Orthodontics

Orthodontia: ortho = *straight*, dont = *tooth*) is the study dealing with the prevention and correction of abnormally positioned or misaligned teeth.

Orthodontist: is a specialist is concerned with the causes and treatment of malocclusion.

Classification of Malocclusion:

Dr. Edward Angle divided malocclusion into three classifications:

Neutroclusion (Class I malocclusion) in which the anteroposterior occlusal positions of the teeth or the mesiodistal positions are normal, but other malocclusion or positioning of the individual teeth occurs, such as crowding, misalignment, and crossbites.

Distoclusion: (Class II malocclusion) in which the mesiobuccal cusp of the maxillary first molar is anterior to the buccal groove of the mandibular first molar.

Division 1: maxillary incisors protruding.

Division2: maxillary incisors having a lingual incline with an excessive overbite.

Desioclusion : **Class III malocclusion**, in which the mesiobuccal cusp of the maxillary first molar occludes in the interdental space of the mandibular permanent first molar's distal cusp and the mesial cusp of the mandibular permanent second molar, resulting in an appearance of a protruded mandible.

Dental Terminology

Orthodontics and Prosthodontics

An individual tooth position can also be classified as:

Mesioversion: tooth is positioned more mesial than normal.

Distoversion: tooth is positioned more distal than normal.

Infraversion: tooth not fully erupted or into space.

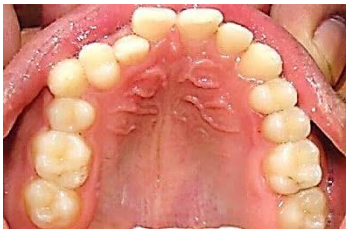
Supraversion: tooth over erupted.

Labioversion: anterior tooth positioned outside the arch toward the lips.

Buccoversion: posterior tooth positioned toward the cheek.

Linguoversion: tooth positioned inside the arch toward the tongue.

Transversion (Tooth Transposition): tooth in wrong order.



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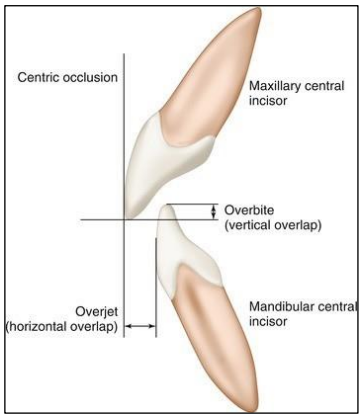
Orthodontics and Prosthodontics

Occlusion problems:

Overjet:

The horizontal distance between the incisal edges of maxillary incisors and the labial surfaces of the mandibular central incisors. **Vertical overbite:**

Amount of overlap of the maxillary and mandibular central incisors when they are in occlusion.



Some occlusion problems:

Open bite: anterior teeth do not contact with each other, or no contact exists between the maxillary and mandibular posterior teeth.

Crossbite: the lingual positioning of the maxillary anterior teeth in relationship to the mandibular anterior

End to end (edge to edge): edges of maxillary and mandibular incisors meeting each other.

Open bite

Crossbite

End to end (edge to edge)

Dental Terminology

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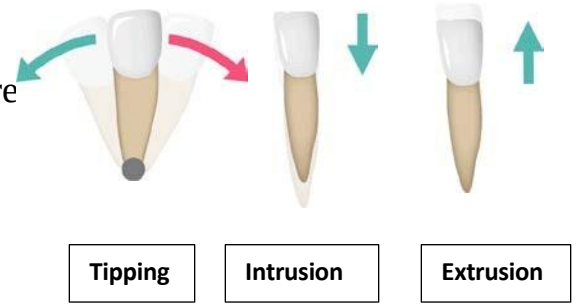
Orthodontic tooth movements:



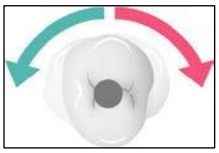
Tipping: change of a tooth position to a more upright dire

Intrusion: movement of the tooth into the alveolus.

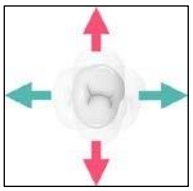
Extrusion: movement of the tooth out of the alveolus.

Rotation (= *turn around on an axis*): altering the position of a tooth around its long axis.

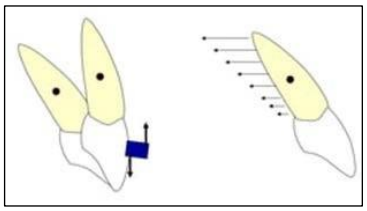
Translation: bodily tooth movement; a change of teeth to alternate positions.



Rotation



Translation



Torque

Torque: movement of the root without the movement of the crown.

Requirements for Diagnosis and Treatment Planning for Malocclusion:

Patient medical and dental history: summary of health problems, dental hygiene habits, patient's desire to follow treatment instructions, and care plan for a long time period.

Clinical examination: inspection and charting of teeth, soft-tissue condition, and biting ability.

Photographs (extraoral and intraoral): photographic record of current condition; used to plan treatment and effective for before and after treatment status. Intraoral views are used for teeth and soft tissue while extraoral views are used to determine skeletal and tissue profile.

Impression taking:

impressions of both arches and a bite registration are taken for the construction of a study model to be placed on an articulator and used for study and measurements.

Radiographs:

Panoramic X-ray: full mouth exposure to view tooth conditions.

Cephalometric: (*measurement of the head*) films for skeletal pattern.

Lateral cephalometric radiograph

Panoramic X-ray (OPG)

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Orthodontic appliances can be classified as **fixed orthodontic appliances**, known as "braces," are fixed bands or brackets to which auxiliary devices are applied, and **Removable Orthodontic appliances.**

Fixed orthodontic appliance

Removable orthodontic appliances

Removable orthodontic appliance in side patient

Prosthodontics

A prosthesis: (*plural* = prostheses) is a replacement for a missing body part. In the dental field, it may be a fixed or removable appliance that replaces removed or nonerupted teeth.

Fixed dental prosthesis, such as a cemented crown, is placed in the mouth and is not intended for removal. A removable appliance is placed in and out of the mouth at the patient's will.

Implantology, *the science of dental implants*, involves the use of both fixed appliances and removable appliances in some instances.

Fixed dental prosthesis:

Fixed bridge: cemented into the oral cavity and not removed by the patient;

the number of teeth involved in the appliance determines the amount or number of

units. **Cantilever bridge**: bridge with unsupported end, usually saddled

Maryland bridge: replaces anterior or posterior tooth and is

cemented directly to the adjacent or abutting teeth.

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A bridge has three components or structural parts:

Pontic: artificial tooth part of the bridge that replaces the missing tooth and restores function to the bite.

Abutment: natural tooth (or teeth) that is prepared to hold or supp retaining part of the bridgework in position.

Removable Dental Prostheses:

Complete denture: removable appliance composed of artificial teeth set in an acrylic base): full denture designed to replace the entire dentition of an upper or lower arch.

Partial denture: removable appliance, usually composed of framework, artificial teeth, and acrylic material; replaces one or more teeth in an arch.

Model impression: A reproduction of the patient's teeth is made into a plaster/ stone study model.

Dental Casts (Plaster)

Dental Casts (Dental Stone)

Dental Casts (3D Printed)

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