Teeth selection for complete denture

OBJECTIVES IN TEETH SELECTION

1- The teeth should be in harmony with the surrounding tissues
2- they should maintain the vertical dimension
3- they should be efficient for mastication
4- posterior teeth should be selected based on function whereas the anterior teeth are selected based on aesthetics.

GENERAL CONSIDERATIONS IN TEETH SELECTION

1- The patient should be seated upright with his facial muscle relaxed.
2- the operator should sit in front of the patient and adequate lighting should be used.

The selection of artificial teeth for a complete denture can be divided into two sections:-
1-anterior teeth selection
2-posterior teeth selection

Anterior teeth selection

factors are considered during the selection of anterior teeth:-

1-size of the teeth
2-form of the teeth
3-Colour or shade of the teeth

1-SIZE OF THE ANTERIOR TEETH

the tooth size should be appropriate to the size of the face and sex of the patient.

1-Method using pre-extraction records.
2-Methods using anthropological measurement of the patient
3-Method using anatomical landmarks.

METHODS USING PRE-EXTRACTION RECORDS

1- Diagnostic casts: -they are prepared before the extraction of teeth. The dentist can obtain an idea about the size and shape of the teeth from these casts.

2- Pre-extraction photographs: - photographs showing the lateral, anterior and anterio-lateral view of the patient and should be taken before extraction.

3- PRE-EXTRACTION RADIOGRAPH: - this is usually obtained from the patient’s previous radiograph. Radiographic error are a major limitation of this method.

4- TEETH OF CLOSE RELATIVE: - this method is usually followed only if other records are not available. The size and contour of the patient’s son or daughter’s tooth is taken as reference.

5- PRESERVED EXTRACTED TEETH: - this is the best method to determine the size of the anterior tooth.

METHODS USING ANTHROPOLOGICAL MEASUREMENTS OF THE PATIENT

- Bi-zygomatic width: the greatest bi-zygomatic width divided by 16 = width of the central incisor; divided by 3.3 = approximate width of the six upper anterior teeth
2-WIDTH OF THE NOSE: The width of the nose is measured by vernier caliper. This measurement is transferred to the occlusal rim. This width is equal to the combined width of the anterior teeth.

METHODS USING ANATOMICAL LANDMARKS

1-canine eminence: canine eminence is formed in the region between the canine and the first premolar after extraction of teeth. The distance between the two canine eminences is measured along the residual ridge. This measured value gives the combined width of the anterior teeth.

2-LOCATION OF THE BUCCAL FRENAL ATTACHMENT: the attachments of the buccal frenum are marked on the residual ridge. The distance between the two markings gives the combined width of the maxillary anterior teeth.

3-location of the corner of the mouth

4-location of the ala of the nose

- GUIDE OF VERTICAL HEIGHT OF Highest point of upper lip
- Highest point of upper lip when smiling
- Cervical necks lie at or above this line
- If shorter teeth are selected, esthetics compromised

SELECTION OF TEETH FORM

The form or outline of the anterior teeth can be determined using the following factors:
1-Shape of the patient’s face or facial form
2-patient’s profile
3-SPA factor (Sex, personality and age)

SHAPE OF THE PATIENT FACE OR FACIAL FORM
The facial form can be described as one among the following four types:

- ovoid
- tapering
- square
- combination of the above
  the teeth selected should be in harmony with the facial form.

patient’s profile
the patient may have a convex, straight or concave profile. The labial form of the anterior teeth should be similar to the facial profile to the patient.

SPA FACTOR (SEX, PERSONALITY AND AGE)

SEX: the form or shape of the teeth differs in males and females.

- Masculine form is associated with square, cuboidal, and angular form.
- Feminine form is associated with more rounded, ovoid, and tapering features.

PERSONALITY: the dentist should select and arrange the teeth so that it improves the patient’s personality. It seems reasonable that a large vigorous type of persons have teeth of more square, large teeth with prominent markings, different from those of delicate appearing persons.
AGE: The age of the patient is important in teeth selection because of the physiological and functional changes that occur in the oral tissue. The patient either young, middle age or old-aged.

- Old patient have gingival recession. It can be reproduced in the denture to provide a natural appearance.

- Old patient show a blunt smile line and pathological migration of teeth.

The color of the teeth also changes with age. In old people, the enamel is abraded and the dentine which carries a yellow tinge, is more visible.

**color of teeth**

- An appropriate color of artificial tooth is selected from a shade guide.

When making the choice, it is advisable to moisten the teeth with water and hold them just inside the patient’s open mouth. Natural teeth tend to become darker with increasing age. It is, therefore, appropriate to choose a shade of denture tooth which is in keeping with the patient’s age. Correlation with skin and hair color is suspect.

- Don’t show a patient all shades in the shade guide outside of the mouth – patients will almost always pick the whitest shade. Instead show patient 2 or 3 shades under lip and ask their opinion.

Anterior and posterior tooth shades are the same (e.g. anterior shade corresponding with posterior shade).

**SELECTION OF POSTERIOR TEETH:**

1- SELECTION OF TOOTH Shade
2- SELECTION OF TOOTH size
3- OCCLUSAL FORM
1-SHADE:-
Shade of posterior teeth should be harmonized to the shade on anterior teeth, maxillary first premolars are sometimes used for esthetic more than function, so it is advisable to select premolar teeth with lighter color than the other posterior teeth, but not lighter than anterior teeth. Generally the shades of posterior teeth are slightly darker than anterior teeth.

2-SIZE OF THE POSTERIOR TEETH:
The following factors are considered while selecting the size of the teeth.

1-OCCLUSO GINGIVAL HEIGHT:- It is determined by the available inter-arch distance. The occlusal plane should be located at the midpoint of the inter-occlusal distance. The length of the maxillary first premolar should be comparable to that of maxillary canine to have the proper esthetic effect. The height of posterior teeth usually divided into long, medium, and short. Long posterior teeth are generally more esthetic in appearance than are shorter teeth.

• 2- Buccolinguval width
The buccolinguval width of posterior teeth should be slightly narrower than natural teeth, because the broader occlusal surfaces which direct more stress during function to supporting tissue, leading to increase in the rate of ridge resorption. Broader teeth encroach into the tongue space leading to instability of the denture. Also, the teeth should not encroach into the buccal corridor space to avoid cheek biting.

3- Mesiodistal length
The combined mesiodistal lengths of all maxillary posterior teeth in that side of the arch should be equal to the distance between canine line, and anterior border of maxillary tuberosity. For mandibular posterior teeth, the mesiodistal lengths should be equal to distance between the canine line and anterior border of retromolar pad.
Similarly the teeth should not be placed over displaceable tissues like the retromolar pad as it will cause tipping of the denture during function. In case with inadequate mesiodistal length, the premolar can be omitted.

3-FORM OF POSTERIOR TEETH

When we taking about tooth form of posterior teeth we should consider the following:

CUSPAL INCLINATION: Defined as the angle between the palatal incline of the mesio-buccal cusp & the horizontal.

Teeth can be classified into:
1- anatomic
2- non-anatomic

ANATOMIC TEETH:

ADVANTAGES:

1. Easier to balance the occlusion
2. Better chewing efficiency
3. Better esthetics

Use for patients with:

- Esthetic concerns
- Coordinated jaw movements
- Denture opposing natural teeth
- Well formed ridges
- When possible to record & transfer accurate jaw relationship
- When balanced occlusion is planned
- NON-ANATOMIC TEETH
Advantages:

- Freedom of occlusal movement
- Elimination of lateral forces.

DISADVANTAGES:

- POOR EASTHETIC, LOWER SHEARING EFFICIENCY AND DIFFICULT TO BALANCE.

Use for patients with:

- Jaw size discrepancies (Class III)
- Severe ridge resorption
- Uncoordinated jaw movements