Module:  
Patient Workup and Treatment Planning

Let's get clinical

Treatement planning Sequence

- Esthetics
- Restorative Space
- AP spread
- Treatment options

Patient work up

- Perform full new patient exam
- Thoroughly review medical hx
- Make over extended alginate impressions
- Make JRR and orientation record for maxillary arch
- Take intraoral and extraoral photographs

Patient work up

- Conditions to be aware of:
  - Cardiac issues
  - Issues with healing
  - Smoking
  - Diabetes
  - Osteoporosis
  - Bisphosphonates

Intraoral Photographs
Esthetic Evaluation

- Measure lip position at maximum “snarl”
- Determine:
  - Maxillary midline position
  - Maxillary central incisal edge position
  - Mandibular teeth are based on the maxillary tooth position
- Evaluate how to hide the junction of the prosthesis and natural tissue
- This will guide bone reduction

3mm min
Restorative Space; Bone Reduction

- The most critical step to **ensure prosthetic success**
- The restorative prosthesis needs a minimum of **15mm** from the implant fixture to the incisal edge or occlusal plane
- This can be determined from the **CT scan** in conjunction with the **extraoral photographs**
- Necessary for **strength** of prosthesis and for **esthetics**

Patient CL; Bone Reduction for esthetics

Bone Reduction

Blue Print

Make Immediate Dentures
Patient CL

Pt JS

Pt JS

Patient JS; Bone Reduction for Restorative Space

Anterior Posterior Spread

AP Spread

- Critical to avoid excesses force on the distal implants
- Poor AP spread can lead to excessive cantilevers, which results in prosthetic fractures, bone loss and can cause implant failures
- Minimizing cantilever lengths works hand in hand with ideal AP spread to prevent distal implant overload
Magnitude and distribution of occlusal forces on oral implants supporting fixed prostheses: an in vivo study.

Duyck J1, Van Oosterwyck H, Vander Sloten J, De Cooman M, Puers R, Naert I.

A total of 13 patients with an implant supported fixed full prosthesis were selected. Occlusal forces on the supporting implants were quantified and qualified during controlled load application of 50 N on several positions along the occlusal surface of the prostheses and during maximal biting in maximal occlusion by use of strain gauged abutments. The test was conducted when the prostheses were supported by all (5 or 6) implants and was repeated when the prostheses were supported by 4 and by 3 implants only. Despite considerable inter-individual variation, clear differences in implant loading between these test conditions were seen. Loading of the extension parts of the prostheses caused a hinging effect which induced considerable compressive forces on the implants closest to the place of load application and lower compressive or tensile forces on other implants.

Effect of tilted and short distal implants on axial forces and bending moments in implants supporting fixed dental prostheses: an in vitro study

Ogawa T1, Dhaliwal S, Naert I, Mine A, Kronstrom M, Duyck J.

PURPOSE:
The aim of this study was to evaluate the axial forces (AFs) and bending moments (BMs) on implants supporting a fixed dental prosthesis (FDP) with a distal cantilever (10 mm) compared to an FDP supported by tilted or short posterior implants.

MATERIALS AND METHODS:
Nine titanium Branemark implants were placed in an edentulous composite mandible. The mechanical loading conditions were evaluated for the following three situations: (1) short distal implants supporting a cantilever, (2) long tilted distal implants, and (3) no distal implants supporting a cantilever. A vertical load of 50 N was applied at the first molar position, and the resultant AFs and BMs were measured for the three different situations, three different numbers of supporting implants (three, four, or five), and three different prosthesis materials (titanium, acrylic, and fiber-reinforced acrylic).

RESULTS:
The mean BMs, as well as the maximum AFs and BMs, were significantly higher in the model with a cantilever compared to that having the tilted or short distal implants (P < .001). There was no significant difference between the models with a distally tilted implant versus a short distal implant.

CONCLUSION:
The use of posterior implants reduced the AFs and BMs on implants supporting an FDP compared to that with a distal cantilever. No difference in mechanical loading was observed between a short or tilted distal implant.
Immediate results that leave a lasting impression!

Four implants  
Five implants  
Six implants

Tapered Short Implant

- for resorbed sites
- reduced surgical protocol
- primary stability
- dual affinity Laser-Lok® surface

Minimize Cantilever Lengths

AP Spread; Planning Position

AP Spread; Planning Position
Problems with implants to close together and no AP spread

- Hygiene issues
- Excessive load on implants and components
  - Fracture of prosthesis
  - Bone loss
Key Concepts

ALWAYS........

learn from the past and from the mistakes we all make!!!!!!
Let’s do some more…

And some more…

Finally done?

At what cost was this accomplished?

Wow!

Let’s take it all the way!!!
Correct incisal edge position

Super eruption and excess vertical overlap

Treatment Planning

Execution
Proceed with caution

Difficult cases

- Skeletal Class II
- Vertical Maxillary Excess
- Large Defect Cases
- Combination Syndrome
- Issues with VDO
- Difficult sequencing

Class II Relationships

- Modifiable into pseudo class I
- Class II div II (Retrocline Maxillary Incisors)
- Leave in Class II
Vertical Maxillary Excess

Proceed with caution

Proceed with extreme caution

A bit complicated
Quad Zygoma

Great patient right?

Think again

Combination syndrome
Vertical Dimension

- Carefully evaluate a patient like this
- Do we open the VDO?
- What is the alternative?

Only open VDO if patient has adequate freeway space
What do we do if the patient has inadequate freeway space?

Sequencing

Intraoral Photographs

Lower Arch Provisionalized

Upper Arch Provisionalized
Provisionals

Complex