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**WESTERN
AUSTRALIA**



Oral Health Centre
of Western Australia

Introduction to Removable Partial Denture

Dr Matsubara



LEARNING OUTCOME

- Discuss the importance of teeth for the digestive/masticatory system, aesthetics, phonetics, TMD
- Discuss the impact of masticatory function on the mental health and cognitive function
- Discuss bone remodeling after tooth loss
- Provide the main reasons for tooth loss
- Define and describe the Combination Syndrome
- Discuss the indications, benefits and limitations of RPD

Importance of Teeth

- The acquisition, cutting and trituration of food
- Loss of masticatory efficiency

Saliva:
Lubrication,
Enzymes (amylase)
Buffering capacity



Digestive efficiency
nutrient extraction

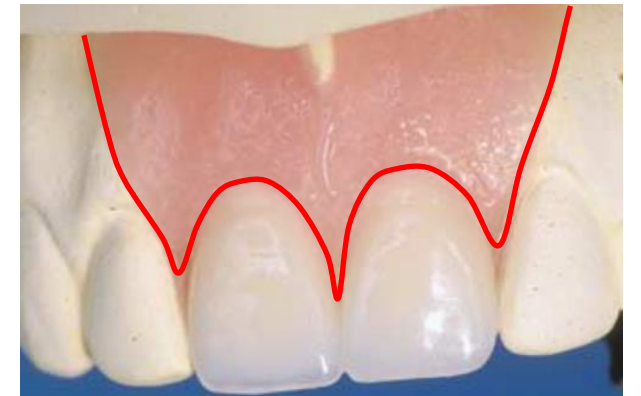
Change in diet

 Fruits and vegetables – less vitamins, immune system compromised
Fibers - stomach and intestinal problems

Importance of Teeth

- Aesthetics - Lip and cheeks support, vertical dimension

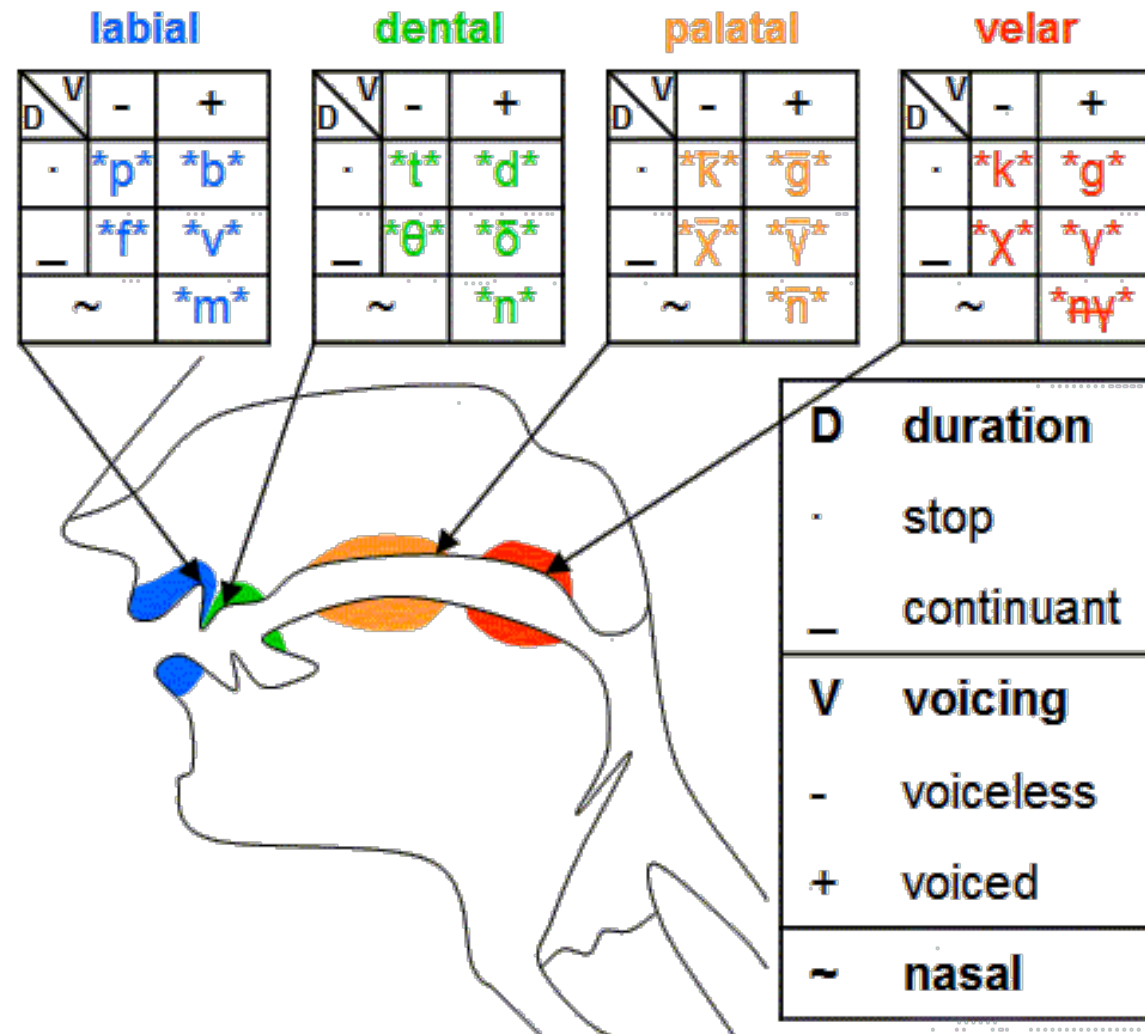
Premature ageing



Masticatory System

Importance of Teeth

- Phonetics
- Accurate pronunciation



Importance of Teeth

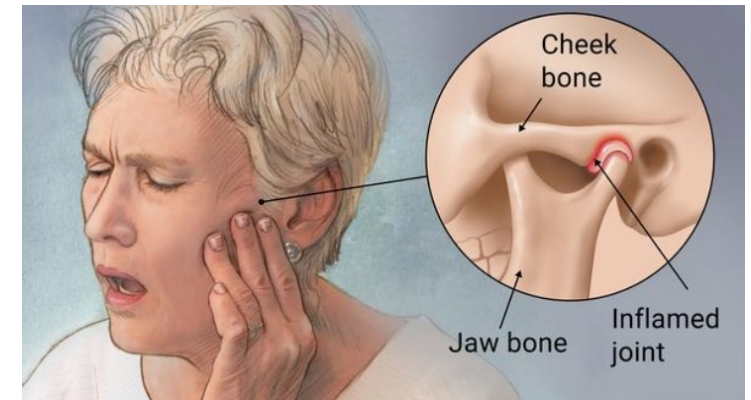
- Good occlusion
- Occlusal changes



Interferences
Premature
contacts

Unbalanced muscle
contraction

Temporomandibular
disorders (TMD)



Importance of Teeth

- Mental health

Tooth loss →

Low self-esteem
Loss of confidence
Psychological problems

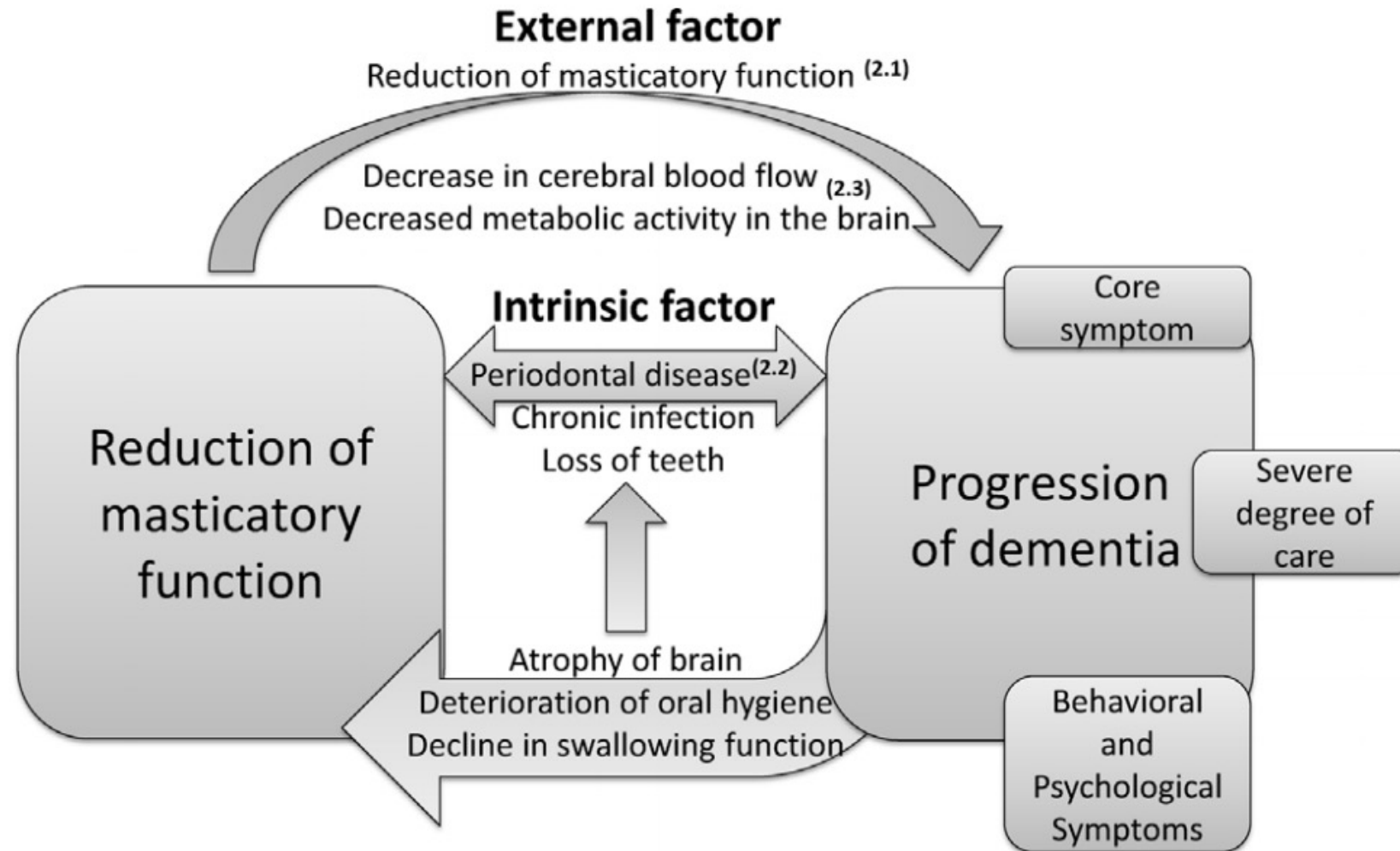
- Cognitive dysfunction

Increased risk for dementia, Alzheimer's disease

Cognitive dysfunction

- Regular sensory stimulation of mastication is essential for maintaining the learning and memory functions of the aged **hippocampus**
- The decrease of masticatory stimulation may reduce synaptic density in the **cerebral cortex** by decreasing sensory input to the cerebral cortex
- **Cerebellar** functions also seem to be influenced by masticatory activity: the increase in cerebellar activity during chewing may improve certain motor functions

Masticatory System



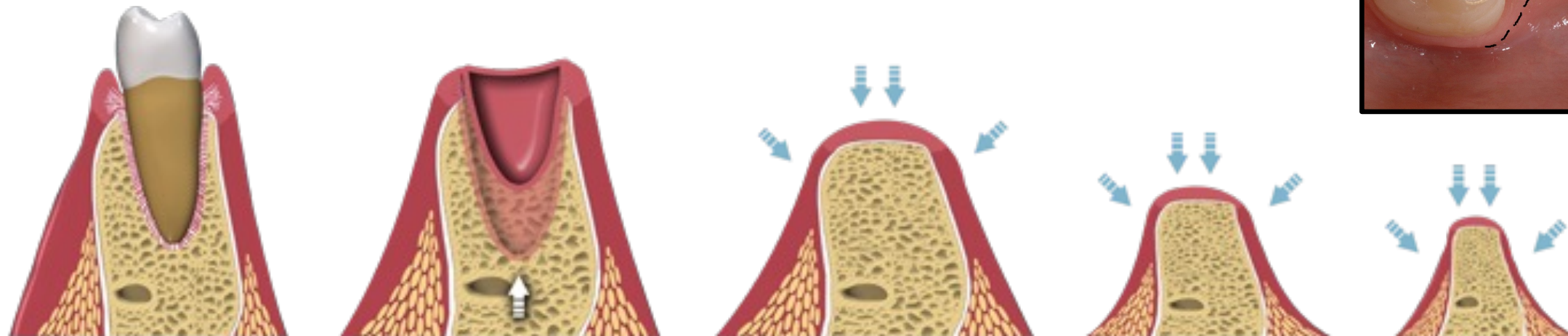
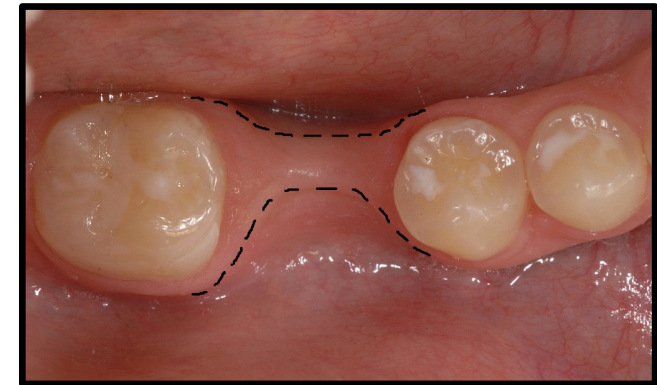
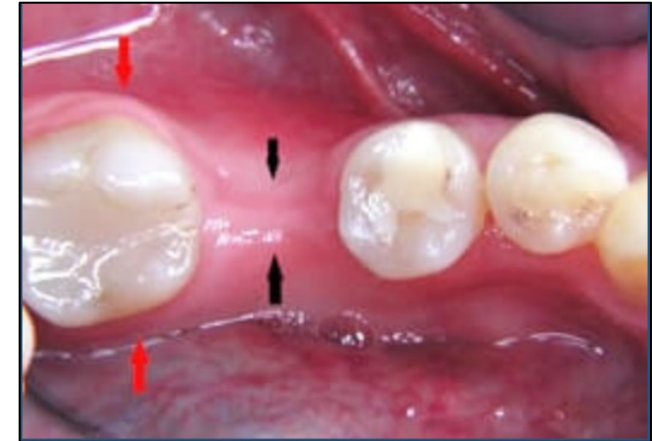
Importance of Teeth

- Maintenance of bone and soft tissues

Tooth loss



Loss of quality, width and height of bone



Reasons for tooth loss

- Congenitally missing teeth
 - ┌ Hypodontia: 1 to 6 teeth absent
 - ┌ Oligodontia: > 6 teeth
 - ┌ Anodontia: all primary or permanent

Partial or total (ectodermal dysplasia associated)
Primary, Permanent or Both
Uni or bilateral



Reasons for tooth Loss

- Congenitally missing teeth
- Caries
- Periodontal disease



Reasons for tooth Loss

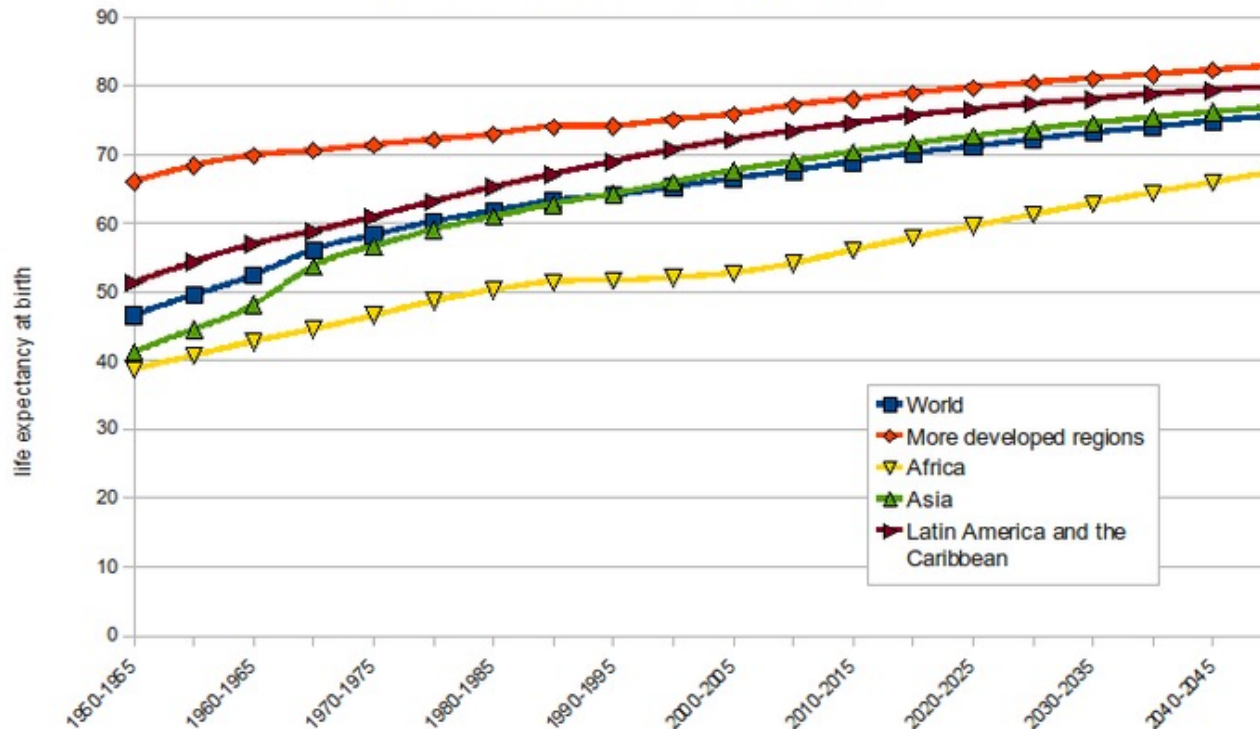
- Congenitally missing teeth
- Caries
- Periodontal disease
- Trauma
- Oral and maxillo facial surgery



Life Expectancy

Life Expectancy at Birth by Region, 1950-2050.

Source: UN World Population Prospects, 2008.



There is a significant increase of tooth loss with ageing

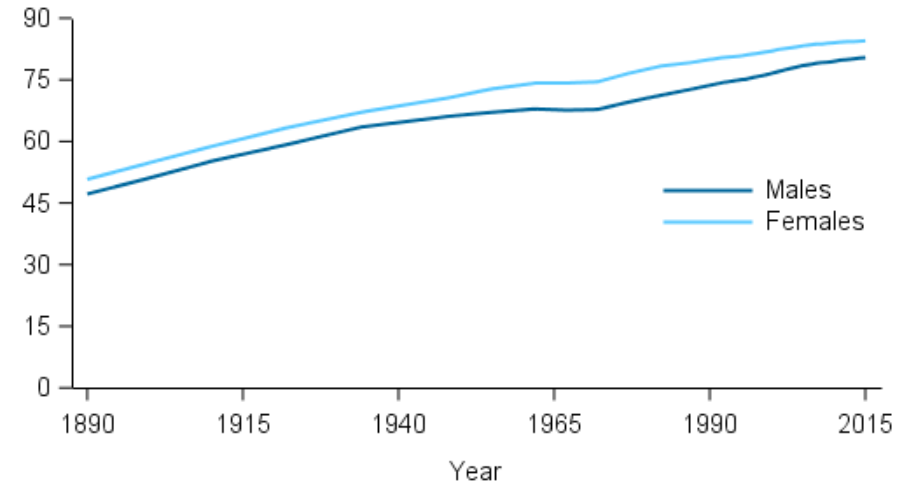
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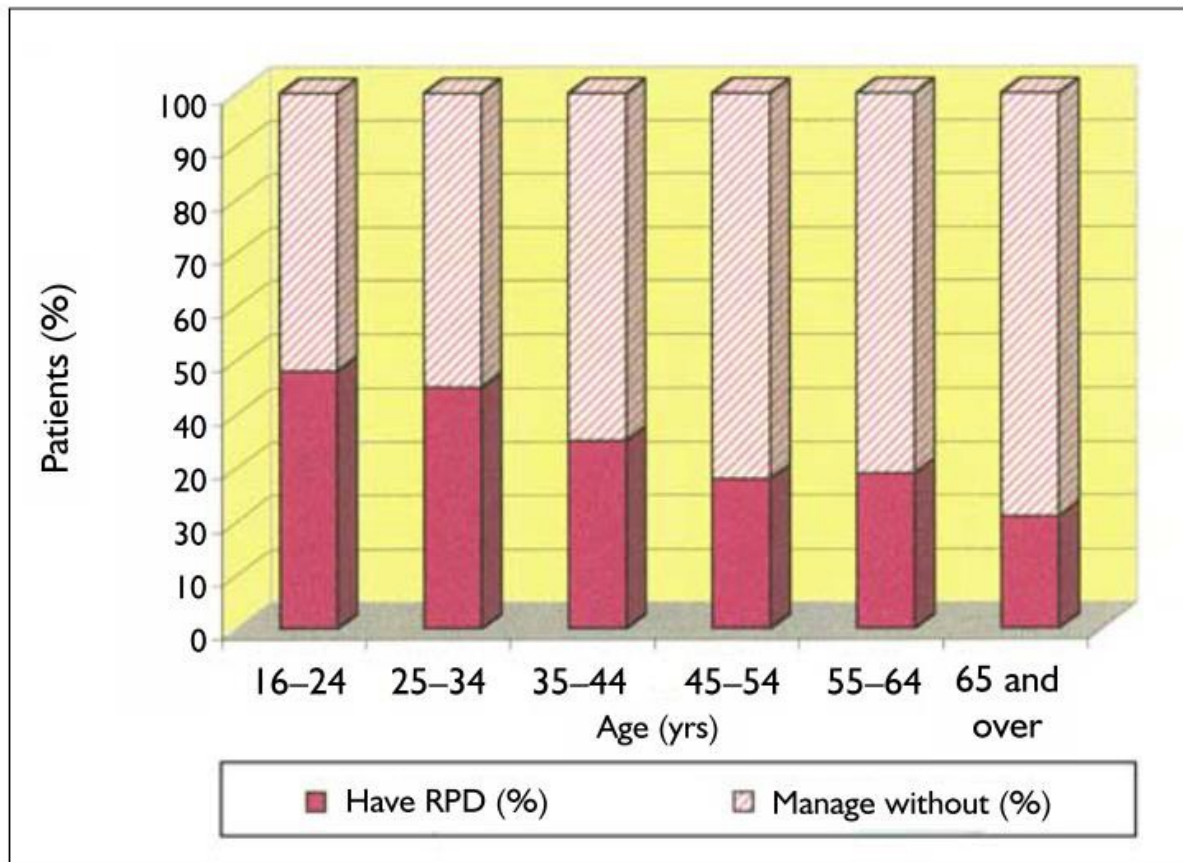
Male life expectancy: **80.3 years**

Female life expectancy: **84.4 years.**

Life expectancy at birth (years)

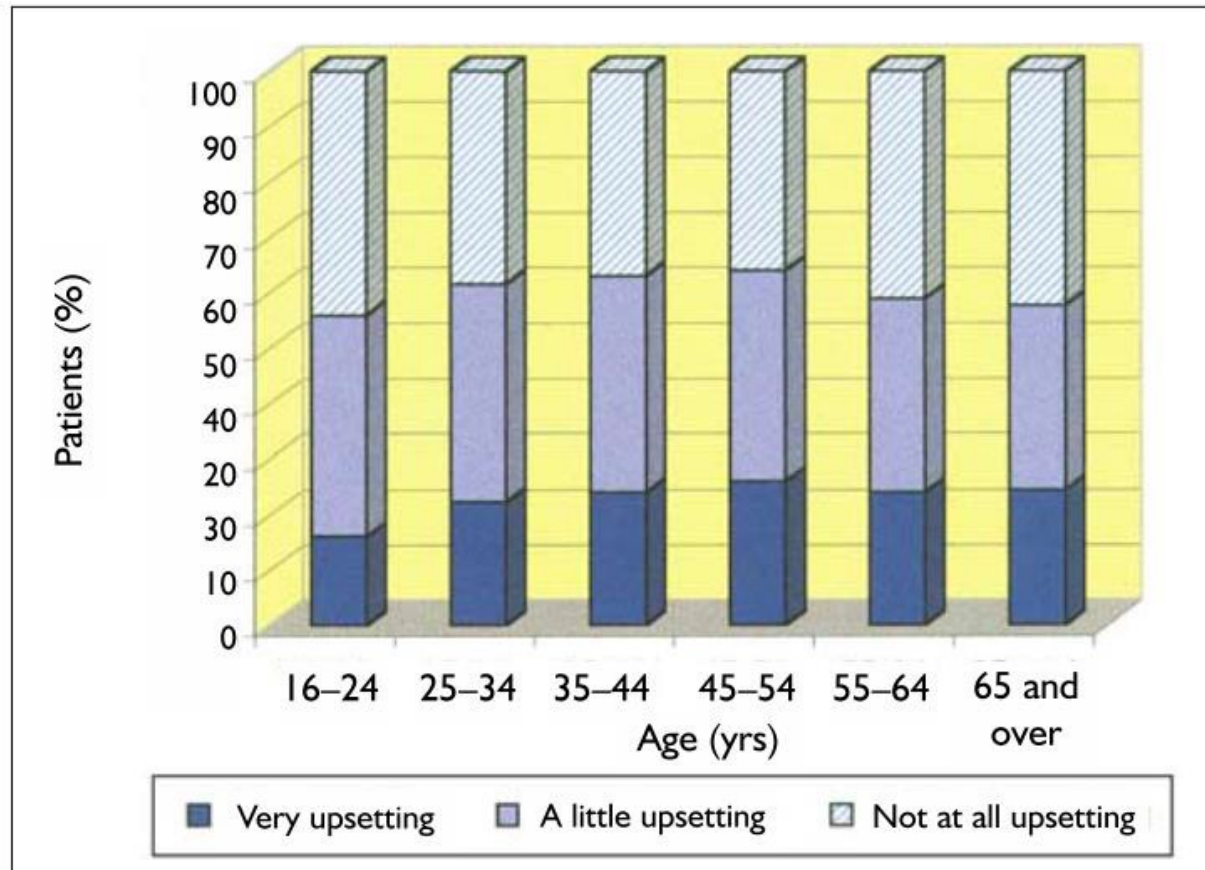


Need and Demand for Treatment



Most people prefer not to have missing back teeth replaced and the preference increases with age

Need and Demand for Treatment



Older people tend to find the usage of a RPD more upsetting than younger

Tooth Loss

- Inter-arch Difference

Maxillary teeth

Mandibular teeth

- Intra-arch Difference

Posterior teeth

Anterior teeth



Mandibular RPD



Maxillary Complete Denture

Combination syndrome



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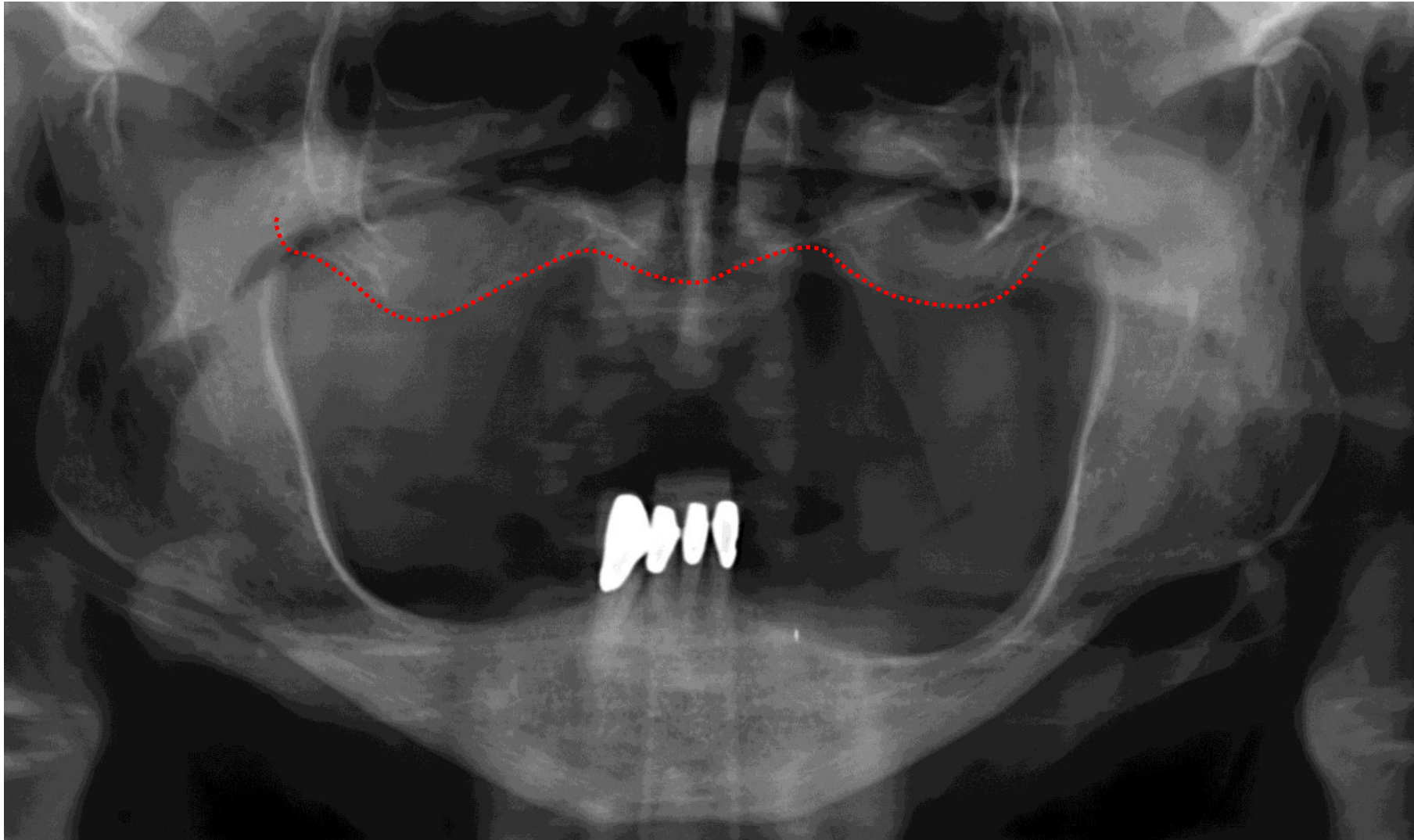
Combination syndrome



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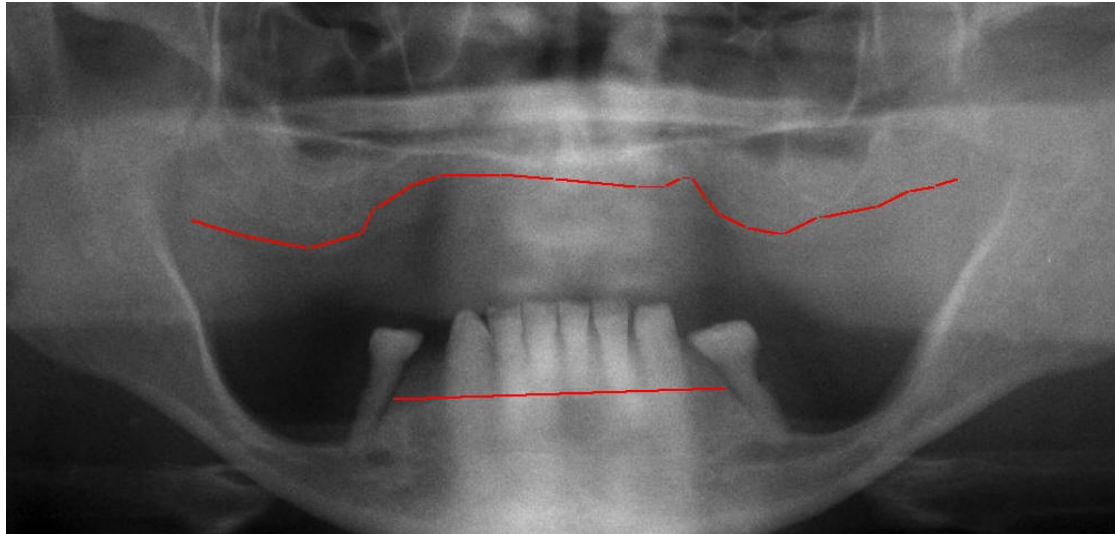
Combination syndrome



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- Edentulous maxilla is opposed by natural mandibular anterior teeth
- loss of bone from the anterior portion of the maxillary ridge
- Overgrowth of the tuberosities
- Extrusion of mandibular anterior teeth
- Loss of alveolar bone and ridge height beneath the RPD

PROSTHODONTICS

- Replace missing teeth and oral tissues
- Restore and maintain form, function, appearance, and health

Fixed Prosthodontics

Replace coronal portion of teeth and are rigidly fixed to the remaining teeth or implants



Removable Prosthodontics

Replacement of missing teeth and supporting tissues which is designed to be removed by the patient.



Maxillofacial Prosthodontics

Replace or restore lost or missing structures in the head and neck



Partial Edentulous Patients

Fixed vs Removable



Partial Edentulous Patients

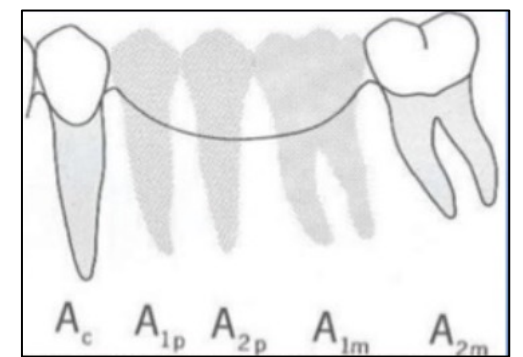
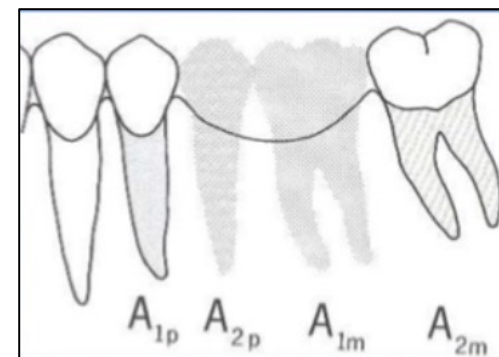
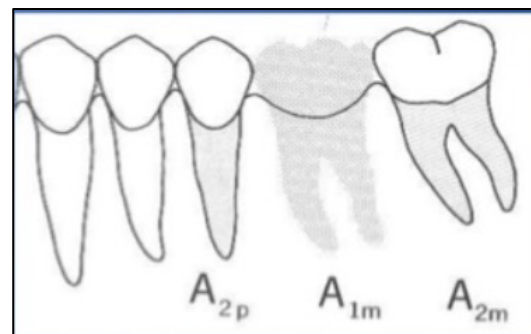
Fixed vs Removable

Contraindications for FPD

- Age of patients:
< 18 year old, old patients with low manual dexterity
- Length of edentulous area

Ante's Law

The total root surface area (periodontal membrane) of the abutment teeth for a FPD must be equal to or greater than the root surface area of the teeth being replaces

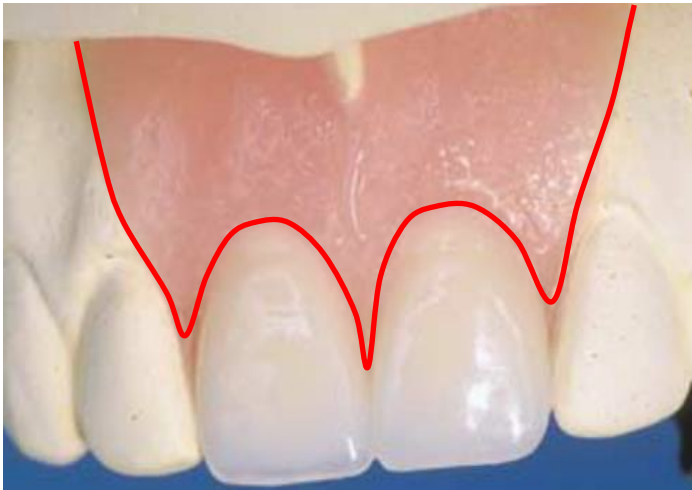


Partial Edentulous Patients

Fixed vs Removable

Contraindications for FPD

- Loss of supporting tissues



Partial Edentulous Patients

Fixed vs Removable

Indications of RPD

- Long-span edentulous area
- No distal abutment tooth



Partial Edentulous Patients

Fixed vs Removable

Indications of RPD

- Long-span edentulous area
- No distal abutment tooth
- Reduced periodontal support for remaining teeth
- Need for cross-arch stabilization

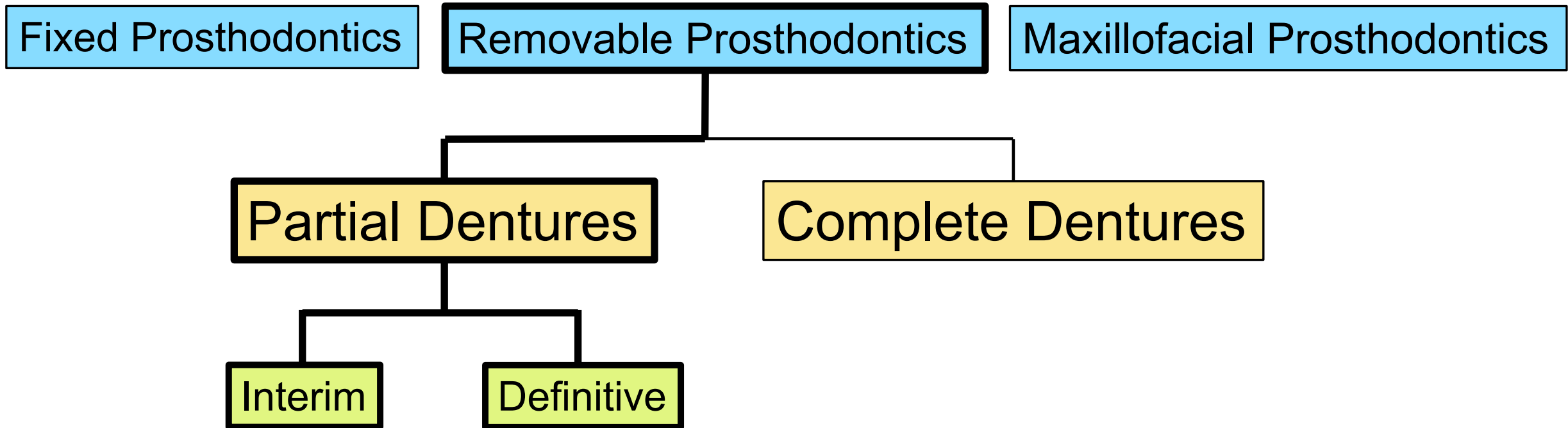


Partial Edentulous Patients

Fixed vs Removable

Indications of RPD

- Long-span edentulous area
- No distal abutment tooth
- Reduced periodontal support for remaining teeth
- Need for cross-arch stabilization
- Excessive bone loss
- Limited manual dexterity



Interim RPD

- Provisional prosthesis
- Improve aesthetic and function until a definitive appliance can be delivered



Indications:

- Loss of additional tooth is inevitable
- Healing process – function and protection
- Carrier for treatment material (soft tissues conditioners)

BENEFITS

- Simple to make
- Easy to repair/add
- Particularly useful in the early Control Phase of management of complex cases

RISKS

- Requires adaptation
- Damage supporting structures
- Poor retention
- Mobility - compromised function/phonetics/aesthetics
- Limited longevity



Definitive RPD



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Definitive RPD

BENEFITS

- Improved stabilization and retention
- Better distributions of functional load
- Can be highly aesthetic

RISKS

- Technically difficult and complex
- Longevity - ?
- Can damage supporting tissues when not well planned
- Significant investment

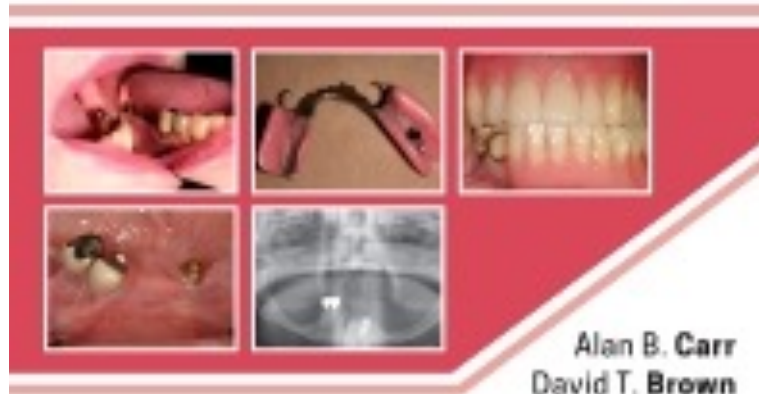




Thirteenth Edition

McCracken's

REMOVABLE PARTIAL PROSTHODONTICS



Alan B. Carr
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ELSEVIER