When & Why is Occlusion Important?
- When signs or symptoms of OD are evident
- When extensive restorative Dentistry is being planned!!!

Ruiz JL Achieving Longevity in Esthetics by Proper Diagnosis and Management of “Occlusal Disease”. 2007 Contemporary Esthetics Vol 11 (6); 24-30

Occlusal Damage Occurs at Any Age?
Patients on Their 30’s

If Occlusion is So Important? Why So Ignored?
- Too much of the focus on occlusion education is for “full mouth rehabilitation”
- “TMD”, & occlusion mixed together.
- It is made to be too complicated.
- Population not educated about OD

Every Dentist Should be an expert in occlusion Because:

Lecture Objectives:
- What is Occlusal Disease
- How to Diagnose OD
- How to educate the patient
- How to treat OD
- How to Maintain Patients with OD
- Practice Integration
What is Occlusal Disease?

Disease: “Abnormal condition of an organism as a consequence of infection, inherent weakness or environmental stress, that impairs normal physiological function.”

The American Heritage Dictionary

Definition of Occlusal Disease:

A destructive process evident in any part of the masticatory apparatus (joint, muscles, periodontium or teeth), as a consequence of occlusal disharmony or parafunction.

JL Ruiz
Ruiz JL. Occlusal Disease: Restorative consequences and Patient Education. Dentistry Today 2007Sep 26(9):90-95

How To Diagnose & Implement OD?

New Paradigm in Health Care

“Unnecessary data gathering cannot be regarded as measurement of thoroughness.”

McNeill C. Science and Practice of Occlusion
Quintessence Books

“Occlusal Disease Diagnosis System”

• Stage 1 Initial Occlusal Evaluation (all patients)
• Stage 2 Occlusal and TMJ Examination (as needed and accepted by patients)
• Stage 3 TMJ Examination or Referral to local expert

The Initial Screening (Stage 1)

“Team Driven NP Examination System”

Important Data Is Gathered From Day 1

Team Driven Record taking & Education
Dentists Exam

### 7 Signs and Symptoms of Occlusal Disease

- **Pathological tooth wear, chipping or fractures**
  Ratcliff S. Becker IM, et al. Type and Incidence of Cracks in Posteror Teeth.
  J Prosth Dent: 2001;86:168

- **Tooth hypersensitivity**
  Quintessence Int 2003;34:427-434
• **Tooth hypermobility**

• **Fremitus**
  • **Abfractions**

• **Severe localized bone destruction (secondary to periodontal disease)**
  Harrel SK, Nunn ME, Hallmon WW, Is there an association between occlusion… Yes, occlusal forces can contribute to periodontal destruction. JADA; 2006; 137 (10): 1380-1392

• **Muscle pain and TMJ pain**.
  • T Gremillion HA. The relationship between occlusion and TMD: An evident-based discussion.
  • J Evid Dent Pract 2006;6:43-47

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(Stage 1) Discovery & Education
Night Guard …Even if Patient Refuse Stage 2, when there are signs of OD.
No to treat symptoms of pain?
After extensive dentistry.
Don’t over promise.

Patients Choose Direction

(Stage 2) Occlusal / TMJ Examination
Purpose:
- To gather necessary information for final diagnosis.
- Permits an opportunity for communication of goals and limitations.
- Has 2 components…the occlusal portion (function), esthetic portion

Record Needed on second visit
1. Photos
2. Panorex
3. High Quality Cast
4. Face Bow
5 a). Lucia jig
5 b) Patient Fill Occlusion & TMJ Form
“What is an Ideal Occlusion”? Joint Position…

• Natural bite
• Neuromuscular
CR:
• Gnathology
• Bioesthetics
• Pankey-Dawson

What We All Agree On: The 3 Golden Rules Of Occlusion

1. Bilateral even contacts.
2. Posterior disclusion (anterior guidance & canine rise).
3. Unobstructed envelop of function.

The Ultimate Goal!

1. Why Even Contacts?

2 a. Why Anterior Guidance?
Mansour RM, Revnik RJ. In vivo occlusal forces…Forces measured in terminal hinge position…

2 b. Why Canine Guidance?

3. Envelop of Function?
Dawson PE. Evaluation, Diagnosis and Treatemnet of Occlusal Problems. 1989 Mosby
VDO

* Patient accommodation to changes in VDO, suggest than VDO can be modified with in reason without clinical consequences.


The 11 Step Clinical Examination…

1. Load test

2. First point of contact

3. Occlusal slide

4. Clinical Anterior Guidance & Canine Guidance

5. Range of motion

6. TMJ noise

7. Frmitus/ mobility

8. Cervical Dentin Hypersensitivity (CDH)

On the Cast:

9. Cross/ Open bite

10. Parafuction

11. Angle classification
After Patient is Dismissed & before Final Diagnosis….

**Cast Mounted on Semi-adjustable Articulator**
- No articulator can repeat muscle variations & human asymmetry.
- It is impossible to avoid introducing error.
- Need to have fully adjustable brain

**Cast Evaluation & Trial Equilibration**

**Cast Evaluation**
- Using Artifoil evaluate for Centric, lateral interferences.
- Tooth anatomy & wear.
- Evaluate occlusal plane.
- Evaluate to see if occlusion is close enough to ideal, or if subtractive or additive equilibration, or rehabilitation are needed.
- If discrepancy is extreme, assess if orthodontics or extensive restorations are needed.

![Articulator Image](image)

**Trial Equilibration**
- Using Arti-Foil (Bausch) blue & Red. Always double sided.
- CO
- Occlude (Pascal)
- Canine Guidance
- Lateral & Protrusive

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**Diagnose Before You Treat!**

Diagnose First:
There can only be one correct diagnosis, but there can be many treatments for that diagnosis. Hippocrates
- Pt. Goals
• Diagnosis (Disease & Etiology)
• Treatment

(Stage 3) Advanced TMJ/TMD Examination
When is the TMJ Unstable for Treatment?

Clinical exam:
• Positive load test (1)
• Pain during and/or limited range of motion (5)
• Sound on the joint (8)

Questioner:
• Interferes with normal activities (8)
• Locked jaw (14)
• Stress worsens condition (16)
• Do you feel your bite is changing (19)

And:
• No obvious occlusal etiology!

Esthetic Component:

Dento-Facial Esthetic Diagnosis System
1. Occlusal Plane:
2. Midline:
3. Facial Symmetry:
4. Lip Position:
5. Facial Lateral Thirds:
6. Tooth Show (Smile):
7. Bucal Corridor:
8. Gingival Show:
9. Incisal Plane:
10. Incisal Plane T Lip:
11. Conversational TS:

**GROUP ESTHETICS**
12. Axial Incline:
13. Rotation:
14. Crowd/Space:
15. Embrasure:
16. US Inclination:
17. Esthetic Zone:
18. Over jet/ Overbite:
19. Lateral Occlusal Plane:

**GINGIVAL ESTHETICS**
20. Papilla:
21. Gingival Symmetry:
22. Gingival Biotype:

**TOOTH ESTHETICS**
23. Shade:
24. Shape/Style:
25. Ratio: 


How to treat OD?

Treatment Depends on The Etiologies of OD
- Primary & Secondary Occlusal Trauma
- OverJet & Overbite
- Skeletal Asymmetries
- Excessive wear associated with chemical erosion.
- Parafuctions

4 ways to treat OD:
1. Night Guard or Occlusal Splint.
2. Simple subtractive equilibration + NG.
3. Subtractive and additive equilibration + NG.
4. Occlusal rehabilitation + NG.

NG is the Most basic Treatment When?
Night Guard is preventative NOT therapeutic:
- Made and adjusted on MIP
- Full coverage hard acrylic
- Equal contacts
- Anterior and canine guidance.
Worn at night when there are signs of OD and when patient is aware of clenching or grinding.

Therapeutic Splints: When?
- Patient is positive to load test.
- To do a reversible test of our planned occlusal changes before restorative work is done or OD treatment, when patient has symptoms of pain.
- NOT to treat TMD (in our system).

Types of Splints...
- Anterior flat plain (NTI, Lucia jig)
- Posterior Pivot (Gelb appliance & Aqualizer)
- Full coverage with Ramp.
- Full coverage CR; Maxillary or Mandibular.
When do we start treating OD?

The Equilibration…When?
1. Diagnose, Tx plan & Informed Consent.
2. Trial equilibration.
3. Using equilibrated cast as a guide…
4. Get equal centric stops on CR.
5. Lateral & Protrusive second.
6. Always finish with “posture adjustment’
7. Should be followed by at two retouch adjustments.

Treatment is Always the Same, Force Control and Distribution = The 3 Golden Rules Of Occlusion
- Equal contacts
- Anterior Guidance & Canine Rise
- Unobstructed Envelop of Function

The Importance of Knowing the Etiology of OD

Cases

• Primary & Secondary Occlusal Trauma

• OverJet & Overbite
• Skeletal Asymmetries

• Excessive wear associated with chemical erosion.

Parafuctions

Psychological Component
Physiological Component
Drug Related Component

Regardless of cause, the most effective treatment for the effects of bruxism is perfection of the occlusion. PE Dawson

“Heavy bruxers should be informed that restoring their teeth will not lead to cessation of bruxism. Patients must accept that their restorations will also be subject to wear and that the prosthodontic rehabilitation is an intermediate means that will have to be renewed at certain intervals”


How to Maintain Patients with OD

• Night Guard
• Patient Education
• The Perio Model, patients are never “cured”

Integrating in to our Practice

• Dentist Education and Commitment
• Staff Education
• Patient Education
• But it is not and all or nothing approach, but plant the seed.
How to Educate the Patient

• Call it like it is “Occlusal Disease”

Using Analogies:
• Car: __________________________________________________________ Door: ______

______________________________________________________________
Table: __________________________________________________________

______________________________________________________________

LA Institute Occlusal Philosophy

• Occlusal Disease is far more than TMD or Pain
• Occlusal Diagnosis must be practical if we are going to do it routinely
• “Ideal Dentistry” is an illusion & leads to over treatment so There must be a realistic and definable end point for occlusal treatment, and it can’t be perfection
• Correcting occlusal disharmony should not be more destructive than the disease itself
• Occlusal treatment doesn’t require expensive instrumentation

Thank You

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