Diagnosis and treatment planning:

Fixed Partial Denture

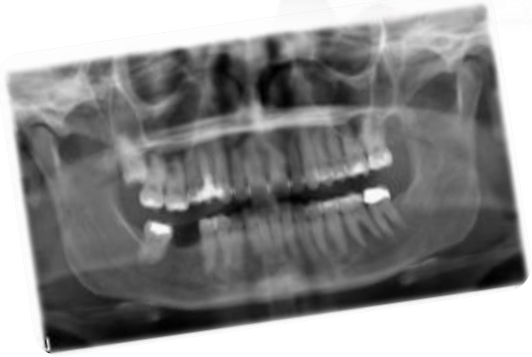
INTRODUCTION

DIAGNOSIS: The determination of the nature of a disease (GPT 9).

TREATMENT PLAN: The sequence of procedures planned for the treatment of a patient after diagnosis (GPT 9).

FIVE ELEMENTS:

- History
- Extra oral evaluation
- Intra oral examination
- TMJ
- Diagnostic casts
- Radiographic examination



HISTORY

All pertinent information concerning the reasons seeking treatment, along with any personal information, including relevant medical and dental experiences.

The chief complaint should be recorded preferably in patient's own words.

CHIEF COMPLAINT:

FOUR CATEGORIES

1. ***COMFORT*** ⟹ pain, sensitivity, swelling
2. ***FUNCTION*** ⟹ Difficulty in mastication or speech
3. ***SOCIAL*** ⟹ Bad taste or odor
4. ***APPEAREANCE*** ⟹ Fractured or unattractive teeth or restorations , discoloration

CLINICAL HISTORY TAKING:

- Name
- Age
- Sex
- Address

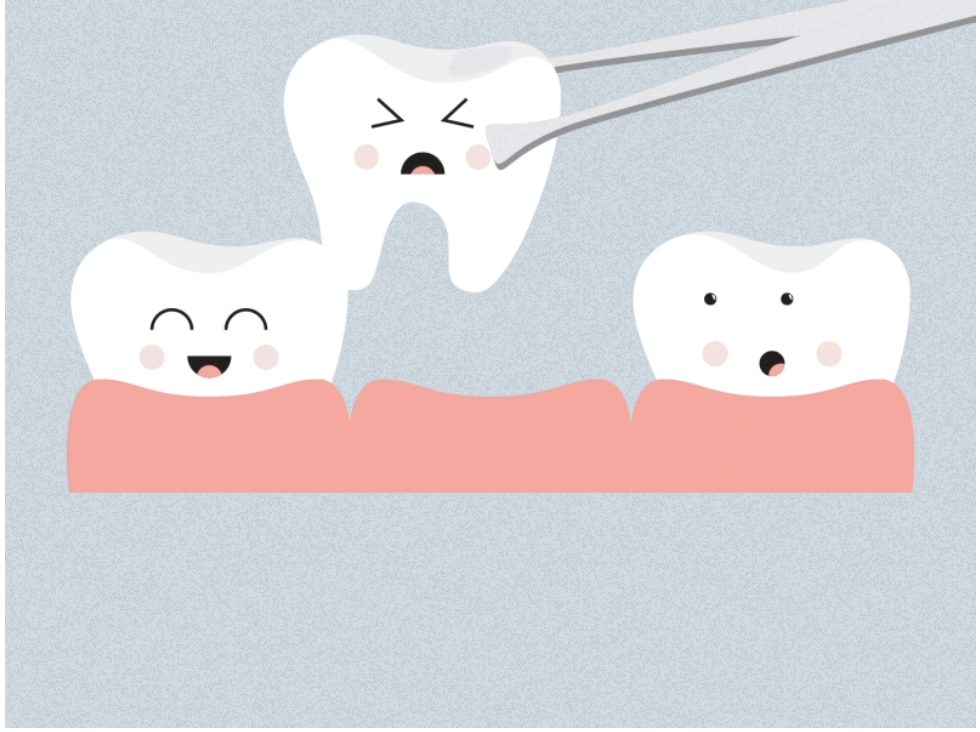
MEDICAL HISTORY

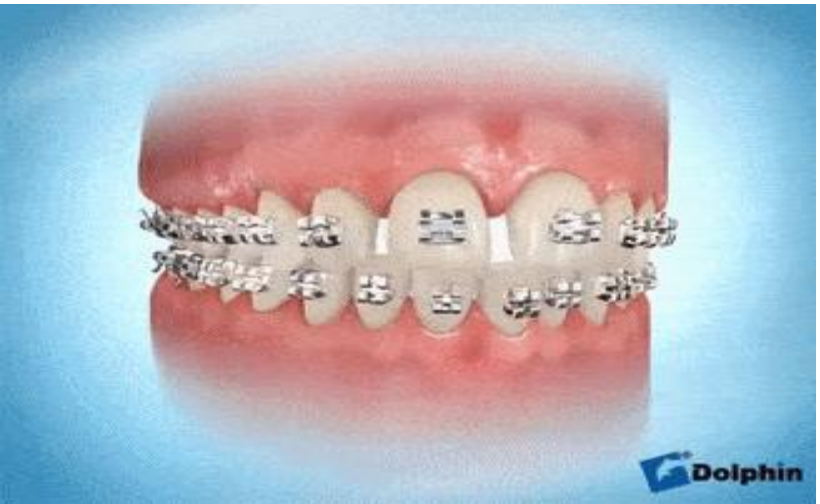
Accurate and current general medical history should include

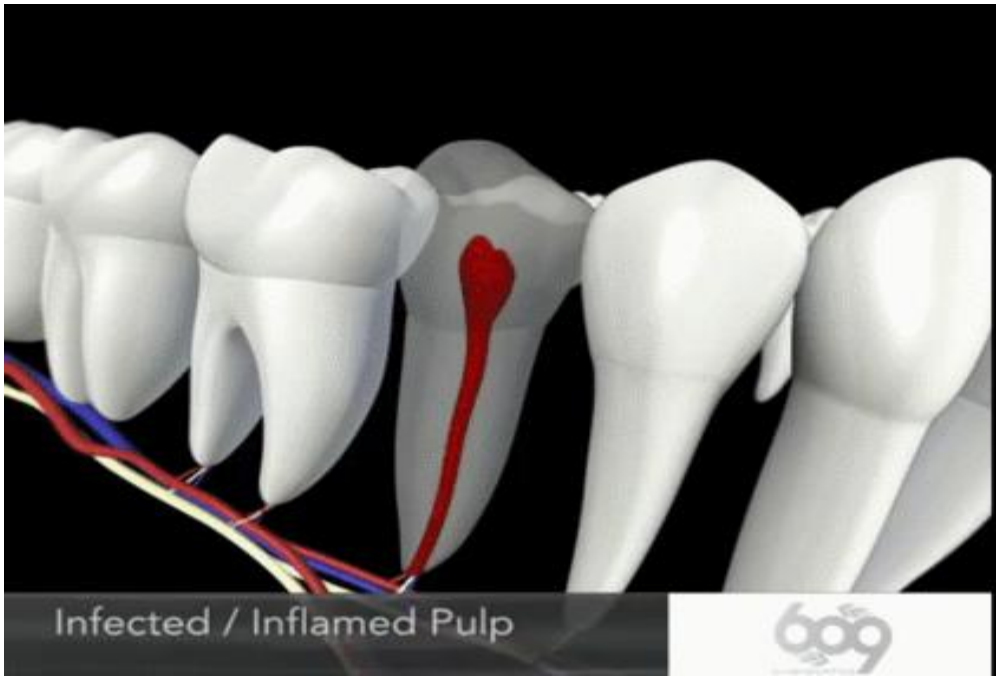
- Relevant medical conditions
- If necessary the patients physician(s) can be contacted for clarification.
- Conditions affecting the treatment methods
- Conditions affecting treatment plan
- Systemic conditions with oral manifestations
- Possible risk factors for the dental surgeon and patient

DENTAL HISTORY

- Oral surgical history
- Periodontal history
- Restorative history
- Endodontic history
- Orthodontic history
- Prosthodontic history
- Radiographic history
- TMJdysfunction history



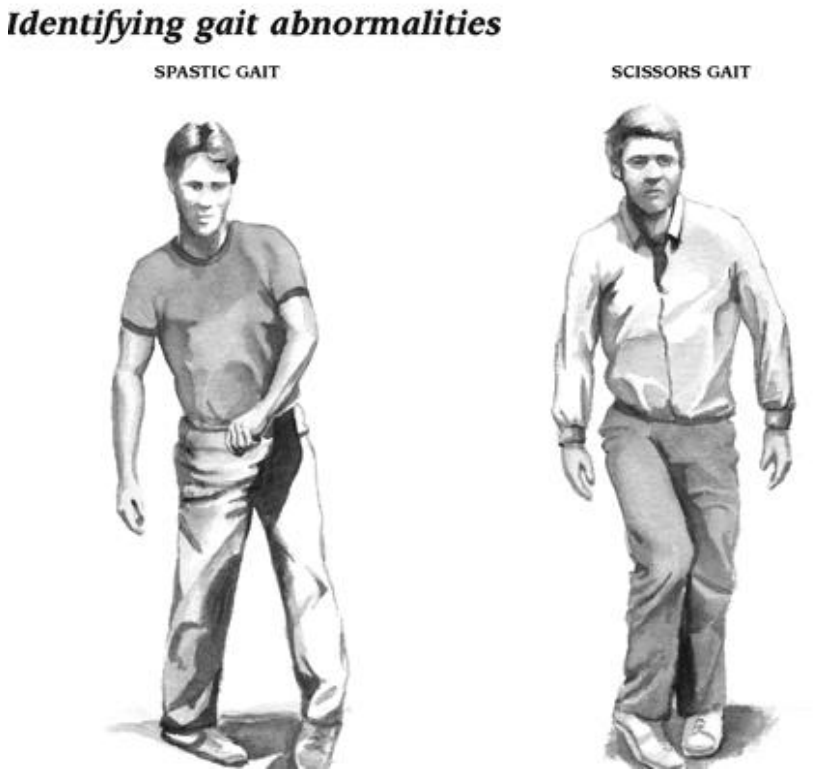


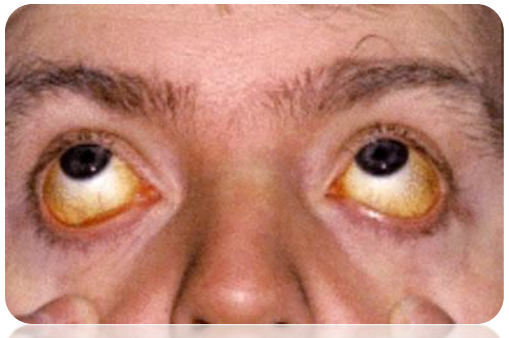



EXAMINATION

GENERAL EXAMINATION:

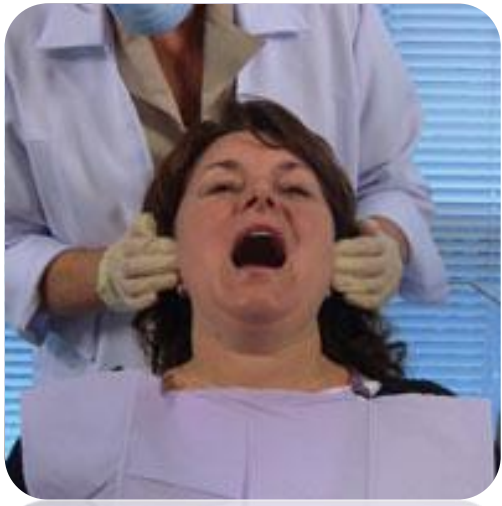
- General appearance: Gait and weight are assessed.
- Skin color : For signs of Anemia or jaundice.
- Vital signs: Respiration, pulse, temperature and blood pressure are measured and recorded.





EXTRAORAL EXAMINATION:

- Facial asymmetry
- Cervical lymphnodes
- TMJ
- Muscls of mastication (Palpated)

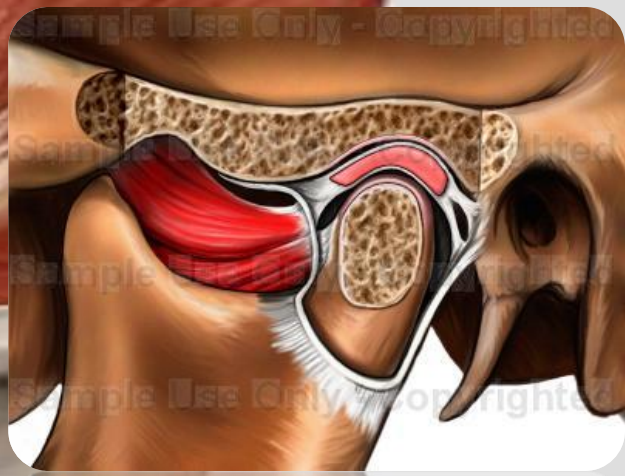


TEMPEROMANDIBULAR JOINT:

- Permits a comparison between the relative timing of left and right condylar movements during the opening stroke.

- ASYNCHRONIOUS MOVEMENT
  Anterior disk displacement that prevents one of the condyles from making a normal translatory movements.

- Auricular palpation with light anterior pressure helps identify potential disorders in the posterior attachment of the disk.

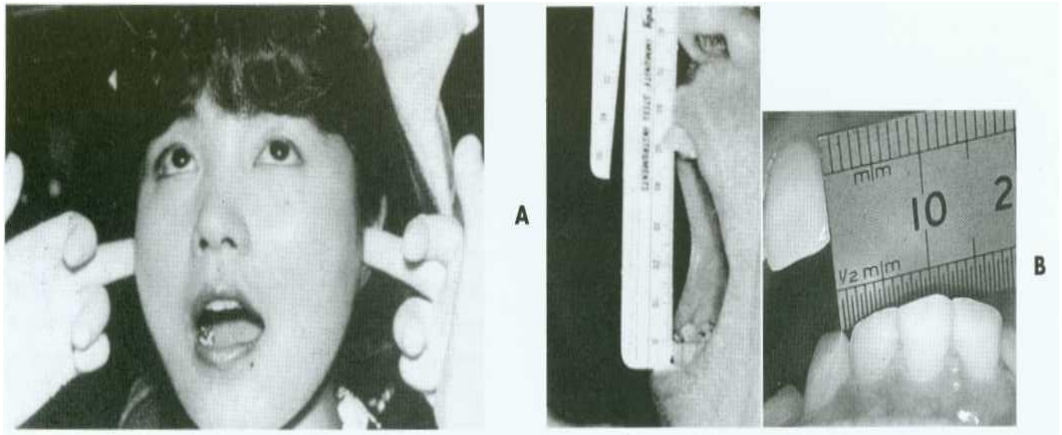


- Tenderness or pain on movement,
- Clicking in the TMJ

Mouth opening:

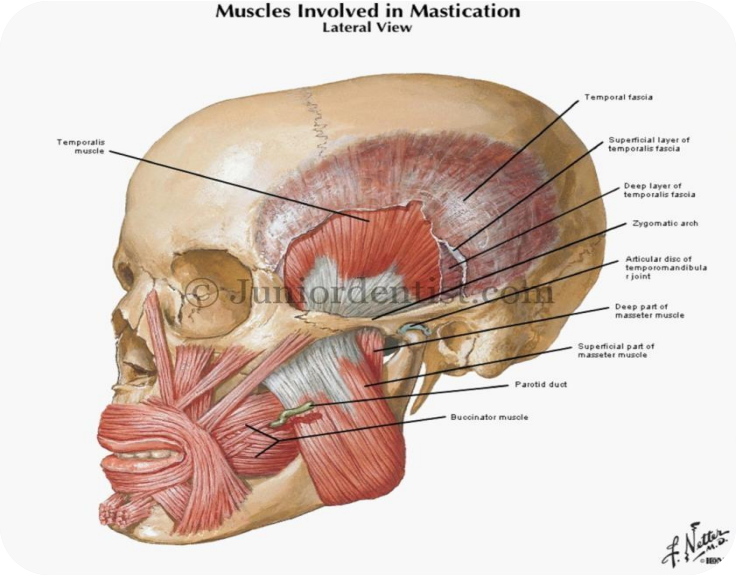
- Average opening = 50mm
- Restricted opening <35mm (intracapsular changes in the joints)
- The maximum lateral movements of the patient can be measured.

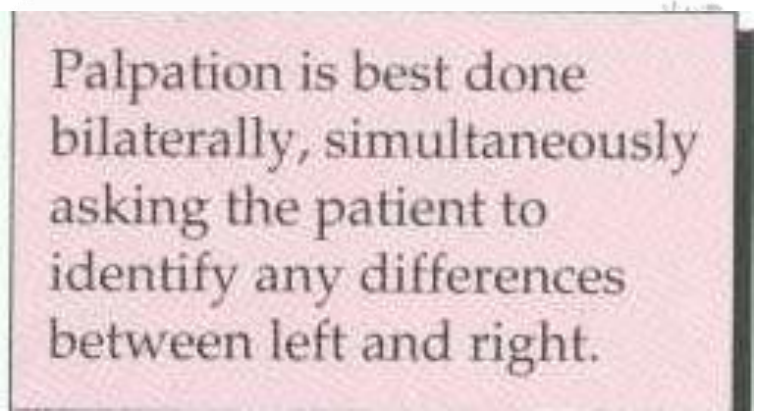
  (normal is about 12 mm)



MUSCLES OF MASTICATION

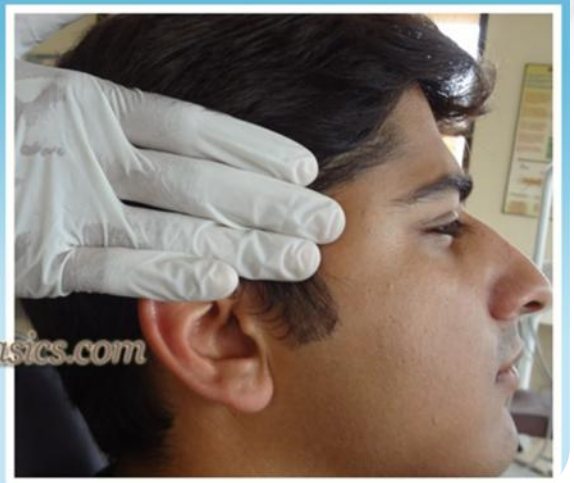
- Masseter ,Temporalis and other postural muscles are palpated for signs of tenderness.
- light pressure
- In TMJ dysfunction , a systematic sequence of muscle palpation should be followed

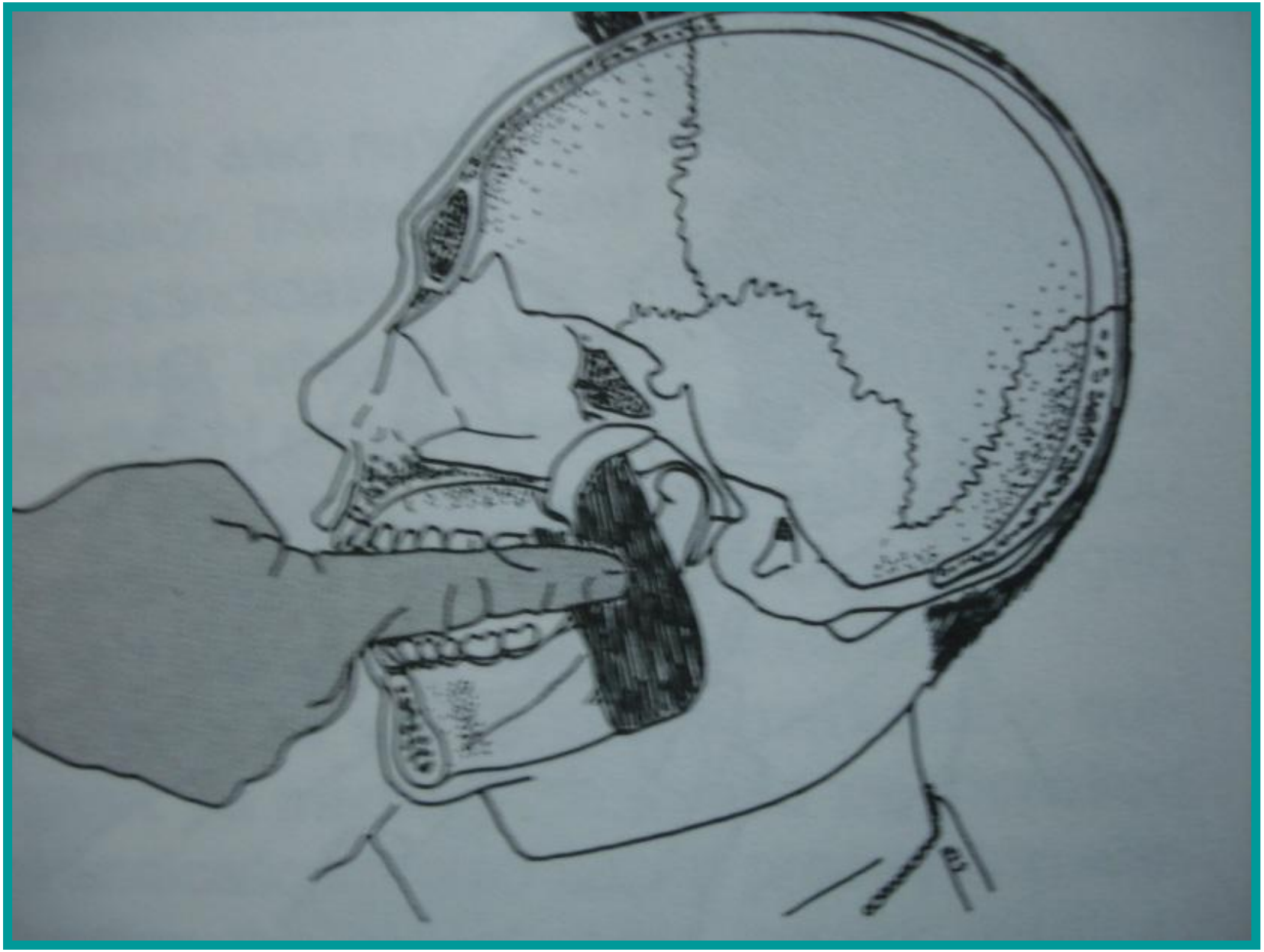




Masseter Muscle Palpation

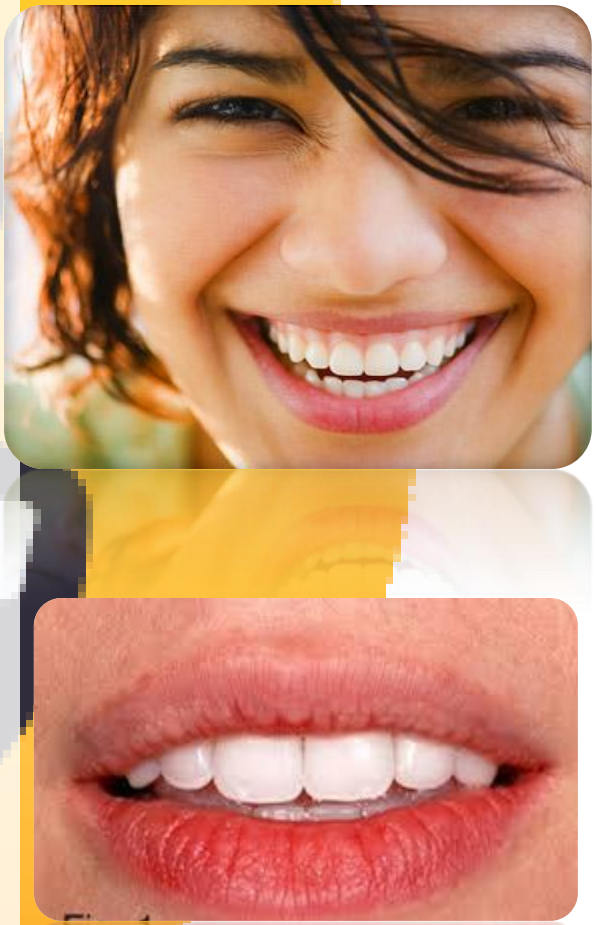
Temporalis Muscle palpation



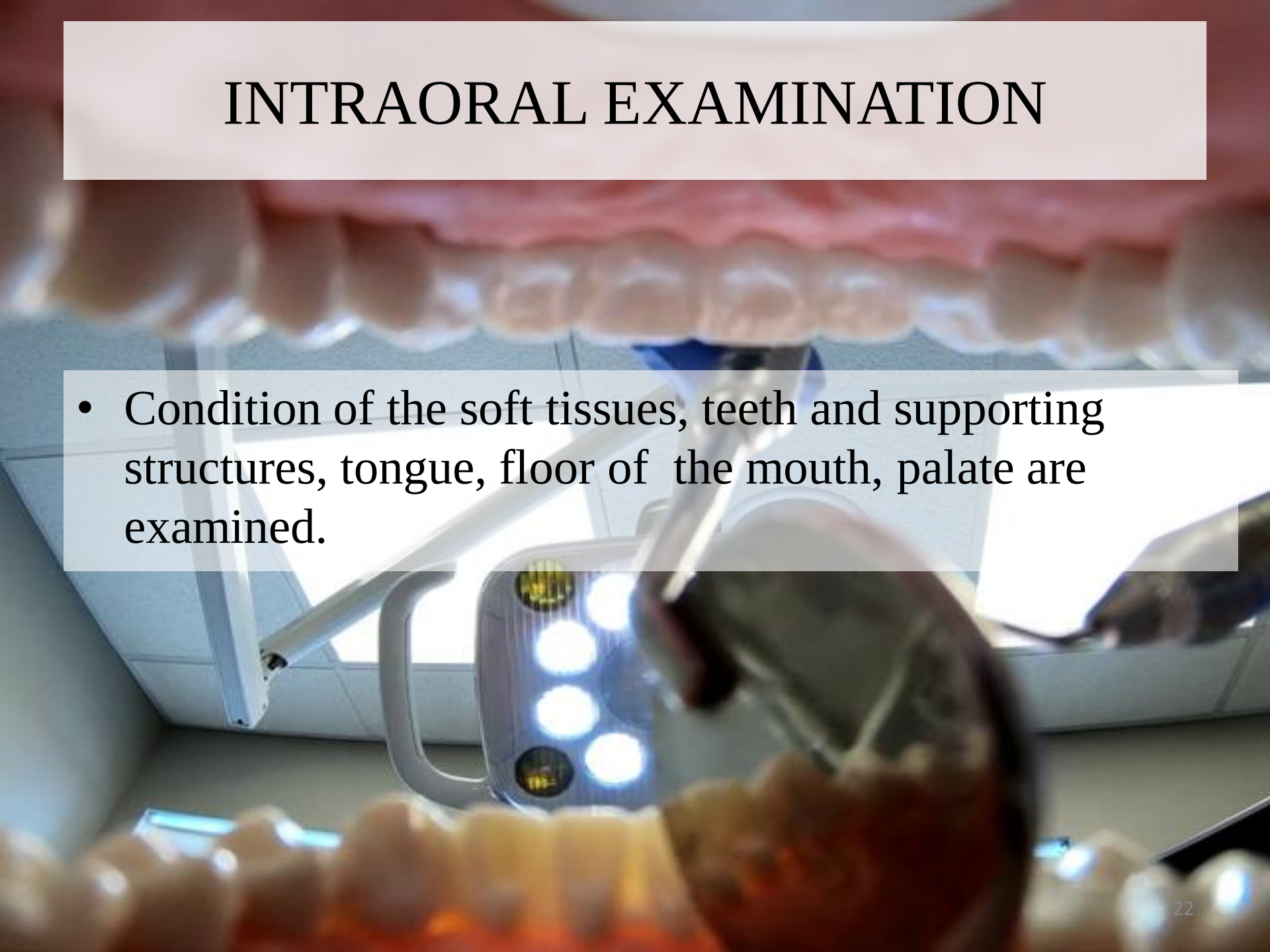


LIPS

- Visibility during normal and exaggerated smiling is observed.
- “NEGATIVE SPACE”:- When the patient laughs, the jaws open slightly and a dark space is often visible between the maxillary and mandibular teeth.
- Missing teeth, diastemas and fractured or poorly restored teeth disrupts harmony of negative space and require correction.



INTRAORAL EXAMINATION



- Condition of the soft tissues, teeth and supporting structures, tongue, floor of the mouth, palate are examined.

- Hard tissue examination:
  Shape of teeth
  Number
  Colour
  Caries
  Existing restorations
  Mobility

SHAPE AND SIZE:

NUMBERS:

COLOUR

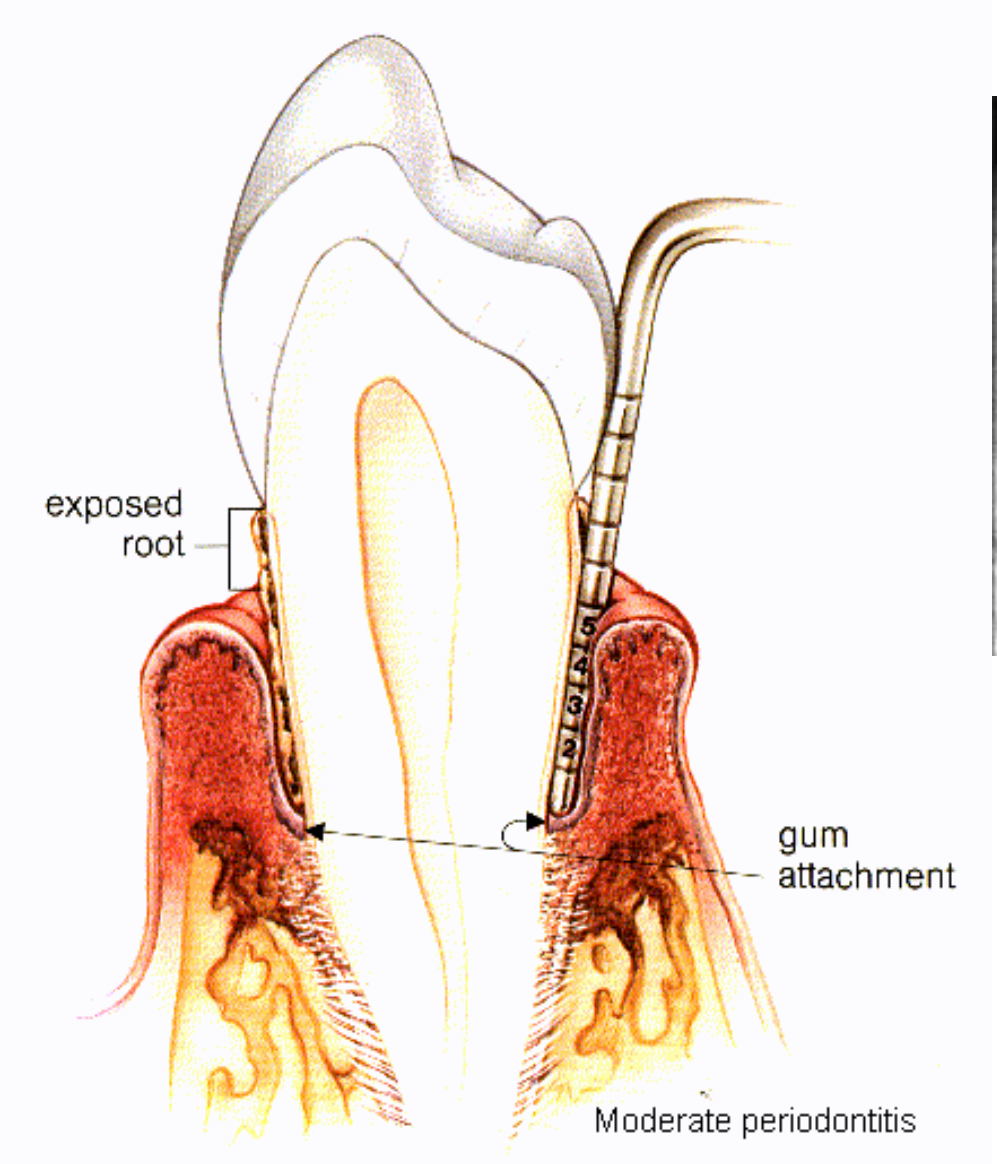
CARIES:

EXSITING RESTORATIONS

MOBILITY

- Soft tissue
  Gingiva
  Labial mucosa
  Buccal mucosa
  Tongue
  Palate
  Floor of mouth

PERIODONTAL STATUS

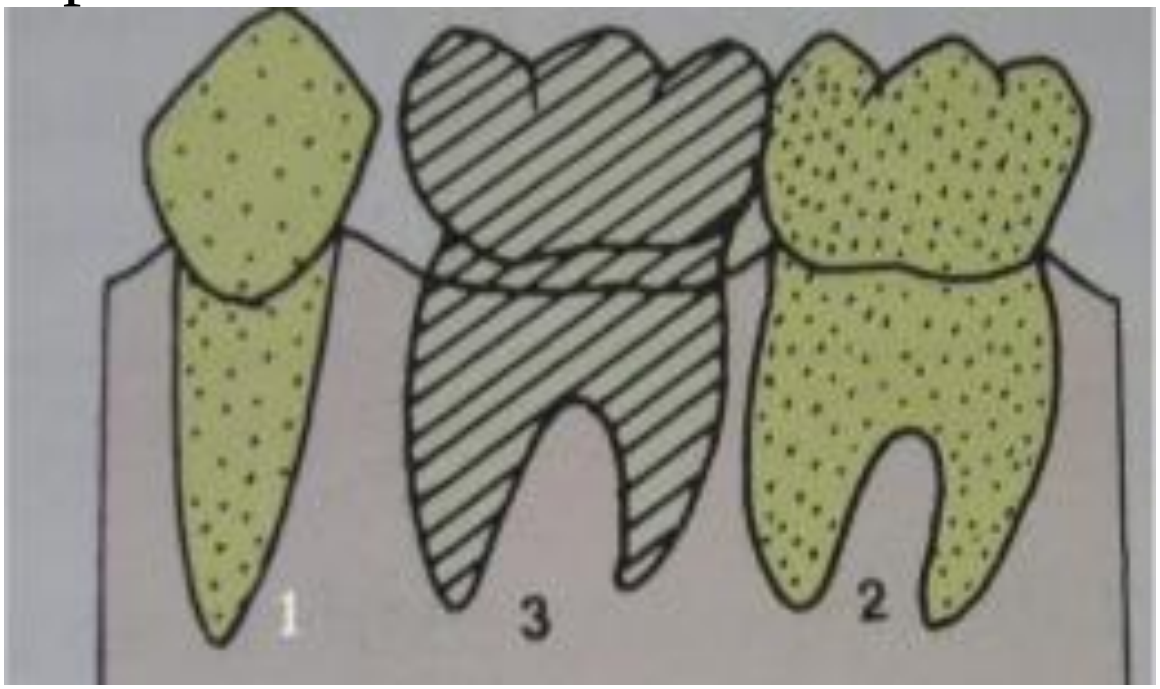


DIAGNOSTIC AIDS

- RADIOGRAPHS
- VITALITY TEST
- DIAGNOSTIC CASTS
- PERIODONTAL PROBE.

ANTE’S LAW -1926

- ANTE'S law sated that ‘ the combined root surface area of the abutment teeth should be equal to or greater than the root surface area of the tooth or teeth to be replaced.



Jepsen table: root surface area for abutment teeth

	Root Surface Area (mm^2)	Percentage Root Surface Area in Quadrant
MAXILLARY		
Central	204	10
Lateral	179	9
Canine	273	14
First premolar	234	12
Second premolar	220	11
First molar	433	22
Second molar	431	22
MANDIBULAR		
Central	154	8
Lateral	168	9
Canine	268	15
First premolar	180	10
Second premolar	207	11
First molar	431	24
Second molar	426	23

from Jepsen A: Root surface measurement and a method for x-ray determination of root surface area. Acta Odontol Scand , 1963.

RADIOGRAPHIC EXAMINATION

Provides essential information to supplement clinical information

- Extent of bone support

Fig. 1a : digital IOPA

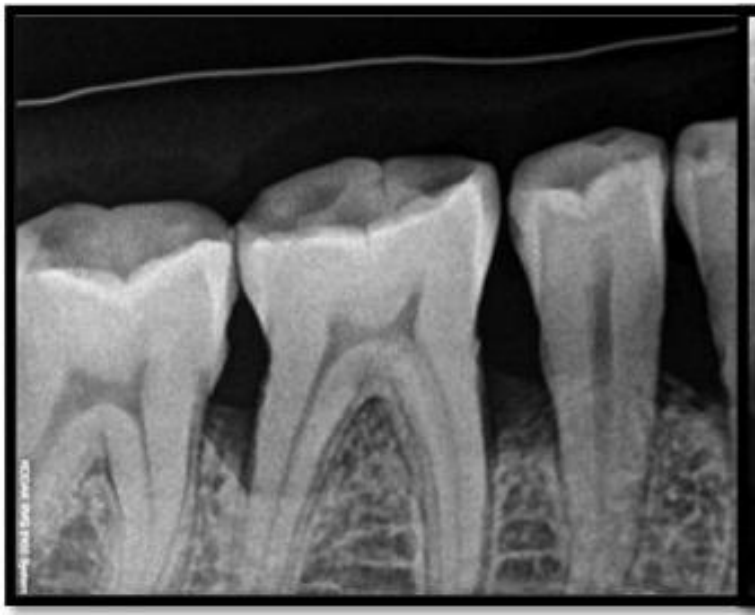
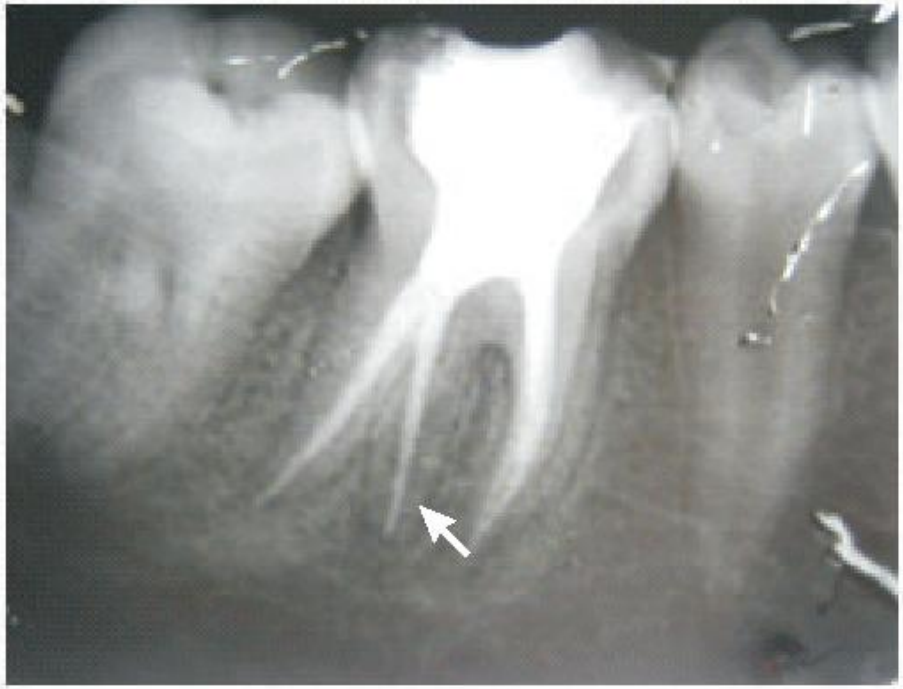


Fig. 1b : OPG

- Existing restoration

- Peri apical pathology

- Root morphology



PANOROMIC RADIOGRAPHS

- Presence or absence of teeth
- Assessing third molars impactions,
- Evaluating the bone before implant placement.
- Screening edentulous arches for buried root tips.

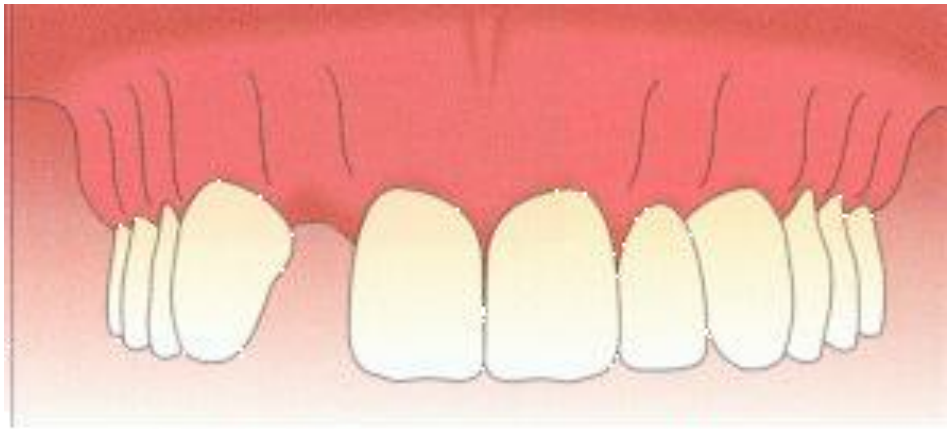
VITALITY TEST

Pulpal health must be measured before any restorative treatment usually by-

- percussion and
- thermal stimulation
- Non vitality -Test cavity without L.A

SPECIFIC TO FDP

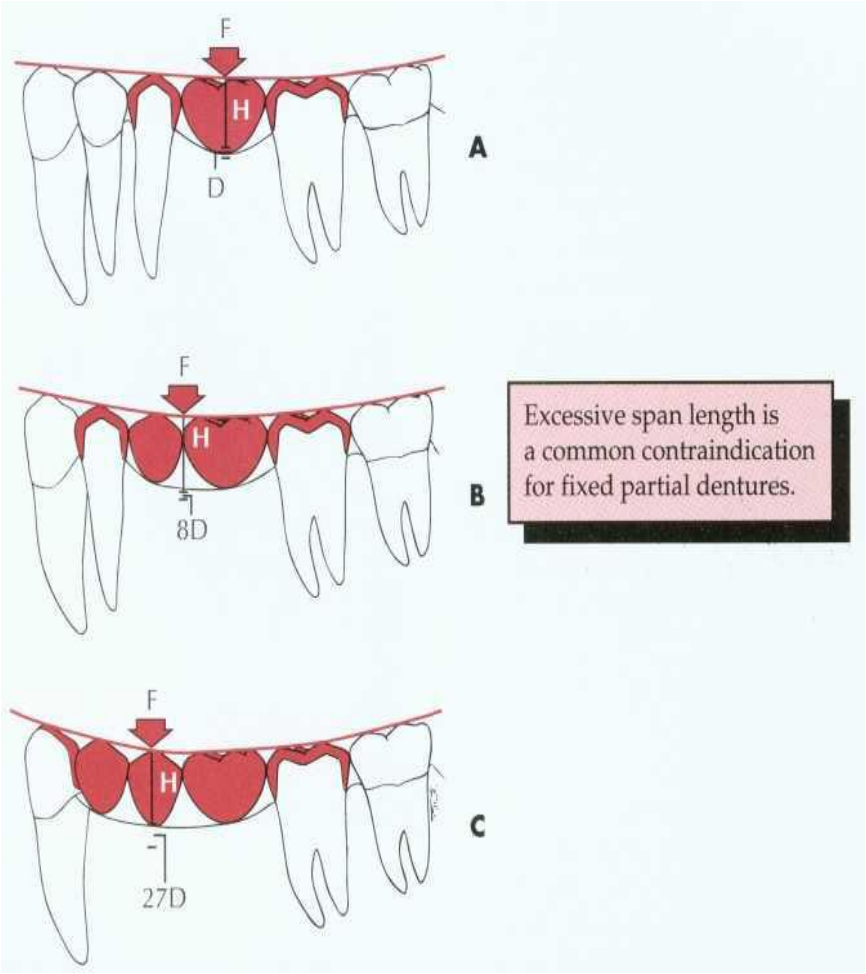
- Evaluation of Puplal Health
- Evaluation of edentulous space
  -Arch form
  -Span of edentulous space
- Evaluation of Abutment teeth
  -Crown form
  -Crown Length
  -Root Form
  -Root Length
  -Crown root ratio
  -Axial inclination



missing a tooth

Span length

- All FPDs flex slightly when subjected to a load-the longer the span, the greater the flexing.



The deflection of a fixed partial denture is proportional to the cube of the length of its span.

A, A single pontic will deflect a small amount (D) when subjected to a certain force (F)

B, Two pontics will deflect as much (8 *D) to the same force. C, Three pontics will deflect as much (27 D).*

- When a long-span FPD is fabricated, pontics and connectors should be made as bulky as possible to ensure optimum rigidity without interfering gingival health. In addition, the prosthesis should be made of a material that has high strength and rigidity.

- Replacing three posterior teeth with an FPD rarely has a favorable prognosis, especially in the mandibular arch. Under such circumstances it is usually better to recommend an implant-supported prosthesis or a removable partial denture

CROWN FORM AND LENGTH

- Sufficient crown height
- Short crowns- subgingival margins keeping in mind not to violate biological width
  -crown lengthening

ROOT SHAPE AND ANGULATION:

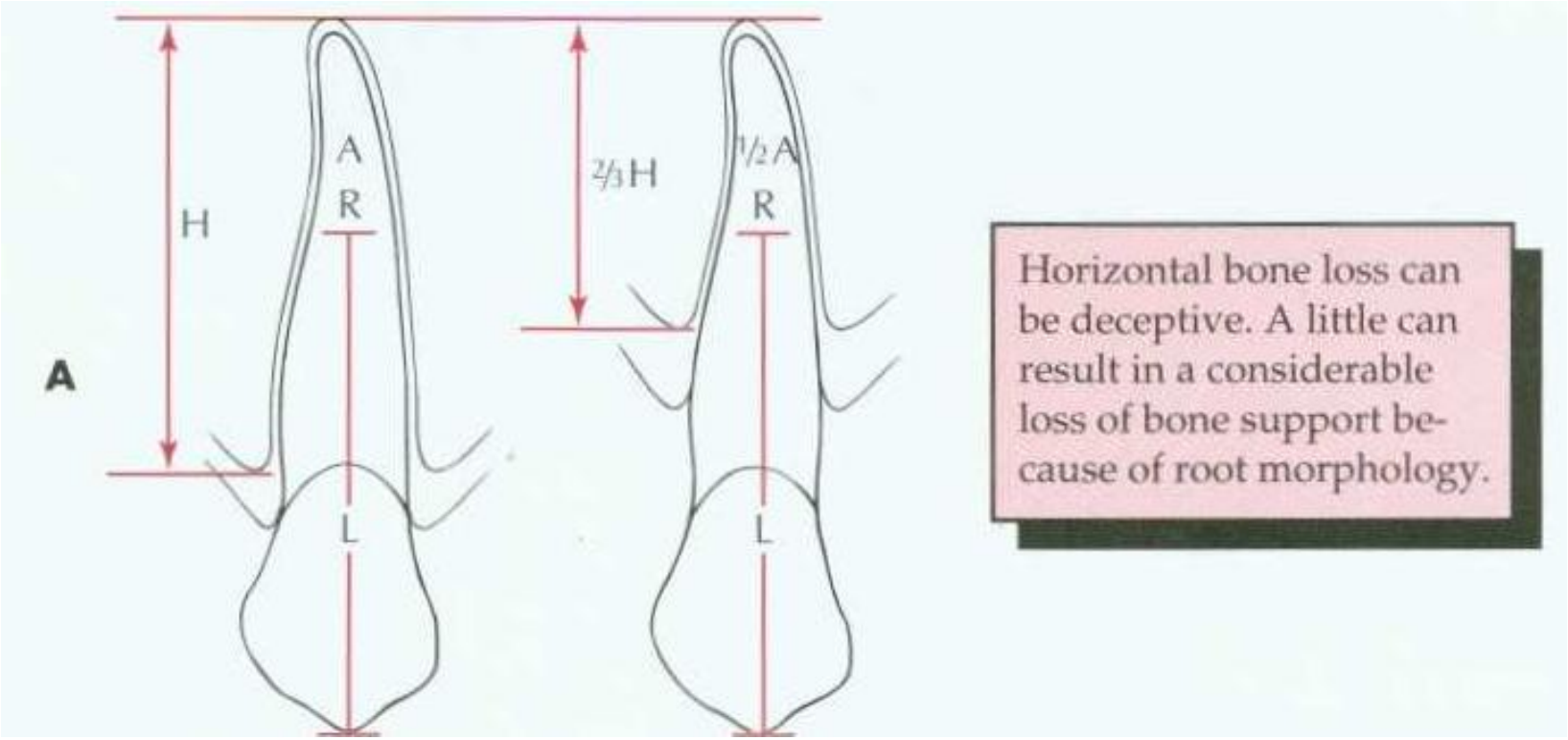
- When tooth support is borderline, **the shape of the roots and their angulation should be considered**. A molar with divergent roots will provide better support than a molar with conical roots.

- A single-rooted tooth with **an elliptic cross section** will offer better support than a tooth with similar root surface area but a circular cross-section.

Periodontal disease

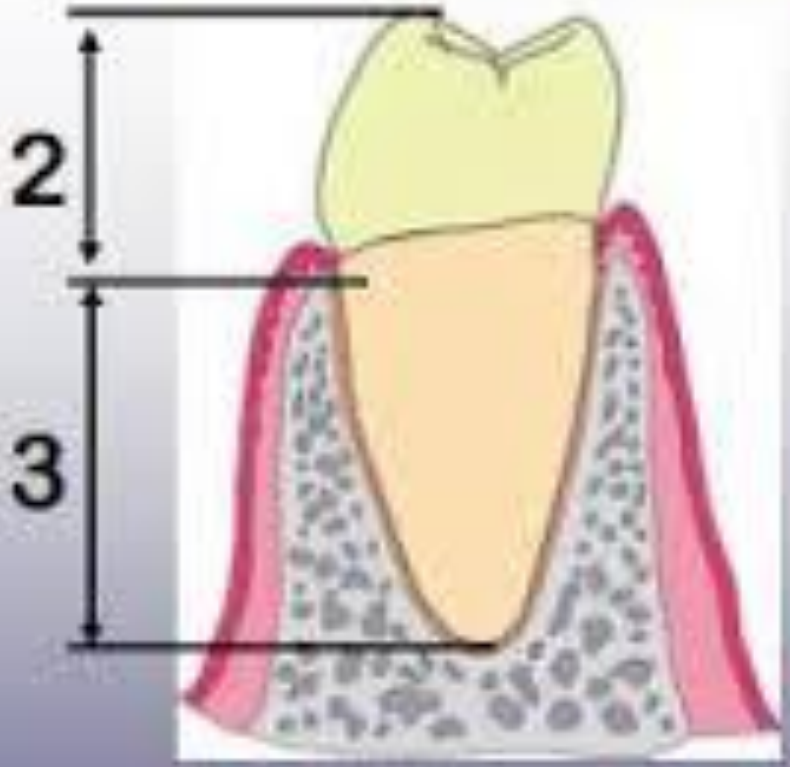
- Because of the conical shape of most roots when one third of the root length has been exposed, half of the supporting area is lost.

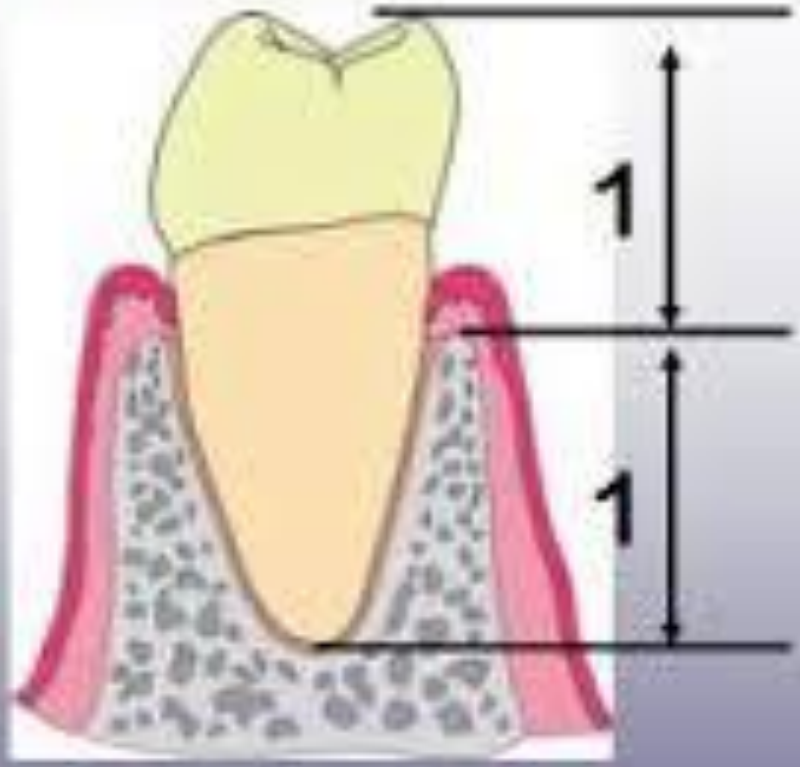
- In addition, the forces applied to the supporting bone are magnified because of the greater leverage associated with the lengthened clinical crown.



conical shape of most roots, with one third root exposure, the center of rotation (R) moves apically and the lever arm (L) increases, magnifying the forces on the supportive structure.

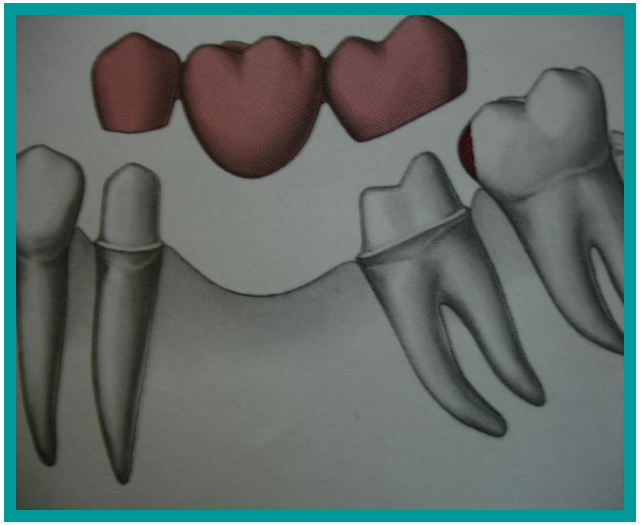
Abutment Evaluation: *Crown-Root Ratio*

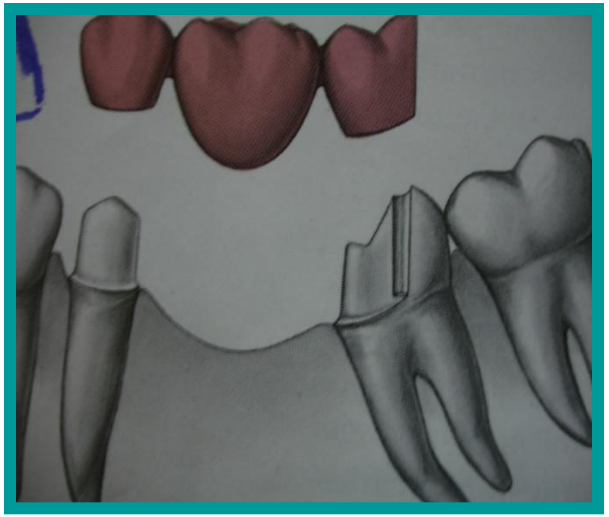




Axial inclination

- Mild encroaching- restoring and recontouring or cantilever prosthesis, or non rigid connectors can be given.
- Tilting is severe – corrective measures in the form of orthodontic correction .





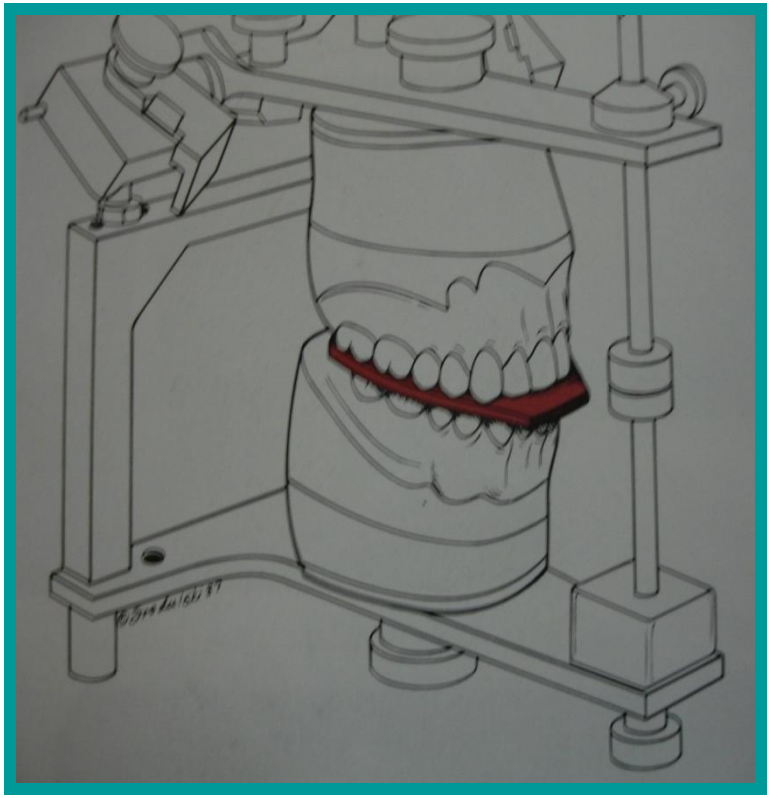
- Occlusion
- Requires establishment of entire occlusal scheme without accompanying changes in class I.

- Molar relationship- class II

DIAGNOSTIC CASTS

- Diagnostic casts are the integral part of the diagnostic procedures necessary to give the dentist a complete perspective as possible of the patients dental needs.

Wax: inter-occlusal record

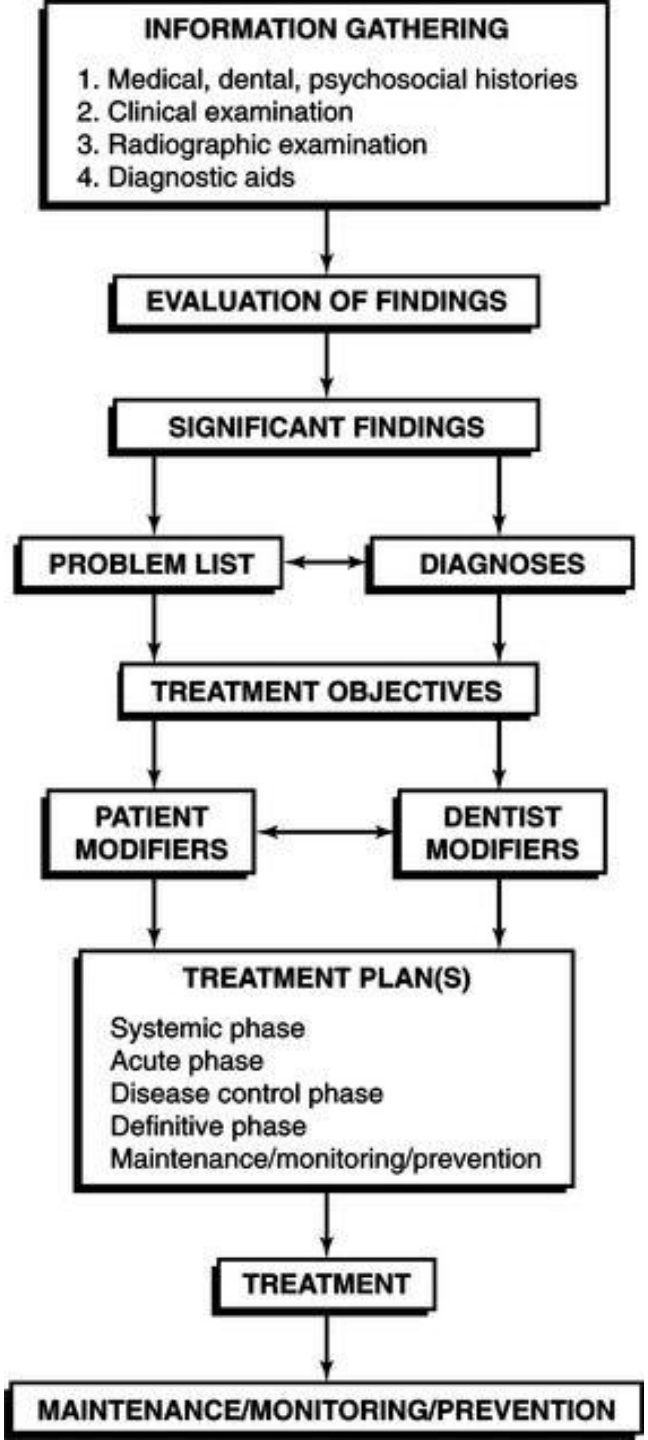


DIAGNOSTIC CASTS

- SEMIADJUSTABLE ARTICULATOR with a FACE BOW TRANSFER.

- Articulated diagnostic casts permits a detailed analysis of occlusal plane and the occlusion for a better diagnosis and treatment plan in fixed prosthodontic treatment.

- Tooth preparations can be “rehearsed “ on the casts and diagnostic waxing procedures allow evaluation of the eventual outcome of proposed treatment .



"TRIAGE"

Decide the order of treatment of (patients or casualties).

- Treatment of symptoms
- Urgent treatment of non-acute problems
- Stabilization of Deteriorating conditions
  Dental caries
  Periodontal disease
- Definitive therapy
  Oral surgery
  Periodontics
  Endodontics
  Orthodontics
  Fixed Prosthodontics


Treatment
Planning

Identification of Patient Needs:

- Successful treatment planning is based on proper identification of the patient's needs.
- Following objectives should be followed:

Correcting an existing disease

Preventing future disease

Restoring function

Improving appearance

Correcting an existing disease:

- Existing disease can usually be arrested by identification and reduction of the initiating factors.

- E.g. oral hygiene instruction will reduce the amount of residual plaque, and thus will reduce the likelihood of further dental caries and periodontal disease.

Prevention of future disease:

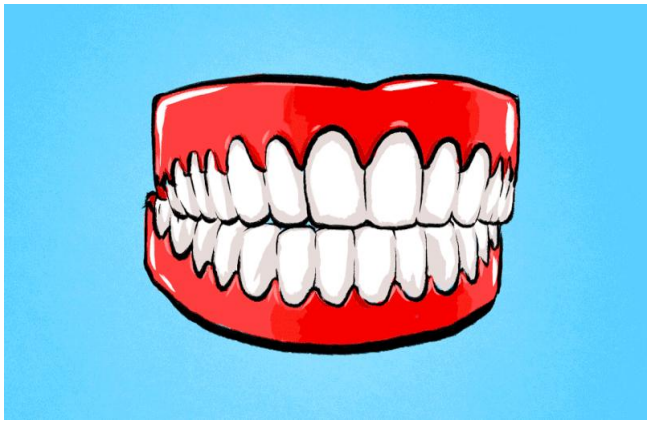
- The likelihood of future disease can be predicted by evaluating the patient's disease experience and by knowing the prevalence of the disease in the general population like caries index, periodontal index and hormonal index factors .

Improvement of appearance:

- Patients often seek dental treatment because they are dissatisfied with their appearance.

- Dentist should appraise the appearance of the patient's dentition and listen carefully to the patient's view.

COLLAPSED BITE



- TMJ disturbances
- Muscle activity
- Emotional stress – bruxism, etc.
- Trauma
- Erosion/abrasion of teeth
- Previous restorative treatment
- Habits

EFFECTS OF COLLAPSED BITE

- Compromised function of mastication
- Loose abased, erased teeth or migration
- Bone loss
- Muscles pain, fatigue
- Poor esthetics

PHILOSOPHIES OF FULL MOUTH REHABILITATION

- Pankeymann Schyuler Philosophy
- Hobo’s Concept
  Twin stage
  Twin Table

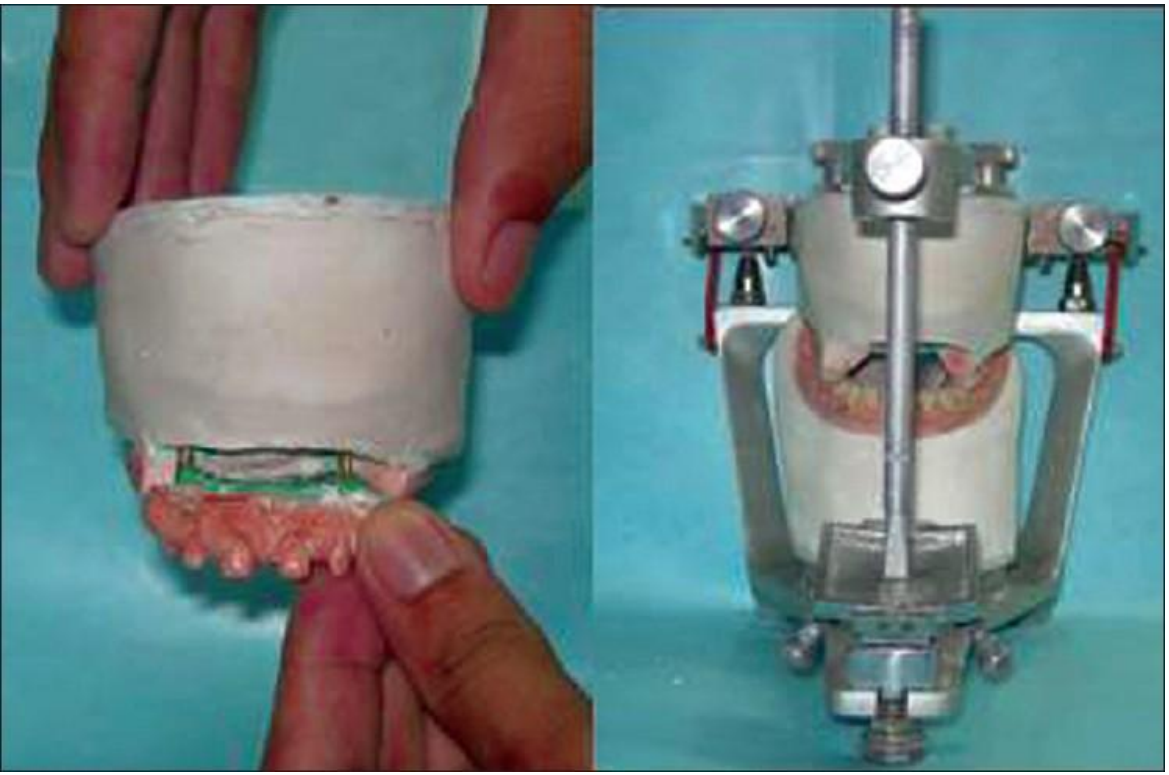
PANKEY MANN SCHYULER

- Coordinated and static contacts of the maximum number of posterior teeth in centric relation position of the mandible.
- Functionally harmonious anterior guidance during the lateral excursive movements.
- Disclusion of the posterior teeth during protrusion determined by the anterior guidance.
- Absence of interferences during lateral excursions on the non-working side.
- Group function on the working side during the lateral excursions.

- The sequence advocated by the PMS philosophy is as follows:

  Part I: Examination, diagnosis, treatment planning, and prognosis.
- Part II: Harmonization of the anterior guidance for best possible function, esthetics, and comfort.
- Part III: Restoration of the mandibular posterior occlusion after selecting an acceptable occlusal plane so that it will not interfere with condylar guidance and is in harmony with the anterior guidance.
- Part IV: Restoration of the maxillary posterior occlusion so that it is in harmony with the anterior and condylar guidance. The functionally generated path is an important aspect of this technique and is often considered a part of it.

HOBO’s TWIN STAGE:



Hobo twin stage: Anterior guidance developed, to create a predetermined, harmonious disclusion with the condylar path.

- 1. anterior segment of U/L casts are splinted from rest of the cast.
- Articulation is done at established IOG and vertical dimensions. Patient needs occlusion splints. At this stage.
- First stage: Mock up wax up of posterior teeth is done after semi – adjustable programming (values in table done).
- This is done for free sliding of jaw movements.

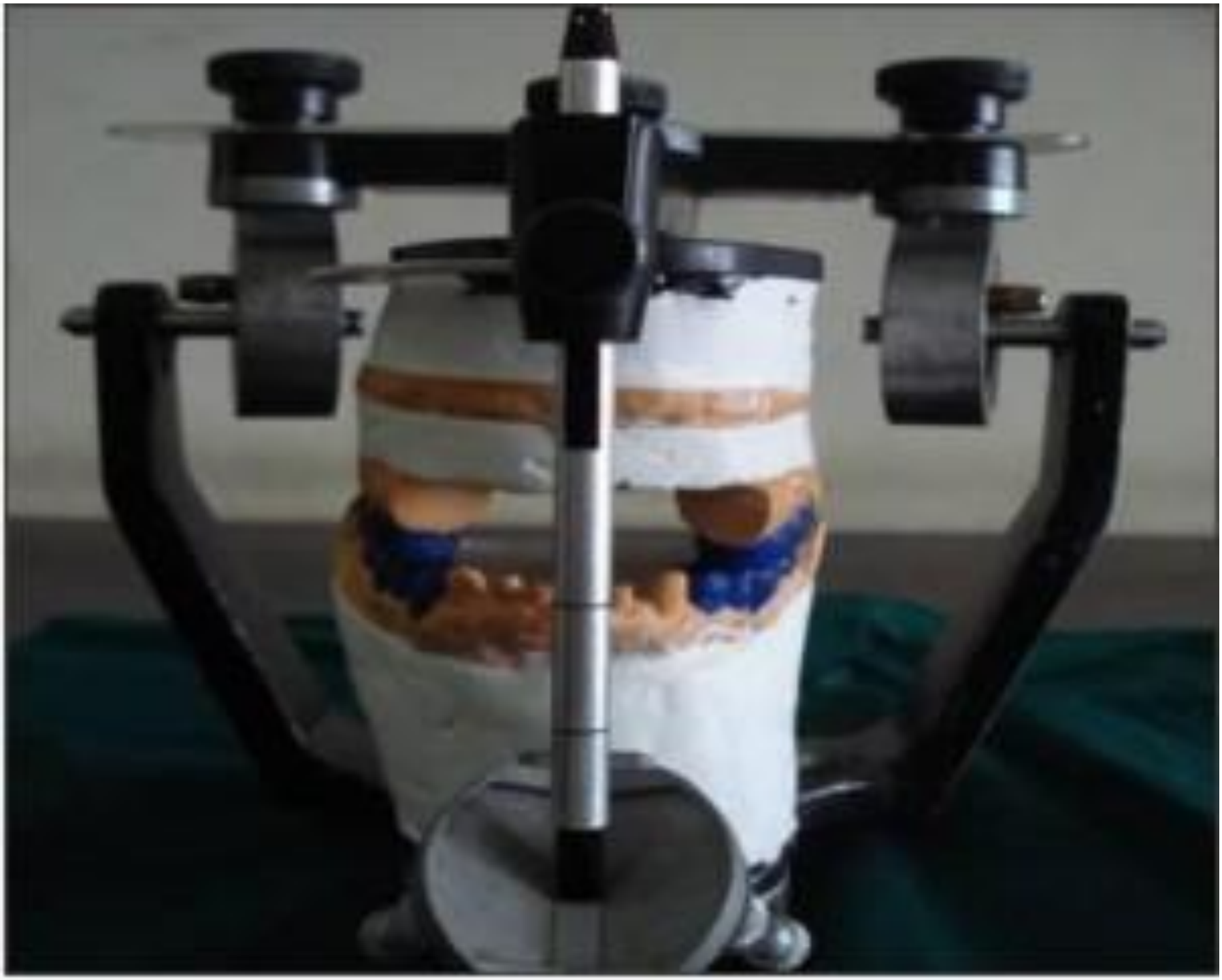
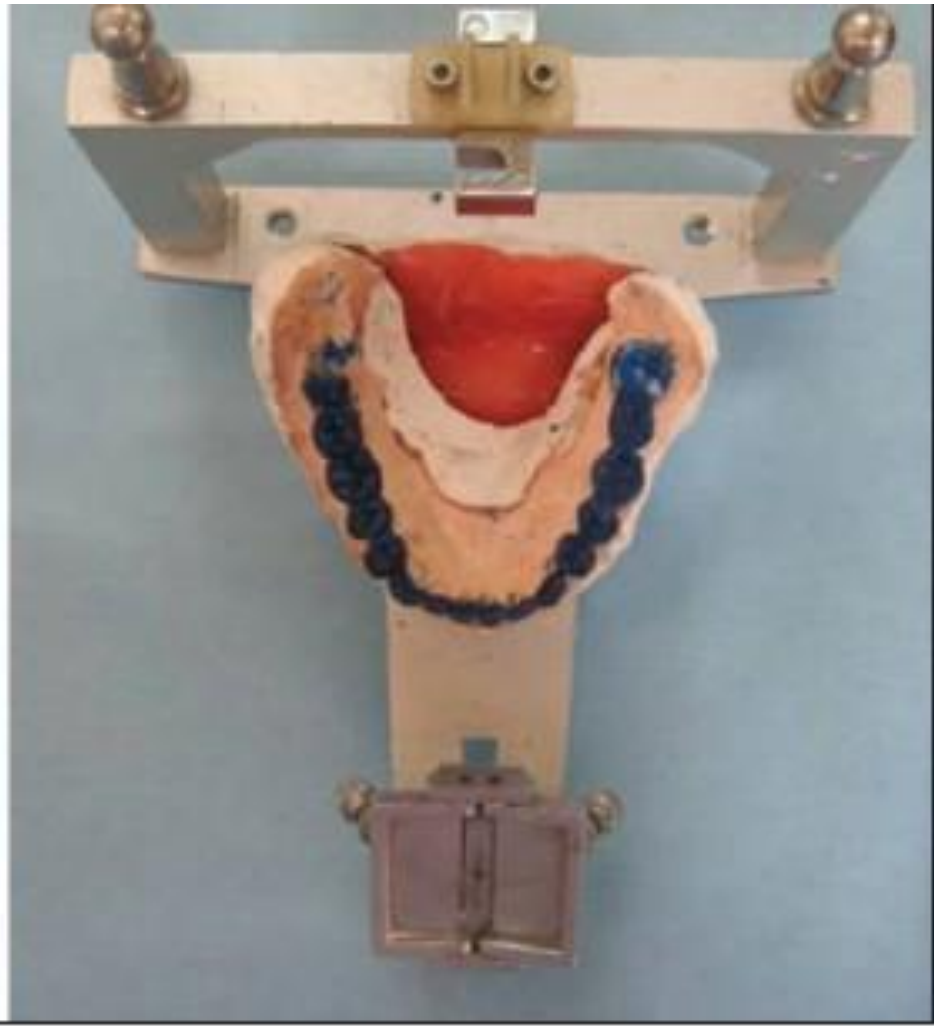


Table 1:

condition	condylar path		Anterior Guide table	
	Sagittal condylar path inclination	Bennett angle	Sagittal inclination	Lateral wing angle
Condition I	25	15	25	10

Second stage:

- Anterior setup is done after re programming of articulator (Table 2).
- It is done for full filling all the parameters like esthetics, overjet, over bite and free lateral sliding (Canine protecting occlusion or group function occlusions). It is also done after deciding plane by BOPA.
- Non-working side should not include any cuspal contact.
- At this, we should add some wax on upper lingual side cusps.



condition	condylar path		Anterior Guide table	
	Sagittal condylar path inclination	Bennett angle	Sagittal inclination	Lateral wing angle
Condition II	40	15	45	20

REFERENCES

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THANK
YOU