


AGD 2016 BOSTON
 REVOLUTIONARY CHANGES IN DENTISTRY 

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*Soft Tissue Supported Prosthesis
 vs. Implant Supported Prosthesis?*
CONSIDERATIONS FOR BONE PRESERVATION



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Conventional Mandibular Denture
 PATIENT'S GREATEST PROSTHETIC COMPLAINT

- lack of retention
- lack of stability
- decrease in function and chewing efficiency
- Reduced bite force
- difficulty in speech
- soft tissue abrasion, frequent relines and occlusal adjustments.....

NO BONE PRESERVATION!

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TERMS

Main Prosthodontic Criteria of Implant Dentistry

- SUPPORT – Load (Compressed)
- RETENTION- Displacement/Dislodgement
- STABILITY – Horizontal Movement



Implant Masterminds



5 COLUMNS OF BONE INTRA-MENTAL FORAMEN



Misch CE, Dental Implant Prosthetics, 2007 Mosby



Two Independent Implants B & D



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Rationale for IRODs

- **Novice Implantologist**
- Flexibility in implant placement
- Ease of prosthesis fabrication
- Reduced surgical risk
- Ease of oral hygiene
- **Cost**

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Ball Attachment

- Lots of rotation 360'
- Stability: Minor
- Retention: Good
- Support: Soft/Hard Tissue

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IROD Mucosal Surface



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2 IMPLANT MANDIBULAR OVERDENTURE

- 1. COST FACTOR!!!
- 2. POOR STABILITY, excessive rotation
- 3. POOR SUPPORT and Unpredictable
- 4. GOOD RETENTION, use Balls or Locators
- 5. INCREASED BITE FORCE = 2-3X FASTER BONE LOSS vs. Full Lower Denture no implants
- 6. DENTURE REQUIRES MORE RE-LINES
- 7. CONTINUED BONE LOSS

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Bone Loss Continues so...

- Implant Retained Overdentures (IRODs) should be considered a **transitional** prosthesis until you can achieve a truly implant supported prosthesis.

Dr. Carl Misch

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Bone Loss from IRODs

Bone loss continues over time, but it can also be accelerated:

- 1. Excessive Pressure over the load bearing areas are on the soft tissue causing constriction of blood vessels
- 2. The prosthesis is worn more...soft tissue abrasions, sores
- **3. Disuse atrophy in the posterior mandible**



Loss of bony support in the Posterior Mandible

1. Reduced or complete loss of stability
2. Increased wearing of the nylon attachments
3. Decreased retention
4. Pain
5. Sores
6. Diminished VDO



Bone is an Organ

Maintains itself in load



Disuse Atrophy

- With a decrease in bone loading there is an increase in remodeling frequency and inhibition of osteoblast formation causing skeletal degrading = bone loss



Reduce IRODs effect

1. Use cutting utensils as much as possible
2. Remove the denture at h.s.



Better Alternatives to preserve bone in the posterior mandible

Implant Supported Prosthesis

4 or more implants joined directly to a metal bar/framework or attached to a rigid prosthesis.

1. Bar Overdenture
2. Hybrids
3. FPD (Screw Retained or Cemented)



Bone Preservation

MANDIBULAR JAW STRAIN



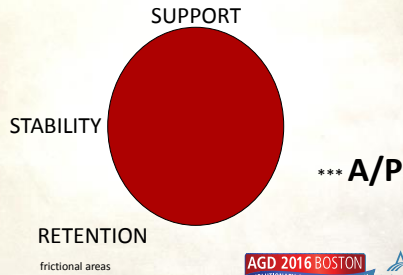
RPD or FPD case?

4 IMPLANTS, TITANIUM BAR/SUPERSTRUCTURE



HADER BAR

CROSS SECTION ANALYSIS



Mandibular Overdenture 2 Hader Clips & 2 O-Rings



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POOR DESIGN



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Too Much of a good thing is bad!



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3 BALLS



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OVERDENTURE 2 vs 4 implants

- 2 Implants: the restoration is tissue-supported, but implant retained
- 4 Implants: the restoration is implant supported and implant retained....
- Critical: Bone preservation in post man

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Resorptive Process of Bone

1. Loss of Vascularization (Physiology)
2. Lack of Osseous Strain (Biomechanical)

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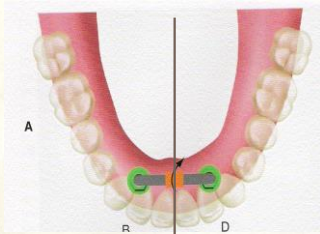


WHEN TO SPLINT 2 IMPLANTS with a BAR

- If implants have a guarded prognosis
 - Implants are not PARALLEL to each other
-
- *2-3x faster bone loss with RP-5 prosthetic than with a full denture*



2 Implant Overdenture Allows for Rotation of Prosthesis Hader Clip



Misch CE, Dental Implant Prosthetics, 2007 Mosby



2 implants splinted with Bar

- Do not add more than one retentive device on the bar or you will increase the retention/stress on the implants
- Best to use BALLS OR STUDS (LOCATORS) to get circumferential rotation
- The bar itself doesn't give more retention
- The bar only helps to distribute the force, give rigidity to the implants, and correct angulation issues of the implants.



BRACING STRUT SPLINTING



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4 IMPLANT MAN OD SPLINTED WITH A BAR

- SUPPORT via the Mucosa
- SUPPORT via the Implants
- MAJOR Stability
- GREATEST Retention
- CANTILEVER... YES. You can have posterior cantilever ~10mm. A/P Spread 1.5x
- Prevent Bone Loss
- Can be removed at *h.s.* to decrease stress
- More bang for the buck!

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Literature Review

- 2 Hader Clips more retention than 1 clip
- Adding 4 Hader Clips no diff from 2 Clips
- The highest and best retention value was recorded with the Strut or Ball with Hader Clip combination.

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HYBRID Advantages

- Superior Esthetics
- Stability
- Splinting Implants
- 12mm Interarch Space

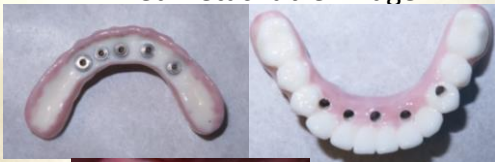


HYBRID Disadvantages

- COST
- Difficult to repair
- Time
- Angulation
- Guarded PX of implant
- Bruxer, do OD first then Hybrid
- Loose 1 implant, "All on 4" becomes "None on 3"
- Usually with CT and Guide
- Hygiene



PMMA provisional try in Fixed Detachable Bridge



Zirconia Screw Retained Fixed Detachable Bridge



Do CANTILEVERS when:

- NOT ENOUGH BONE HT.
- NEED TO AVOID INFERIOR ALVEOLAR NERVE
- NO CROWN HEIGHT SPACE
- NOT ENOUGH BONE WIDTH
- IMPLANT POSITION



CANTILEVER IS A RULE

- IT'S NOT AN ABSOLUTE, IT CAN BE CHANGED.
- Whenever possible keep the cantilever mechanical advantage to 1 or less.
- If possible cantilever should go to the mesial b/c greater forces in the distal



A-P Spread

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- Implants restored with a cantilever bar or prosthesis (Hybrid) increases bite force near those of a naturally dentate jaw.

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Implant Supported Prosthesis


- These ISODs or cantilevered prosthesis create greater bite forces resulting in substantial mandibular flexure.
- ISODs is completely implant supported, retained, and stabilized.
- The amount of force transmitted to an ISOD = Implant Fixed Prosthesis

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• This favorable and forceful biting causes the posterior mandible to undergo flexure (bending) and torsion (twisting).

• Therefore, posterior bone in the mandible is preserved, maintained, and even regeneration can occur.

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NO Cantilever Rule!

• CONFUSING????????????????

• **BRUXER- use caution**


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NATURAL SPLINT

• Maxillary Posterior area, less density, so need naturally splinted roots by a crown

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OCCLUSION

- GROUP FUNCTION: Removable
-destructive in FPD or Natural
- CANINE GUIDED: Natural, Fixed



Implant Biomechanics

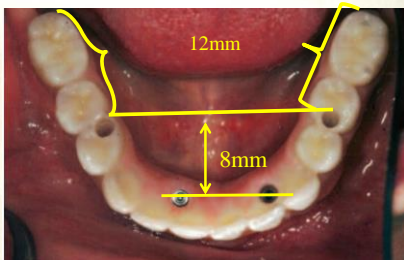
- We cannot alter the patients bite force, so how can we use the formula:

$$\text{Stress} = \text{Force}/\text{Area}$$

To reduce a biomechanical stress/overload?



AP SPREAD



ATTACHMENTS ANTERO-POSTERIOR SPREAD



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Conclusion

- IRODs or any tissue supported prosthesis does not preserve bone in the posterior mandible, and it has been proven to accelerate bone loss by as much as 2-3 faster than a convention full denture, therefore, IRODs = Transitional Prosthesis, until more implants can be placed so a definitive Tx. Plan of an ISOD can be fabricated

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Thank You For Your Kind Attention

THE END



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