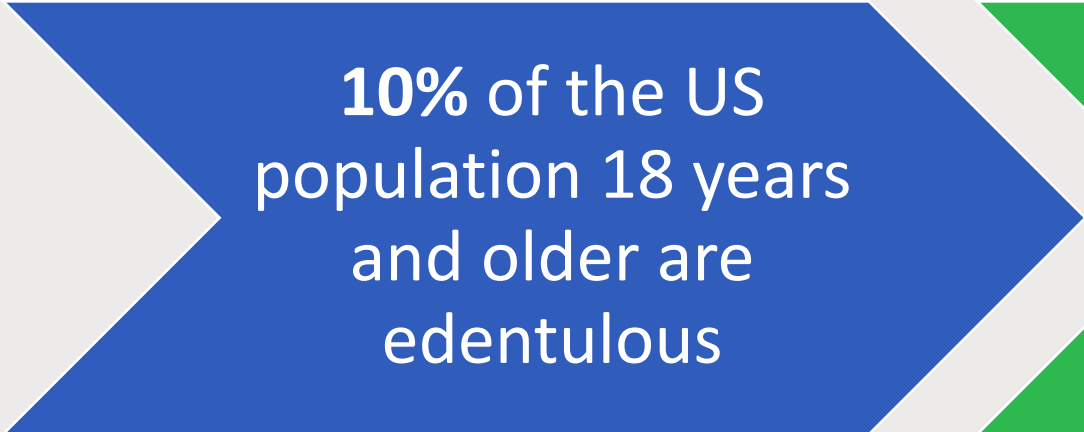


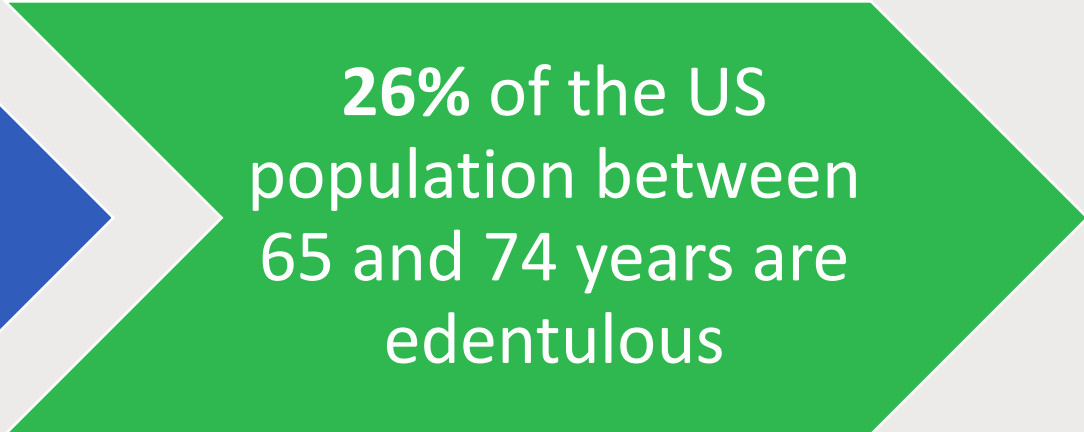


EDENTULOUS PATIENT

Sarah Adkins, RDH, BSDH



10% of the US
population 18 years
and older are
edentulous



26% of the US
population between
65 and 74 years are
edentulous

(Lee & Saponaro, 2019)

Edentulous patients are **MORE** likely to be smokers **AND** have smoking-associated diseases such as asthma, emphysema, and cancer.



Health-related-quality-of-life-studies indicate edentulism can affect the quality of life— Patients reported unsatisfactory esthetics and lowered self-esteem.



Denture wearers keep it a secret from their friends, siblings, and spouses. They may also avoid certain social situations eating at parties, avoiding job interviews, and networking with other professionals.

“AN OUNCE OF PREVENTION
IS WORTH A POUND OF
CURE” – BENJAMIN
FRANKLIN



OBJECTIVES

Identify	characteristics of an edentulous mouth and oral changes associated with an ill-fitting oral prostheses
Compare and contrast	types of fixed and removeable denture prostheses and the challenges associated with replacing missing teeth.
Describe	the different methods of cleaning fixed and removeable appliances at home and in the office.
Develop	a tailored oral hygiene plan for the edentulous and partially edentulous patient.
Demonstrate	a commitment to your role as a dental hygienist in educating and providing treatment to the edentulous patient.

TERMINOLOGY

- Edentulous
- Partially edentulous
- Fixed denture
- Removeable partial denture
- Overdenture
- Precision attachment

RISK FACTORS FOR TOOTH LOSS



(Hindawi, 2012)

Dental caries

Periodontal disease

Low socioeconomic status

Inadequate access to
professional dental care

Low frequency of professional
dental care

Poor daily oral hygiene

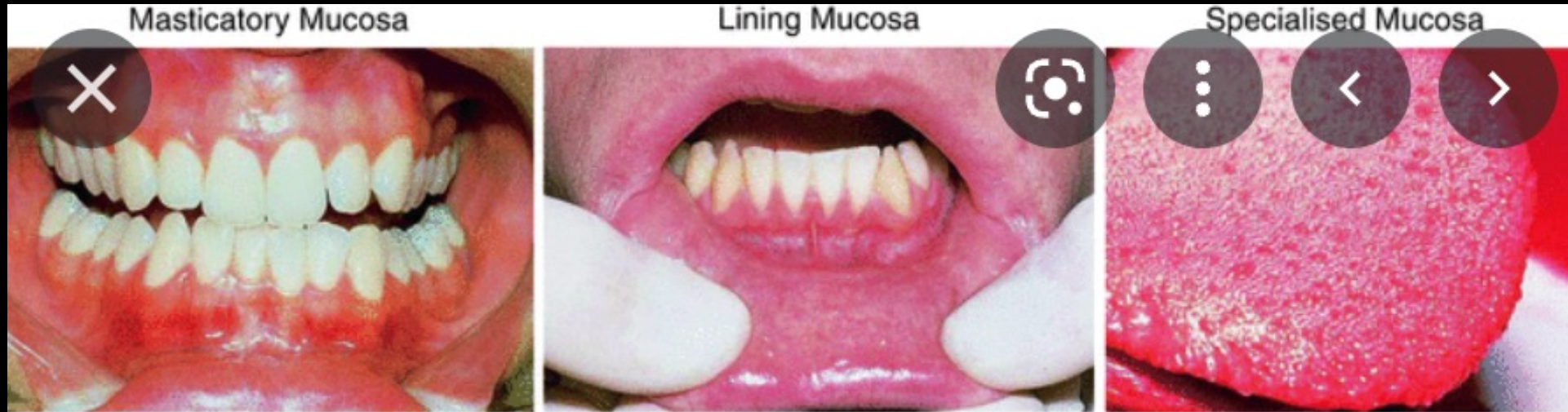
MISSING TEETH



Edentulous/ Partially Edentulous

- Congenital
- Trauma
- Lack of knowledge about OH

THE EDENTULOUS MOUTH



3 types of MUCOSA defined according to FUNCTION:

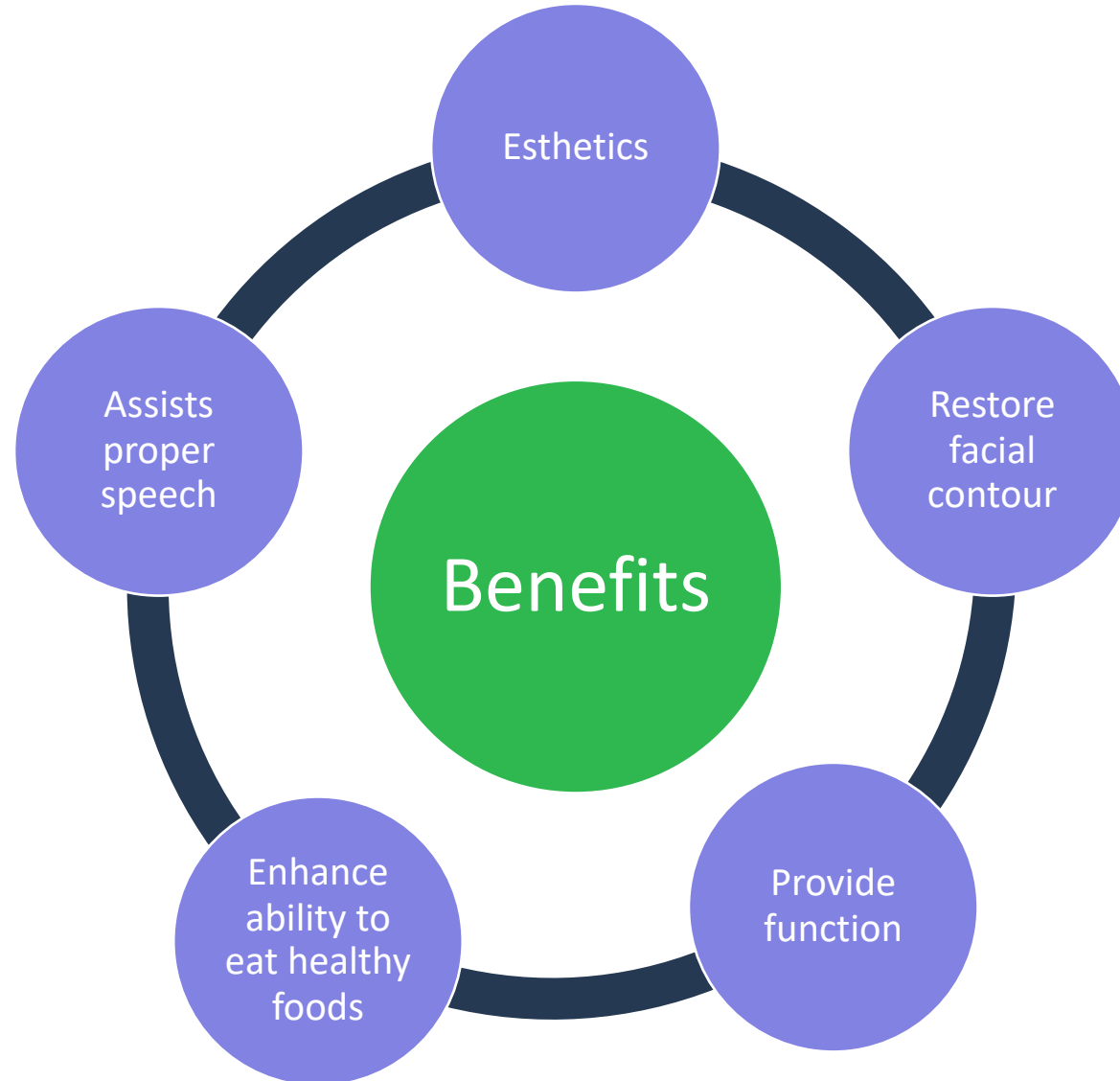
1. Masticatory Mucosa: 25% of *total mucosa*. Gingiva (free, attached and interdental) and hard palate. Primary mucosa that is in contact with food during mastication.
MASTICATORY MUCOSA IS USUALLY KERATINIZED.
2. Lining Mucosa: 60% of *total mucosa*. Covers the floor of mouth, ventral (underside) tongue, alveolar mucosa, cheeks, lips and soft palate.
Does not function in mastication and therefore has minimal attrition.
Non-keratinized; soft and pliable.
3. Specialised Mucosa: 15% of *total mucosa*. Covers dorsal tongue and is composed of cornified epithelial papillae.

THE EDENTULOUS MOUTH



- Bone
 - Residual ridges– the portion of the alveolar ridge and its soft tissue covering which remains following the removal of teeth
 - Tori and exostoses
 - ***Torus palatinus*** –midline palate
 - ***Toris manibularis***—mandibular lingual
 - ***Exostoses***– buccal/facial

PURPOSE OF WEARING A FIXED OR REMOVABLE DENTURE



REPLACEMENT OPTIONS

Fixed Prosthesis



Bridge



Implant

Removeable Prosthesis



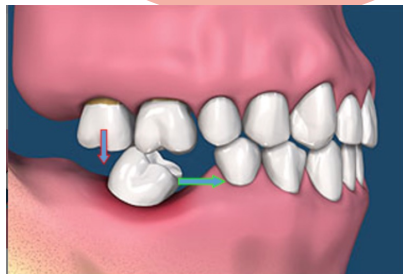
Partial



Full upper/lower
denture

CONSEQUENCES OF NOT REPLACING MISSING TEETH

Migration
of
adjacent
teeth



Migration
of
opposing
teeth



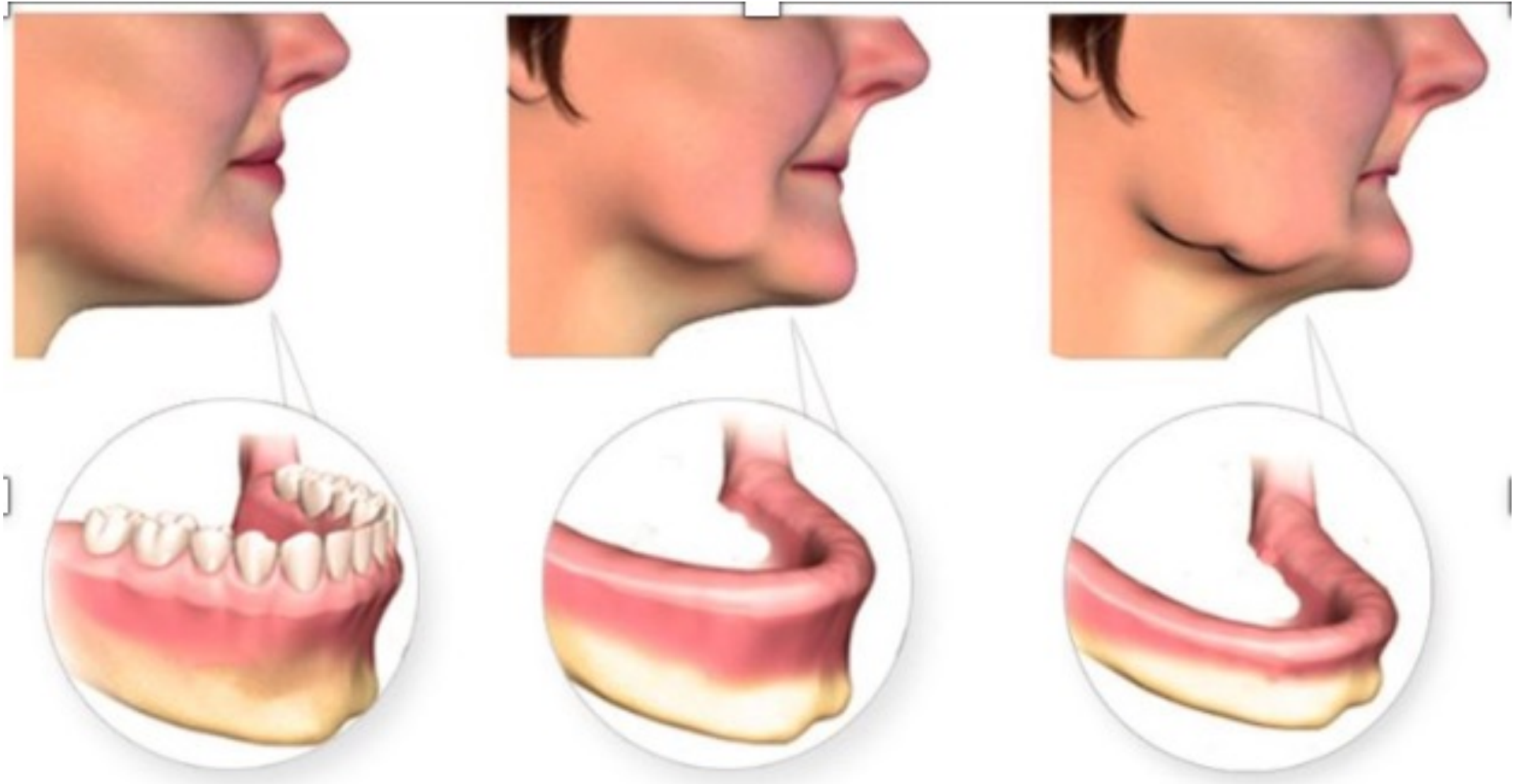
Extra
stress on
remaining
teeth



Loss of
occlusal
vertical
dimension



THE EDENTULOUS MOUTH



Healthy bone level

Bone begins to recede
after teeth are extracted

Bone loss continues without
intervention (severe atrophy)

ANGULAR CHEILITIS

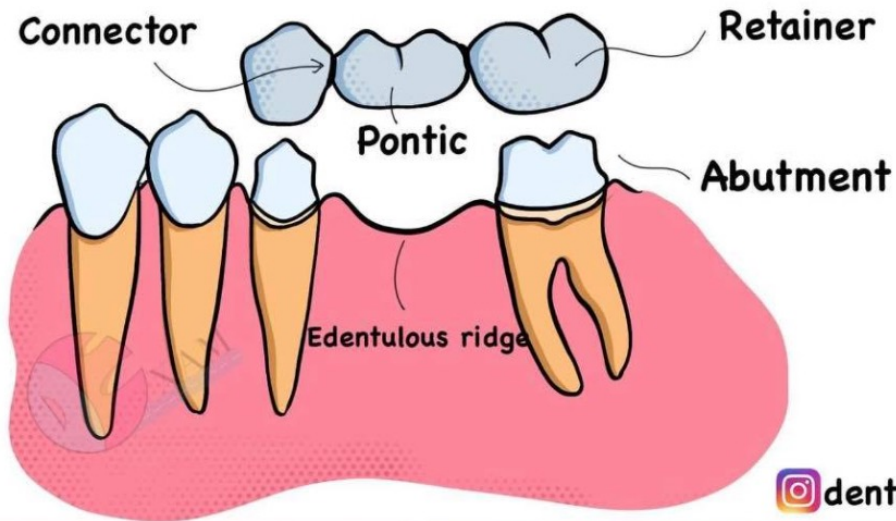
- Inflammatory skin condition
- Cracking, dry lips and corners of the mouth
- Saliva pools in the corners of the mouth
- Bacterial /Fungal infection
- **Treatment:** Anti-fungal creams/ steroids or antibiotics
- **Treatment: Diet rich in protein, Iron, Vit B**



ROLE OF THE DENTAL HYGIENIST

- **EDUCATE** the patient
 - Explain each choice thoroughly
 - Answer questions from the patient
 - Nutrition recommendations
 - Oral Hygiene recommendations
- **DOCUMENT** what was discussed by you **AND** the dentist

FIXED PARTIAL DENTURE (FPD)



- Fixed partial denture = BRIDGE
 - Non-removeable
 - Affixed to teeth and/or implant with cement

Can be made of:

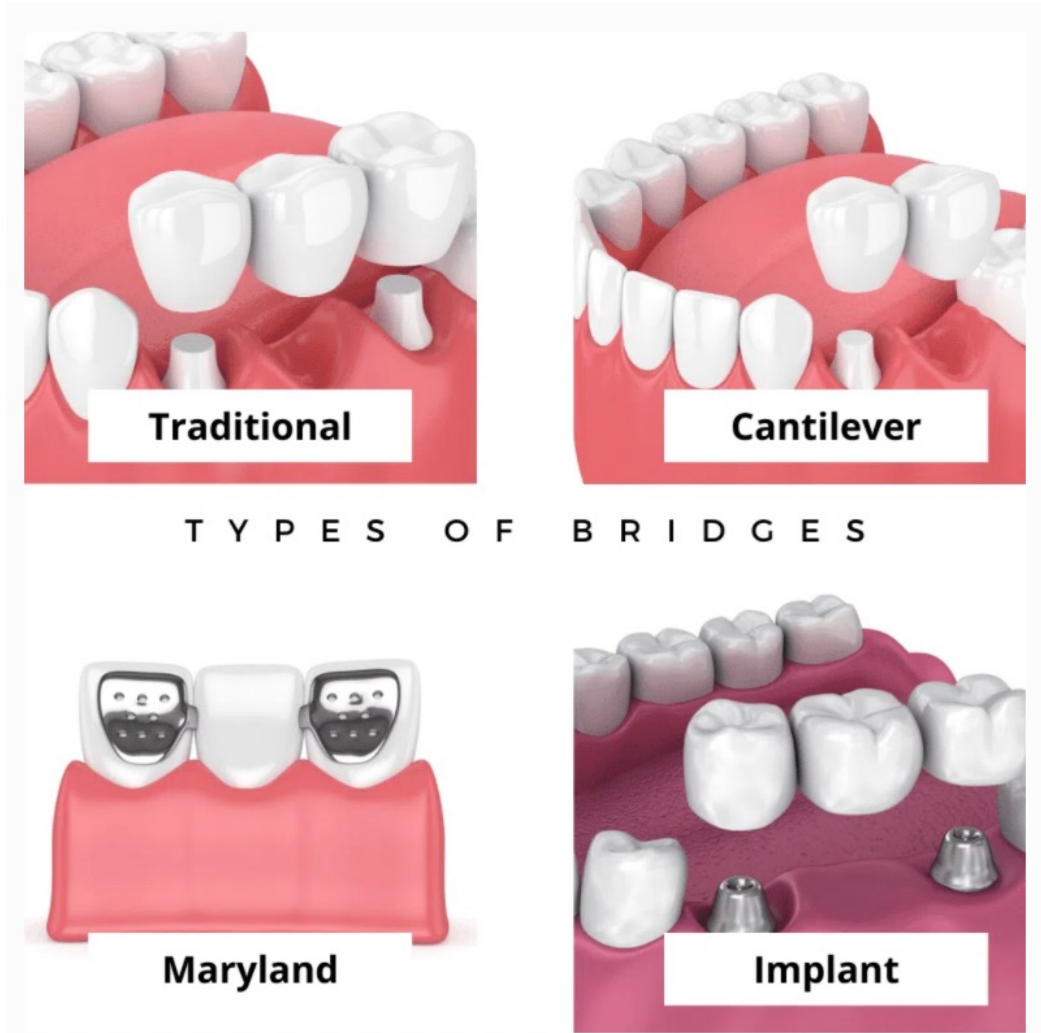
- Metal—Gold
- Ceramics—Zirconia
- Both--PFM

Retainer	Unit of FPD that attaches abutment to the suspended unit
Connector	Unit of FPD that attaches retainer to the suspended unit
Pontic	Suspended portion of FPD that replaces the missing tooth
Abutment	Abutment is the natural tooth or root which retains or supports the bridge

TYPES OF FIXED PARTIAL DENTURE (FPD)

- Natural tooth supported
 - Traditional/ Bi-lateral
 - Cantilever
 - Resin-retained/ Maryland bridge
- Implant supported
 - Endosteal implants as abutments
 - Bridge
 - Overdenture

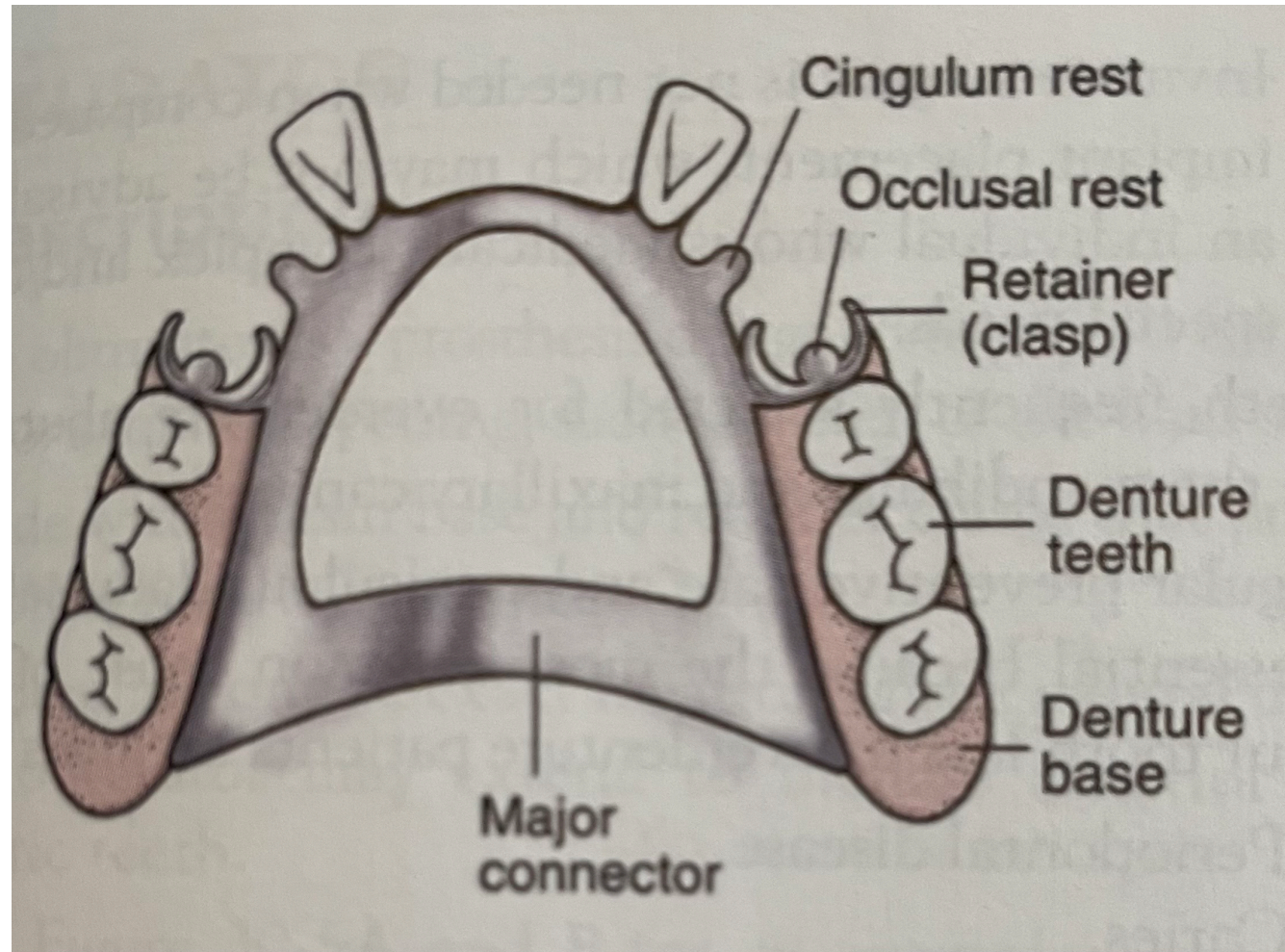
TYPES OF FIXED PARTIAL DENTURES (FPD)





ANY SUSPICIOUS AREAS?

COMPONENTS OF REMOVEABLE PARTIAL DENTURE (RPD)



PRECISION ATTACHMENT REMOVABLE PARTIAL DENTURE



Precision attachments are the functional mechanical parts of the removable partial denture made of plastic, metal or a combination of both.

Fixed bridge connects to RPD; female and male attachment

CRITERIA FOR FIXED PARTIAL DENTURE (FPD)

- Biologically and esthetically a good fit
- All parts can be cleaned by the patient and dental professional
- Does not interfere with cleaning the other teeth
- Does not traumatize oral tissues
- Restores function of missing teeth

REMOVABLE PARTIAL DENTURE (RPD)

- Framework engages abutment teeth/ implant with a variety of clasps/ precision attachments
- Types of RPDs
 - Cast metal framework-- uses precision attachments
 - Acrylic clasp
 - Flexible-- Valplast
 - Best option if allergic to metal/ acrylic
 - More expensive



Lower Acrylic



TYPES OF REMOVEABLE PARTIAL DENTURES (RPDS)



Hard Acrylic Denture



Metal Denture



Flexible Denture

TYPES OF REMOVEABLE PARTIAL DENTURES (RPDS)



Flipper



TYPES OF COMPLETE DENTURES

Tissue-supported complete denture

Implant denture

Overdenture

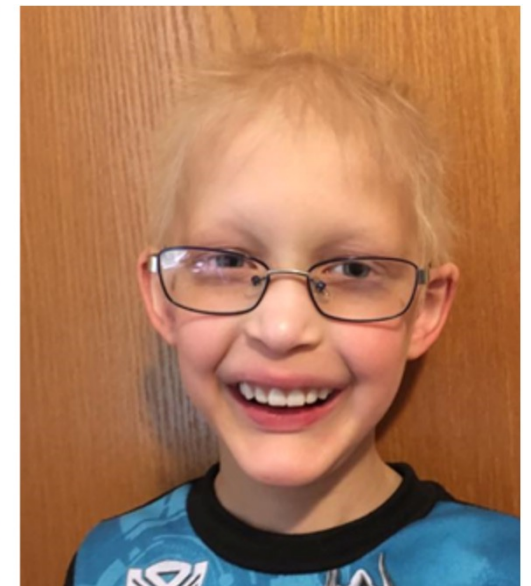
Interim denture (Provisional/ Temporary)

Immediate denture

Denture of primary teeth

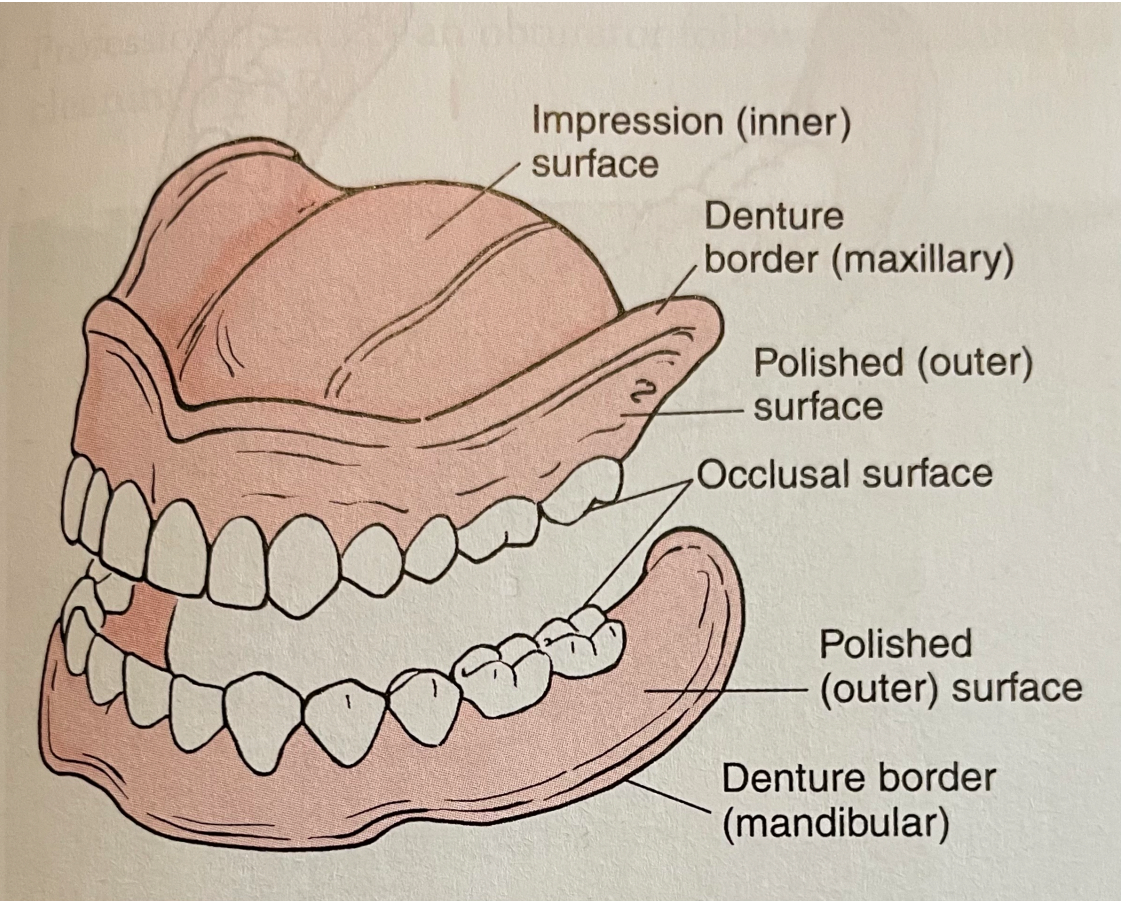


Ectodermal dysplasia



nfed.org, 2022

COMPONENTS OF A DENTURE



COMPLETE OVERDENTURE

- Root-supported
- Implant-supported



COMPLETE OVERDENTURE ROOT-SUPPORTED

- Canines most common abutments
- Routine dental check-ups still needed



COMPLETE OVERDENTURE IMPLANT-SUPPORTED

Mandibular Overdenture

Two canine
implants

Cost effective

Great success rate

Maxillary Overdenture

Four or more
implants

Not cost effective

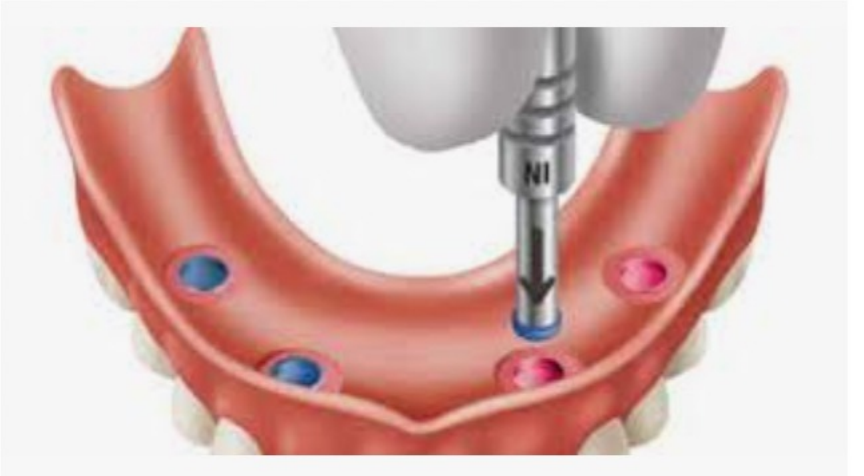
Advantages

- No risk for dental caries
- Less alveolar bone
- Improved stability and retention

COMPLETE OVERDENTURE IMPLANT-SUPPORTED (ZEST)



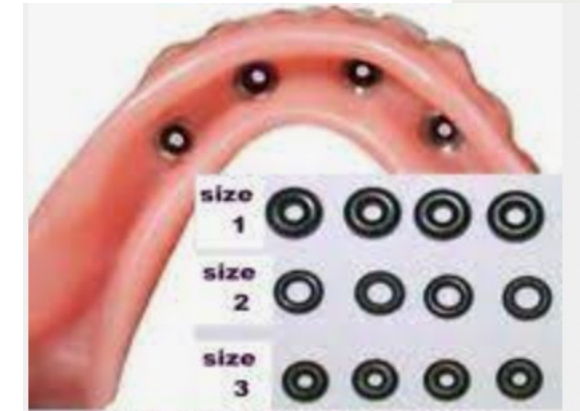
Locator



COMPLETE OVERDENTURE IMPLANT-SUPPORTED (MINI-IMPLANTS)



Implant Supported Overdentures I.D.P.



OBTURATOR

A prosthesis used to close a palatal defect in a dentate or edentulous mouth



Clinical Applications

- Intra/ Extraoral Exam—might need to stay in place
- Remove for X-rays
- Remove for cleaning in office
- Same Cleaning method as RPD
- Might sleep with appliance in
- Increased risk for dental caries and denture stomatitis
- Remove during the day—Allow tissue to rest



DENTURE MARKING FOR IDENTIFICATION

Required by law in some countries and in most US states

Used to ID victims in forensic dentistry

ID individuals with Alzheimer disease, amnesia or in emergency situations

Individuals in long-term care facilities must have ID

ID includes person's name and initials

Types of ID markings

- ID-Band
- ID- Strip
- Electronic microchip
- Laser-Etching
- Radio-frequency identification (RFID)
- Bar codes



PROFESSIONAL CARE FOR FIXED DENTURE



Patient assessment

- Health history
- X-rays
- Probing depths
- Where is the plaque/ calculus?
- Go over findings with patient
- Make oral hygiene aid recommendations
- Instruct patient using the mirror
- Show patient what OH products look like

PATIENT SELF-CARE FOR FIXED DENTURE

Oral irrigate

Water flosser

Toothbrushing method

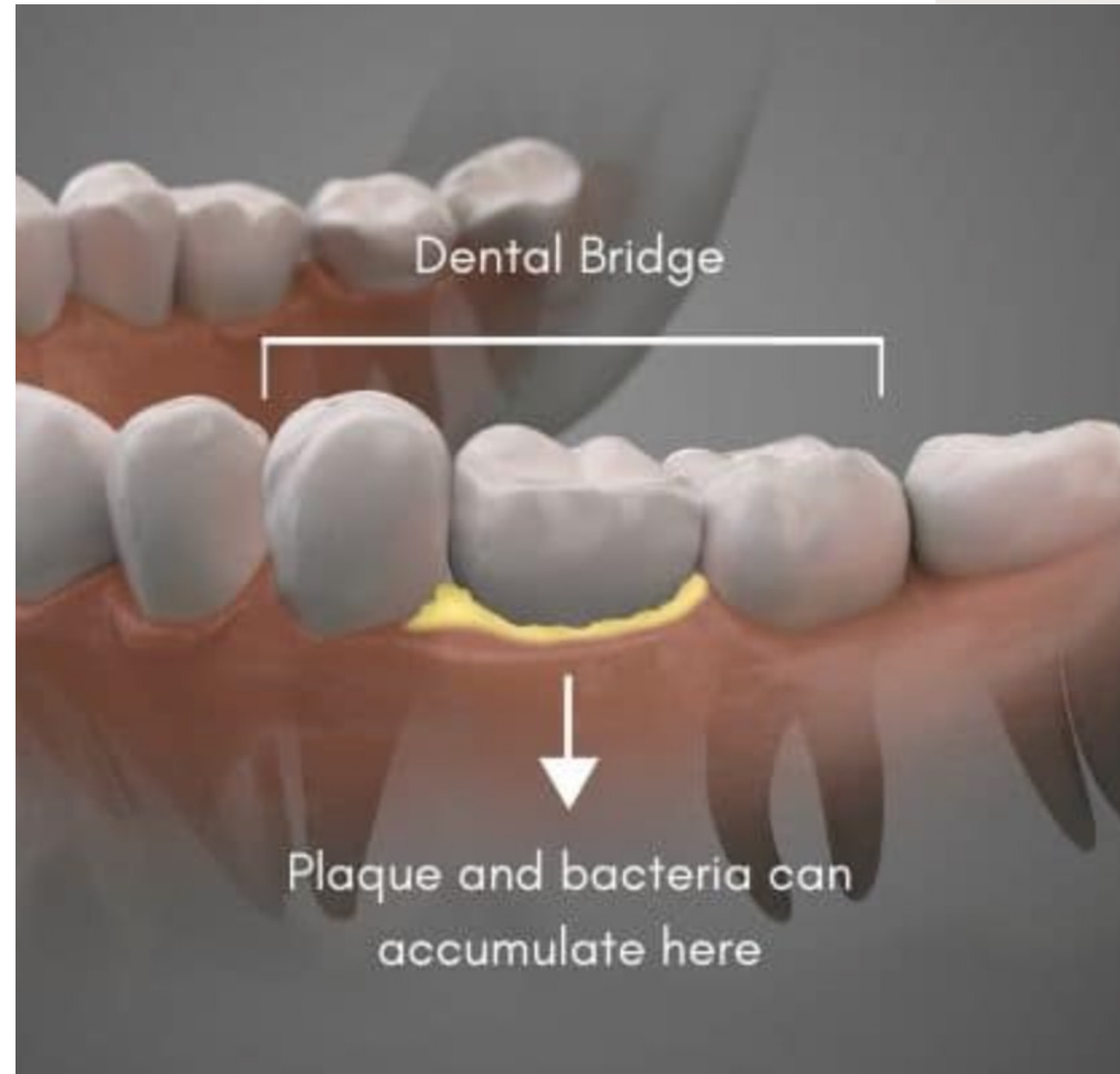
Toothpaste

Interdental care

Soft-pick

Superfloss

Threaders



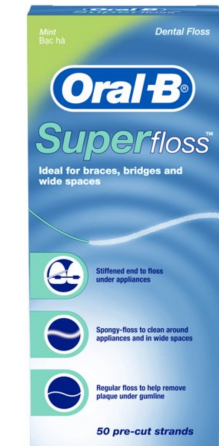
PATIENT SELF-CARE FOR FIXED DENTURE

Toothbrushing

- Charter's method
- Electric toothbrush

Flossing

- Superfloss
- Threader/Floss
- Insert at abutment, under connector



PATIENT SELF-CARE FOR FIXED DENTURE

Interdental Oral Hygiene Aids

- Single-tuft brush
- Proxy brushes/ interdental brushes



Water flosser

- Waterpik



Preventative agents

- Chlorahexadine
- Prevident 5000



Patient presents for hygiene appointment with several interproximal caries. The dentist prescribed Prevident 5000[®] for the patient to incorporate into his oral hygiene routine at night. As the dental hygienist, you recommended superfloss and a Waterpik[®] to aid in cleaning under and around the abutment teeth of the bridge. What order should the patient complete his routine?

- A. Waterpik, Floss, Brush
- B. Brush, Floss, Waterpik
- C. Floss, Brush, Waterpik

Why is this important?

PROFESSIONAL CARE FOR REMOVEABLE PARTIAL DENTURES

- 1. Have patient place denture in Ziploc bag (Double baggie)**
- 2. Fill bag with approved cleaner**
- 3. Close/ lock both bags**
- 4. Place in Ultrasonic**
- 5. Remove partial denture from baggie**
- 6. Rinse under water**
- 7. Use denture brush**
- 8. Repeat steps 4-7 if denture is still dirty**
- 9. When clean wrap in wet paper towel**
- 10. Rinse before returning to patient**

PATIENT EDUCATION

Stress the Importance of OH

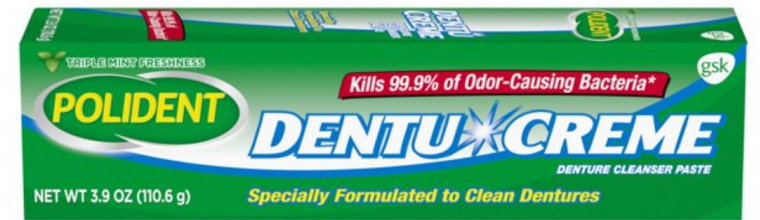
- Abutment teeth increased risk for decay and periodontal disease
- Develop OH routine for the patient based on their needs

Recommendations

- Denture should be removed at night (6-8 hours)
- Clean denture 2x per day
- Store in cleaning solution overnight
- Recall appointments are necessary

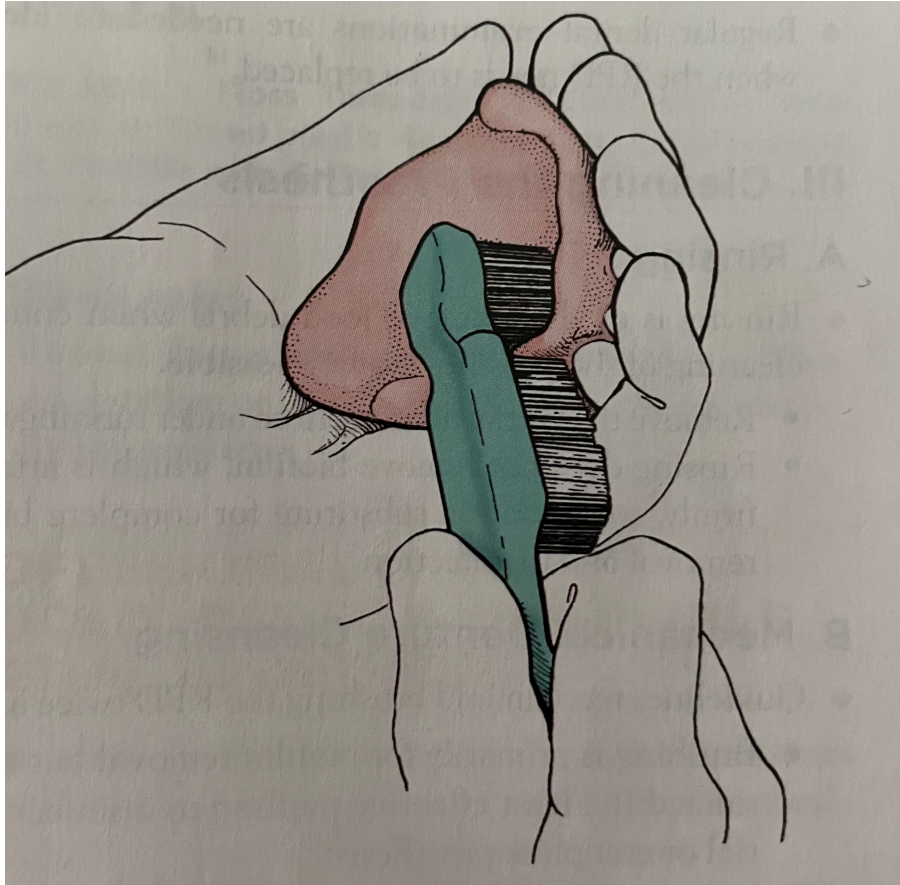
How to Brush:

1. Remove the denture
2. Rinse with water
3. Recommend brushing RPD 2x per day
 - Denture brush
 - Clasp brush
 - Specific non-abrasive toothpaste (extra-oral only)
 - Dishwashing liquid



Brushing does not eliminate *Candida*

How to Brush:



Denture Cleaning By Immersion

- Types of cleaners
 - Powder
 - Tablet



*Include a variety of active agents such as hypochlorites, enzymes, and peroxides

Denture Cleaning By Immersion

- Research has show that denture cleaners with sodium hypochlorite are most effective at killing pathogens such as *Candida* and *Staphylococcus aureus*
- *Do not use on RPD with metal*
- ***DO NOT SOAK FOR MORE THAN 10 MINUTES***

**BOX 41.8 Inexpensive, Safe, and Effective
Cleansing Solution for Removable Dental
Prosthesis Devoid of Metal**

- 1 tablespoon (15 mL) sodium hypochlorite (household bleach)
 - 6 ounces (177 mL) water
- After soaking, the oral appliance must be rinsed thoroughly with water before reinsertion into the oral cavity.



(Sodium hypochlorite)

TABLE 41.2 Removable Dental Prostheses Cleansing Products

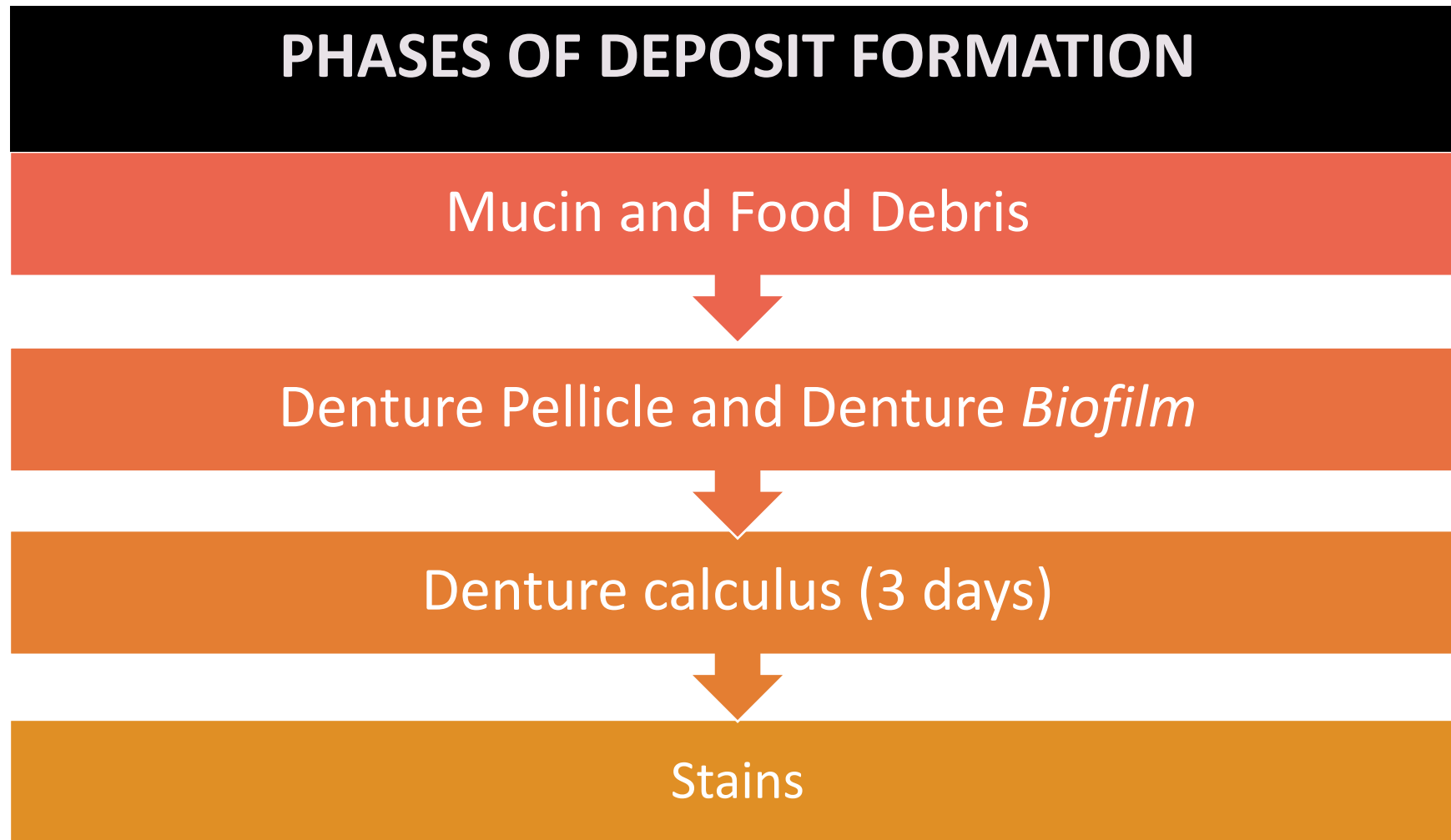
Product	Mechanism of Action	Advantages	Disadvantages
Chemical Cleansers			
Alkaline hypochlorite	Dissolves mucins and organic substances of prosthesis biofilm matrix.	Bactericidal cleanser. Fungicidal cleanser. Bleaches stains. May inhibit calculus formation.	Corrodes metals. Odor and taste may be unacceptable. May bleach acrylic if used in high concentration or for prolonged periods.
Alkaline peroxide	Mechanical cleansing effect is caused by the release of oxygen (bubbling).	Provides some antibacterial effect. Removes stains.	Harmful to soft liners. Not very effective in removing calculus.
Antimicrobial Cleansers			
Chlorhexidine gluconate solution	Antimicrobial action is caused by chemical agent.	Antibacterial cleanser. Antifungal cleanser.	Provides temporary relief of denture stomatitis symptoms. Stains denture teeth.
Ultrasonic cleaning devices	Ultrasonic sound wave action creates vibrating and bubbling effect.	Removes biofilm. Enhances effectiveness of chemical cleansers.	Commonly an in-office procedure. Efficacy of ultrasonic action is uncertain.
Microwave radiation (in-office use only)	Electromagnetic waves kill microorganisms.	Bactericidal cleanser. Minimal negative effect on resilient liners.	High temperatures can affect dimensional stability of a denture.

PROFESSIONAL CARE FOR COMPLETE DENTURE

- 1 year recall appointments
- Ultrasonic Cleaning
 - Approved cleaners
 - Ultra-Kleen , BioSonic Enzymatic,
- Avoid hand-scaling if possible



DENTURE DEPOSITS



*In stomatitis, denture biofilm contains *Candida albicans* with higher levels of *Prevotella* and *Veillonella*

PROFESSIONAL CARE FOR COMPLETE DENTURE

1. Have patient place denture in Ziploc bag (Double baggie)
2. Fill bag with approved cleaner
3. Close/ lock both bags
4. Place in Ultrasonic
5. Remove partial denture from baggie
6. Rinse under water
7. Use denture brush
8. Repeat steps 4-7 if denture is still dirty
9. When clean wrap in wet paper towel
10. Rinse before returning to patient



THE NEW DENTURE WEARER

- Stress the importance of recall appointments
- It may take awhile to adjust to the new denture
- Will have to adapt to their new appearance
- Chewing/mastication is challenging (6-8 weeks)
- Cover mouth when coughing/ sneezing
- Upper denture can affect taste/ swallowing
- Can affect speech
- Typically have a high sugar diet
- Make recommendations for a high-protein diet with healthy choices





AT-HOME DENTURE CLEANING

Why is it important for the patient to clean the dentures at home?

- Prevent Oral Mucosal Lesions -OMLs
 - Reduce bacteria levels
 - Prevent halitosis
 - Maintain appearance of denture
- **Cleaning methods are the same as RPDs

DENTURE ADHESIVES

Benefits

- Improve stability and retention of denture
- Might be needed after tissue begins to heal post extractions (Interim/ Immediate denture)

Dental hygienist needs to provide instruction:

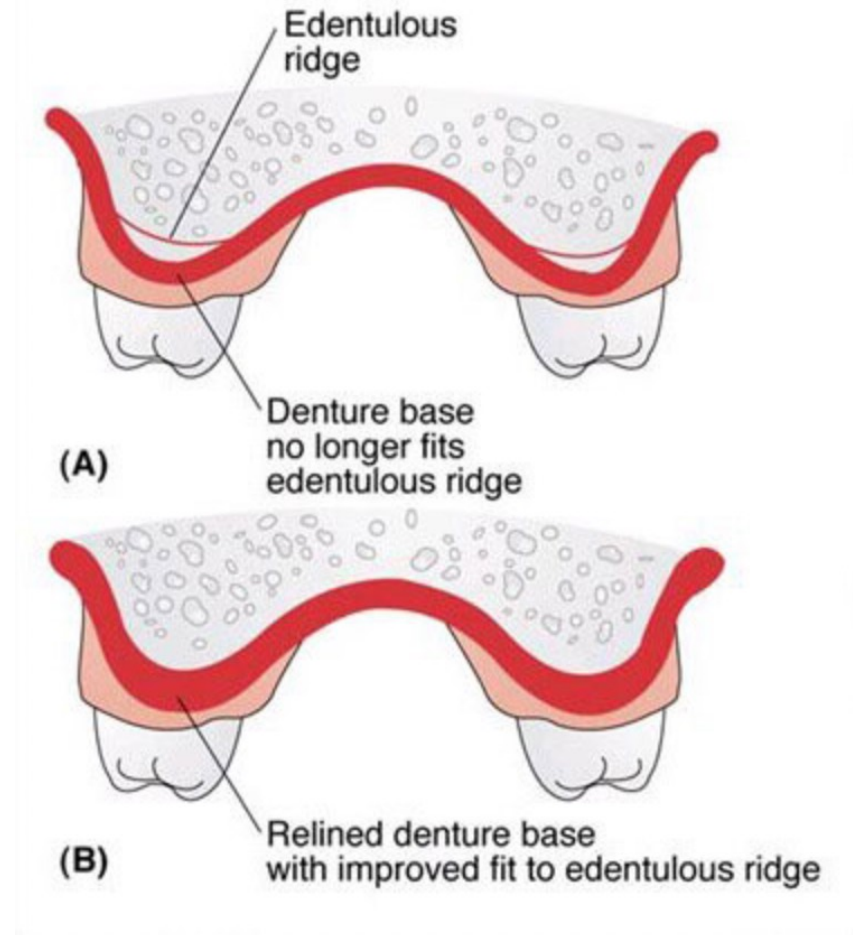
- Clean and dry the denture
- 3-4 pea size drops on each corner of the denture
- Powder adhesive
 - Dampen denture and apply thin film to entire surface, shake off the excess
- Pad adhesive
 - Adapt size to surface of denture
 - Once applied—bite firmly and hold for 5-10 seconds
 - Remove excess

***** Remind pt to remove and clean denture daily, soak overnight**



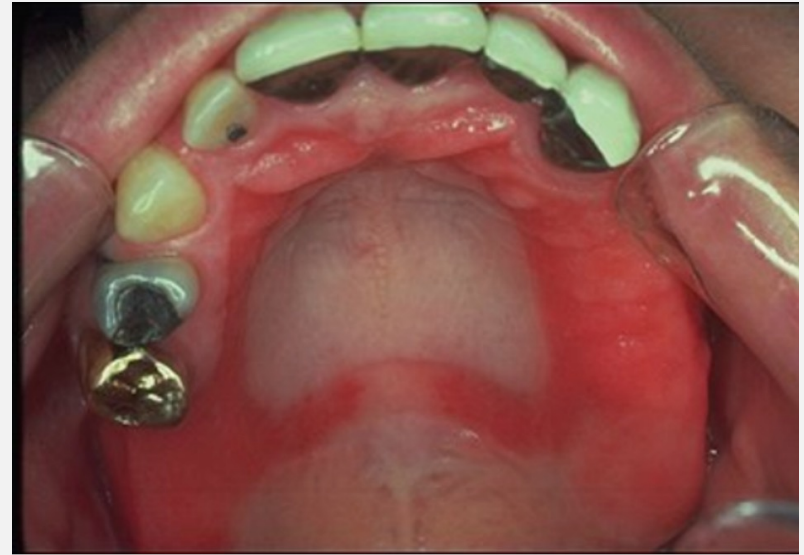
RELINING OF COMPLETE DENTURE

- Patient complains of food getting trapped under denture and not fitting properly
- Impressions made and sent to lab with the denture
- Pt needs to be aware of the turnaround time from lab
- Cleaning of relined denture is the same as complete denture



DENTURE-INDUCED ORAL MUCOSAL LESIONS (OMLS)

- Appearance: *Red, inflamed area, sometimes ulcerated*
- Ulcer may resemble cancerous lesion and need to be biopsied if lesion exists (7-14 days) after denture adjustment



Factors causing OMLS

Ill-fitting dentures

Improper storage of denture

Inadequate oral hygiene

Continuous wearing of dentures

Chemotaxic effect of denture cleaner/ paste (not being rinsed well)

Allergy to denture

Using over-the-counter Reline products

Xerostomia

DENTURE STOMATITIS

- **Generalized inflammation and erythema of mucosa covered by denture**
- **May be asymptomatic, most patients experience pain, itching, or burning sensation**
- **Often associated with *C. albicans***
- **More common in the maxilla**
- **More common women**



DENTURE STOMATITIS

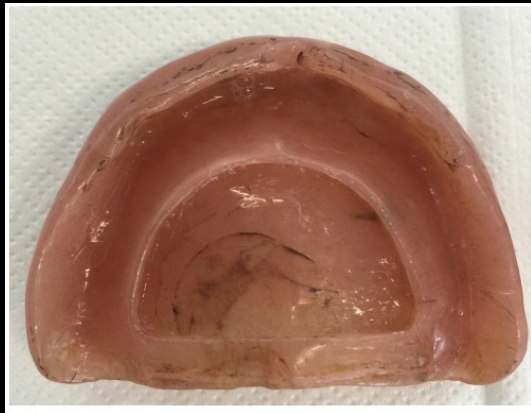
Etiology/ Cause

- Poor dental hygiene
- Continuous wearing of denture
- Cigarette smoking
- Wearing dentures longer than 5 years
- Elderly denture wearer
- Trauma from ill-fitting denture

Treatment

- Denture adjustments/ new denture
- Testing for *Candida*/ Rx for antifungal med
- Daily cleaning of denture

DENTURE STOMATITIS—CASE STUDY



20 year-old denture with vacuum chamber



Tissue hyperplasia due to vacuum chamber



Reline denture



Tissue 5 weeks after reline

ANGULAR CHEILITIS

Contributing Factors

- Infection of *Candida*
- Poor oral hygiene
- Irritations from saliva from pooling at the corners of the mouth
- B vitamin deficiency can make it worse (healthy diet is important)
- More common in females
- Patient does not necessarily have to be edentulous
- Rx antifungal may be recommended



TISSUE HYPERPLASIA

Epulis fissuratum

- Chronic inflammatory tissue
- Appears as growth the alveolar ridges
- Treated by laser/ scalpel removal
- *Closely related to inflammatory hyperplasia



Inflammatory hyperplasia

- Located on the palate
- Group of closely-arranged, pebble-shaped, red, edematous projections
- Associated with chronic injury from ill-fitting denture



Flabby ridge

- Mobile soft tissue on superficial aspect of alveolar ridge due to replacement by fibrous tissue
- Common on the anterior of the maxilla
- Surgical excision/ Remake new denture
- Make denture without removing lesion



DOCUMENTATION

- Review medical history
- Chief complaint
- Description of prostheses and stability
- Intraoral findings
 - Lesions
 - Soft tissue changes
 - Health of abutment teeth
 - Mobility, caries, wear facets
- Individualize oral self-care regimen



FOOD FOR THOUGHT

What is a bridge?

<https://www.youtube.com/watch?v=bwfAaJRjF5Q>

TePe single-tuft brush use

<https://www.youtube.com/watch?v=nQQIMEay35w>

Patient Education

<https://www.gumbrand.com/solutionfinder/dentures-or-removable-partial-dentures>



Now, you should be able to:

1

1. Identify characteristics of an edentulous mouth and oral changes associated with an ill-fitting oral prosthesis.

2

2. Compare and contrast types of fixed and removeable denture prostheses and the challenges associated with replacing missing teeth.

3

3. Describe the different methods of cleaning fixed and removeable appliances at home and in the office.

4

4. Develop a tailored oral hygiene plan for the edentulous and partially edentulous patient.

5

5. Demonstrate a commitment to your role as a dental hygienist in educating and providing treatment to the edentulous patient.

QUESTIONS?



CASE STUDY

Wanda Smith has been a long-term patient at your dental office. She has been inconsistent with her cleaning appointments and she was last seen at your office in 2015. At that appointment, the dental hygienist noted 7-8mm pockets and discussed with the patient the progression of periodontal disease and recommended a referral to the periodontist. Wanda never went to the periodontist and never came back to your office. Now, Wanda is having generalized discomfort and pain so she calls your office to get scheduled. It has been over 5 years, so the front desk gets Wanda in on your schedule for an FMX and Comp Exam. The x-rays reveal severe periodontal disease and your periodontal readings agree with this. You consult with the Dr. your findings. The Dr. comes in and explains to the patient that her teeth cannot be saved. The treatment plan includes full mouth extractions with a full upper and full lower denture. Wanda is devastated with this news. She knew her teeth were in bad shape, but never thought she would need to have them all removed. Wanda comes back in two weeks for the extractions and immediate denture. The Dr. asks that you come in and provide instruction to the patient for her new denture care.

- **What instructions will you provide to her at denture delivery appointment?**
 - **care of denture, recall appointment, what to expect,**

RESOURCES

- Images: https://www.researchgate.net/figure/Fig-1-Pre-operative-completely-edentulous-mouth_fig1_342700908
- <https://smilepoint.com.au/gum-disease-periodontitis-effects-treatments/>
- https://en.wikipedia.org/wiki/Periodontal_disease
- <https://www.hindawi.com/journals/crim/2012/535321/fig2/>
- <https://smilestore.ie/denture-wearers-risk-malnutrition/>
- <https://www.villagegreendentures.com/blog/dentures-worn-and-flat-dont-chew-well/>
- <https://www.jaypeedigital.com/book/9788184484649/chapter/ch2>
- <https://www.dentistrytoday.com/sp-212429722/>
- https://www.facebook.com/thegrandprairiedentistimplantsandbraces/photos/a.894911467234534/4191562474236067/?type=3&eid=ARChPiAeJ_WAX88fGS52hj-93DBXxpmxNMwR8tMZX3VKIQAtBLAY761pnNKz8KXjIGLHm1viCNp_5U7t&_rdr
- <https://texas-dental-implants.com/bridge-or-dental-implant/>

Resources

<https://eurodenture.com/blog/flipper-tooth-what-you-need-to-know/>

<https://www.nfed.org/blog/dentures-for-kids/>

<https://kumarkolar.com/the-ultimate-guide-to-flexible-dentures/>

<https://www.qualitydentallab.com/product/1-2-tooth-acrylic-dental-flipper-partial>

<https://dentalstudio.sg/blog/restorative-dentistry/how-to-care-for-your-dental-bridge/>

<https://luxden.com/missing-teeth-or-tooth-bone-loss/tooth-bone-loss/>

<https://pocketdentistry.com/31-overdentures/>