Oral Anatomy and Occlusion
“Prosthodontic Component”

OCCLUSION:

PHYSIOLOGIC

vs.

NON-PHYSIOLOGIC

By:
Dr. Babak Shokati, DDS, MSc.
MSc. Prosthodontics
"The organs and structures primarily functioning in mastication. These include:

* Teeth with their supporting structures,
* Craniomandibular articulations,
* Lower Jaw (Mandible),
* Positioning and accessory musculature,
* Tongue, lips, cheeks, oral mucosa, and the
* Associated neurologic complex”
Development of Masticatory S.

A) Development of Sensory Nervous Input

B) Development of Motor Nervous Skills (Neuromuscular Learning)

C) Development / Adaptation of Dental, Alveolar and Craniofacial Components

Software (Programming)

Hardware
Definition of Occlusion
by “The Academy of Prosthodontics”

* The act or **process of closure** or of being closed or shut off

* The **static relation** of the between the incising or masticating surfaces of the maxillary or mandibular teeth or tooth analogues

*The Glossary of Prosthodontic Terms, J Prosthe Dent. (2005);94(1), p.10-92*
But, occlusion is not only a physical contact of the biting surfaces of opposing teeth or prostheses.
Occlusion can be described as:

A *coordinated functional interaction* between components and organs which form the masticatory system as they develop, make adaptation and compensate for the system’s failures.
Factors Affecting Occlusion

Neuromuscular System

Occlusion

Teeth

Joint (TMJ)
Factors Affecting Occlusion

- **Teeth** define the **landing position** of mandibular teeth on maxillary ones.

- **Temporomandibular joint (TMJ)** defines the **path of movement** of the mandible towards maxilla.

- **Neuromuscular system** orchestrates and executes the whole show.
- Harmony and balance among all three components:

**Physiologic Occlusion**

System is able to make an adaptation to unfavourable conditions.

i.e. When contacts between teeth change due to caries, periodontal disease or lost teeth, the TMJ and neuromuscular system make an adaptation and keep the balance as much as possible.
Functional Classification of Occlusion

* Theoretically Ideal Occlusion
* Physiologic Occlusion
* Non-physiologic Occlusion
* Therapeutic Occlusion
Functional Classification of Occlusion

Theoretically Ideal Occlusion:

- Rarely Found in Nature

- Correct Size of Upper Jaw (Maxilla) and Lower Jaw (Mandible) Relative to Each Other

- Correct Relationship of Teeth in All Three Dimensions of Space
The importance of Ideal Occlusion:

It Can Be **Precisely Defined** and Described As a **Standard** to Evaluate the Other Forms of Occlusion
Functional Classification of Occlusion

**Physiologic Occlusion:**

- No Problem with Masticatory Function
- No Pathological Symptoms
- Aesthetically Satisfactory to Person
- Satisfactory Speech Articulation
- Well-adapted to Its Environment
Physiologic Occlusion:

“Occlusion in harmony with the Functions of the masticatory system”

“The Academy of Prosthodontics”

The Glossary of Prosthodontic Terms, J Prosthe Dent. (2005);94(1), p.10-92
**Physiologic Occlusion:**

Represents a State of Harmony for the Person And Does Not Require Therapeutic Intervention
Functional Classification of Occlusion

**Ideal Occlusion** vs. **Physiologic Occlusion**

- Preconceived Ideal Tooth-Jaw Relationship
- Patient Acceptance & Non-destructive tooth-Jaw Relationship
Physiologic occlusion does not necessarily represent an ideal morphological occlusion. But, it provides a comfortable, healthy and functional equilibrium for the person.
**Physiologic Occlusion:**

- **Occlusal Stability:**
  No Tooth Drifting, Rotations, Extrusions, etc.

- **Periodontal Ligaments (PDL):**
  No PDL Symptoms Related to Functional or Parafunctional Loading

- **Parafunction:**
  No Signs of Excessive Functional or Parafunctional Activities (e.g. Attrition)
Non-Physiologic Occlusion:

Occlusion in which there are signs and symptoms of pathology, dysfunction, or inadequate adaptation of one or more components of the masticatory system that can be attributed to faulty structural relationships or to mandibular functional or parafunctional activity.
Non-Physiologic Occlusion:

Masticatory system is not able to develop a stable, functional, healthy, and comfortable equilibrium anymore.
Functional Classification of Occlusion

Attrition (Mechanical Wear)

Supra-eruption, Drifting

Attrition and Erosion

Loss of Vertical Dimension
Functional Classification of Occlusion

Non-Physiologic Occlusion:

Patient is **NOT** satisfied with:

- Aesthetics
- Speech Articulation
- Masticatory Function
**Non-Physiologic Occlusion:**

- **Unstable Occlusion:** (extrusion, drifting teeth ... etc.)
- **Periodontal Conditions:** Signs of occlusal functional or parafunctional activity (increased mobility, bone resorption)
- **Dental conditions:** Signs of occlusal functional or parafunctional activity (wear, fracture, root resorption ... etc.)
- **Temporomandibular Joint Conditions:** TMDs related to mandibular functional or parafunctional activity (pain, muscle tenderness, limited opening ... etc.)
Functional Classification of Occlusion

**Therapeutic Occlusion:**

Occlusion that has been modified by appropriate therapeutic modalities in order to change a non-physiologic occlusion to one that, at the least, falls within the parameters of a physiologic occlusion, if not the theoretically ideal occlusion.
Functional Classification of Occlusion

**Therapeutic Occlusion:**

- Interocclusal appliances
- Occlusal adjustments
- Restorative dentistry
- Prosthodontic Tx.
- Interceptive orthodontics
- Behavioural therapy
- Pharmacological approach
- Surgery
Functional Classification of Occlusion
Functional Classification of Occlusion
Thank You for Listening to Such a Boring Lecture