increased
negative behaviors at
meal time

SYMPTOMS OF ASPIRATION

- Coughing (especially ANY time patient is eating or drinking)
- Difficulty or changes in breathing. This can include things like:
 - Breathing rapidly.
 - Breathing very slowly.
 - Hearing gurgling or congested lung sounds when a person breathes.
 - Coughing up phlegm (*sputum*) that is:
 - Yellow, tan, or green in color.
 - Has pieces of food in it.
- A change in voice (*wet sounding*).
- A change in skin color. The skin may turn a "bluish" type color because of a lack of oxygen (*cyanosis*).
- Fever

WHAT TO DO IF YOU ARE HAVING SWALLOWING DIFFICULTIES?

Have your Doctor request a Swallowing Evaluation.

QUESTIONS?



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