Dental Crowding

Malalignment of teeth is caused by inadequate space. The crowded tooth is displaced labially or lingually and/or rotated. The last tooth to erupt within an arch tends to be the most affected. Dental crowding makes cleaning teeth harder (leads to caries/periodontal disease), prevent achievement of ideal occlusion, and provides an unattractive smile (leads to low self-esteem).

# Aetiology of Crowding

## Hereditary

* Tooth size – jaw size discrepancy

## Environmental

|  |  |  |
| --- | --- | --- |
| * Premature loss of primary teeth/ Trauma | * Altered eruption sequence | * Abnormal eruption path |
| * Proximal caries leading to deficiency in dental arch | * Discrepancy in individual tooth size | * Transposition of teeth |
| * Prolonged retention of primary teeth/ Ankylosis | * Abnormal shape of teeth | * Iatrogenic treatment |

# Classification of Crowding

## According to Source

1. Hereditary Crowding
2. Environmental Crowding

## According to Time of Appearance

1. **Primary Crowding**: determined genetically and caused by disproportion between jaw size and teeth size.
2. **Secondary Crowding**: acquired and caused by loss of arch length due to environmental cause (premature loss of deciduous teeth)
3. **Tertiary Crowding**: late lower incisor crowding during and after adolescence and caused primarily by:
   1. Forward mandibular growth
   2. Soft tissue pressure
   3. Mesial migration of posterior teeth
   4. +/- Eruption of 3rd Molar

## According to Severity

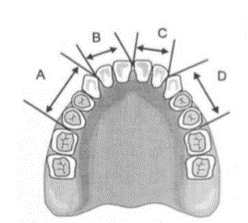
1. **Mild**: up to 4mm crowding
2. **Moderation**: 4—8mm crowding
3. **Severe**: >8mm crowding

# Management of Crowding

## Treatment of Crowding: Mixed Dentition (After 21/12 Eruption)

|  |  |  |
| --- | --- | --- |
| Type of Crowding | Timing | Treatment |
| Mild Crowding | Wait and watch | No treatment |
| Moderate Crowding | Wait until premolar eruption or treat | * Expansion * Eruption Guidance |
| Severe Crowding | Immediate treatment | * Expansion * Eruption Guidance * Serial Extraction * Extraction and Ortho Tx. |

## Treatment of Crowding: Permanent Dentition

Space analysis should be carried out (**Carey’s Analysis**)

|  |  |
| --- | --- |
| Type of Crowding | Treatment |
| Mild to Moderate Crowding | * Expansion * Distalization * Stripping / Proximal Reduction |
| Moderate to Severe Crowding | * Expansion * Extraction |

## Proximal Reduction

* Mild crowding
* Removable/fixed appliance
* Not more than 0.25mm from each proximal surface to remain within enamel

## Distalization lower arch – Lip Bumper

* Mild crowding
* Proclined lower incisors
* Keeps permanent molars at correct position after eruption to prevent chance of crowding within premolars.

## Arch Expansion

* Mild to moderate crowding
* Removable/fixed appliance

## Extraction

* Moderate to severe crowding
* Usually 1st or 2nd premolars if all other teeth have good long-term prognosis