JEWEL OF THE GREAT LAKES

M. NADER SHARIFI, DDS, MS

THURSDAY, MAY 6, 2010
2:00 TO 4:30 P.M.

A PARTIAL COURSE ON PARTIAL DENTURES

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A Partial Course on Partial Dentures

M. Nader Sharifi, D.D.S., M.S.
Wisconsin Dental Association
Milwaukee, WI
Thursday, May 6, 2010
About Your Speaker:

M. Nader Sharifi, D.D.S., M.S. holds a certificate in prosthodontics and a masters degree in biomaterials from Northwestern University. He received his dental education at the University of Illinois. He has presented numerous topics on implant dentistry since his graduation. He has completed over 300 presentations on restorative dentistry and patient care that has earned him recognition from esteemed study groups, societies and associations nationwide. He is a former assistant professor at Northwestern University and former on-call consultant for Nobel Biocare.

Dr. Sharifi currently maintains a full-time private practice of adult general dentistry in Chicago’s downtown loop. As a five day a week wet gloved dentist, he is interested in ensuring time saving and cost effective care. In 1996 he was named to the American Dental Associations Speakers Bureau. The Chicago Dental Society honored him in 2007 with the Gordon Christenson Distinguished Lecturer Award.

If you would like, you can reach Dr. Sharifi easiest via the internet. Please feel free to direct any questions or comments at any time to his Email address at MNSDDSMS@AOL.com.
Removable Prosthodontic Classification
M. Nader Sharifi, D.D.S., M.S.


A. Class I
1. Edentulous area in a single arch only.
2. Edentulism limited to 2 teeth in the maxillary anterior – or – 4 in the mandibular anterior – or – 2 in the posterior (molars excluded).
3. Abutments are ideal and require no restoration.
4. Angle Class I jaw classification.
5. High, well rounded residual ridge.

B. Class II (underlined items are different)
1. Edentulous areas can exist in both arches.
2. Edentulism limited to 2 teeth in the maxillary anterior – or – 4 in the mandibular anterior – or – 2 in the posterior (molars excluded).
3. Abutments or occlusion requires mild intervention.
4. Angle Class I jaw classification.
5. High or low, well rounded residual ridge.
6. Mild systemic or psychological modifiers.

C. Class III
1. Edentulous areas can exist in both arches.
2. Edentulism of more than 3 teeth in any area or 2 molars.
3. Abutments or occlusion requires moderate therapy.
4. Angle Class I, II or III jaw classification.
5. Occlusion is compromised with supra-eruption.
6. Moderate systemic or psychological modifiers.

D. Class IV
1. Edentulous areas can exist in both arches.
2. Edentulism of more than 3 teeth in any area or 2 molars.
4. Angle Class I, II or III jaw classification.
5. Occlusion requires a change in vertical dimension.
6. Severe systemic or psychological modifiers.
8. Maxillary-mandibular incoordination (Parkinson’s)
Prosthetic Findings

Maxillary Arch: U Shaped______ V Shaped_______ O Shaped____ Square Shaped____
Ridges: High______ Low______ Post-extraction____ Knife-edged______ Basal bone____
Hard Palate: Deep_______ Shallow____ Medium____ Soft Palate Class___________
Tuberosities (R)_________ (L)________ Torus________ Attached Mucosa__________%
Frenum: Anterior______(R)______ (L)______ Teeth__________________________

Mandibular Arch: U Shaped______ V Shaped_______ O Shaped____ Square Shaped____
Ridges: High______ Low______ Post-extraction____ Knife-edged______ Basal bone____
Lateral Throat Form Class_______ Torus____________ Attached Mucosa__________%
Buccal Shelf: Large_______ Medium________ Small_______
Frenum: Anterior______(R)______ (L)______ Teeth__________________________

Tongue: Position________________________ Movement____________________
Saliva Consistency______________________ Amount_______________________

Jaw Classification: Class I______ Class II___________ Class III________

Existing Prosthesis:________________________ Pt.’s Opinion:_________________
Retention: Good____ Adequate______ Poor______
Stability: Good____ Adequate______ Poor______
Support: Good____ Adequate______ Poor______
Esthetics: Good____ Adequate______ Poor______
Phonetics: Good____ Adequate______ Poor______
Occlusion: Good____ Adequate______ Poor______

Facial Shape: Square____ Square-tapering____ Ovoid____ Triangular____ Round______
Profile: Flat_______ Rounded___________ Inverted____________
Coloring: Hair______ Eyes______ Complexion____________
Course Outline:

I) Patient Evaluation – Will not be covered
   A) Partially Edentulous Case Classification - See Page 2
   B) Anatomic Limitations – Problems with removable success related to the clinical situation of the patient. Changes can only be achieved with surgical correction. Existing Conditions Sheet identifies critical anatomical structures: will they help or hurt the patient desire for success. See Exam Sheet-Page 3
   1) Occlusal Plane Discrepancies from Unrestored Teeth
   2) VDO Compromise from Wear and Unrestored Teeth
   C) Evaluation of Existing Prosthesis
      1) Retention – Doctor’s Perspective: Good/Adequate/Poor
      2) Stability – Doctor’s Perspective: Good/Adequate/Poor
      3) Support – Doctor’s Perspective: Good/Adequate/Poor
      4) Esthetics – Doctor and Patient Perspective
         (a) May not agree
      5) Phonetics – Doctor and Patient Perspective
         (a) Does the patient notice problems?
      6) Occlusion – Doctor and Patient Perspective
         (a) How does the patient eat?
      7) Clinical Limitations – Problems with the existing prosthesis due to insufficient use of the patient’s available anatomy. Changes can be achieved with fabrication of new prostheses.
   D) Are the patient’s complaints in line with their anatomic and clinical limitations?
      1) Can we improve their current clinical situation?

II) Occlusal Design – Will not be covered
   A) Lingualized Occlusion – Lingual (palatal) Cusp Contact Only.
      1) Indications – Excellent for RPDs – also for completes.
      2) Bilateral Working and Balancing Side Contacts
         (a) Controlled in Set-up on the Articulator.
            (i) Cusp Form Teeth in Maxilla, Flatter Plane in Mandible
            (b) Maxillary incisors, cuspids, premolars and first molar mesial cusps all on same plane.
            (c) Cusps then rise to shallow Curve of Spee.
            (d) Mandibular posterior teeth have central groove contact to palatal cusps of the maxilla.
            (e) No posterior contact of maxillary buccal cusps.
               (i) True in Centric & all Eccentric Movements
               (f) Anterior open bite. If lowers are 0° – no overbite.

III) Clinical Records – Will not be covered
   A) Many RPD cases use maximum intercuspation for VDO & CR
   B) Wax Rims: Use Complete Denture Tenets
      1) Maxillary Wax Rim – Use first.
         (a) Anterior Contour – Profile esthetics
         (b) Anterior Vertical Height – Use fricatives as the starting point. We can get clear fricatives through about 3-5 mm of vertical height variation, therefore use incisal edge show as the final esthetic determinate for anterior vertical height.
         (c) Maxillary Horizontal
            (i) Intrapupillary Line – Side to side plane.
            (ii) Fox Plane (Dentsply) – level: right to left
(iii) Ala-Tragus Line – Ala of the nose and the Tragus of the ear as the horizontal plane
(iv) Buccal Corridor – Meet the opposing or esthetic needs

2) Mandibular Wax Rim
   (a) Anterior Contour – tends to be a thin area
   (b) Anterior Vertical Height – Sibilant sounds are the final determining factor, but I start
   with the first premolar area being approximately the level of the lower lip at rest.

IV) Prosthesis Delivery – Will not be covered.
   A) Have confidence with the fit, spend time on bite.
   B) Lab should complete selective grind before breakout
   C) Occlusal Indicator Wax to eliminate centric prematurities.
      1) If lingualized occlusion, eliminate buccal contacts.
   D) Eccentric Occlusion – Use horseshoe articulating paper to develop working and balancing
      side contacts in group function.
      1) Lingualized – Use Blue/Blue paper to eliminate all buccal interferences.
         (a) Slide side-to-side - adjust buccal interferences on the upper molars & lower premolars
      2) Without Paper: Watch and ask patient where “hitches” occur
         (a) Red to lower, slide side-to-side; Black to Lower, tap-tap-tap in centric, then adjust red
            marks on the lower denture to eliminate hitches.
         (b) Red to Upper, slide side-to-side; Black to Upper, tap-tap-tap in centric, then adjust red
            marks on the upper denture to eliminate hitches.
         (c) In all lingualized occlusion adjustments, continue to eliminate all buccal contacts.

V) Kennedy Classification – Visual Learning
   A) Class I: Bilateral Distal Extension – No Posterior Teeth
   B) Class II: Unilateral Distal Extension – One Side: No Posterior
   C) Class III: Posterior Tooth Borne
   D) Class IV: Anterior Tooth Borne

VI) Removable Partial Denture – Tooth Preparation
   A) Guide Planes – Lateral stability is secondary requirement of teeth in RPD design.
      1) Indication for Guide Planes – Path of insertion, stability.
      2) Preparation of Guide Planes – Parallel sided burs.
      3) Anterior versus Posterior Path of Insertion.
   B) Reason for Rest Preps – Vertical stop is primary requirement of teeth for RPD design.
      1) Fulcrum Line for Prosthesis Rotation on Teeth
      2) Seating Confirmation of Prosthesis – Most Important Step – More than Frame Design
      3) Direction of Force Down Long Axis to load the tooth axial from the rotational forces
      4) More than 180° encirclement to prevent drift of the abutment tooth from clasp forces
      5) Indirect Retention – covered below in
      6) Rest Seats for Cuspids
         (a) Cingulum (Chevron) Rest
         (b) Horizontal Rest – Filled with Composite
         (c) Finger Rest – No Vertical Stop
      7) Rest Seats for Premolars and Molars
         (a) Occlusal Rest
         (b) Round burs then ceramic inlay burs
      8) For All Rest Seats on Teeth with Existing Fillings: Prep Onto Sound Tooth Structure
         (a) If PFM, Prep to Metal
9) Indirect Retention
   (a) Prevention of Saddle Area Lifting for Free-End Saddles
   (b) Preparation – Tooth appropriate.
   (c) Fulcrum Selection – Free-End Saddles
      (i) Combine most distal REST SEATS.
      (ii) Greatest perpendicular placement – contralaterally
      (iii) Required for Kennedy Class I and II
      (iv) Necessary for Tooth Borne?
         • Yes, a Class III can act like a free-end
         • Class IV is really a Class I turned around.
   (d) Indirect Retention as a Reline Indicator
      (i) Need for Reline – Pressure on saddle lifts rest.
      (ii) Notes Correct Reline Seating – Do not Bite!
      (iii) Adjust occlusion at delivery.

VII) Clasp Design
A) Suprabulge Clasps – above height of contour
   1) Akers Clasp – Basic use (free-ends?)
   2) Wrought Wire Clasp – Wrong Side of Fulcrum
   3) Equipoise Clasp – Terminal tooth is an incisor
   4) Ring Clasp – Tipped Lower Second Molar
B) Infrabulge Clasps
   1) I-Bar Clasp – Contraindicated in molars, buccal vestibule undercuts, and high frenums
   2) T-Bar Clasp – Modification (not any more)
C) Free-End Saddle Clasp Design – Distal Akers v. I-Bar
   1) Suprabulge versus Infrabulge
   2) Pushing versus Pulling Retention
   3) Engage during load versus Disengage
   4) “Esthetic” options
   5) Mesial Rest with Akers: RPA (reach back)
D) Conclusions:
   1) RPI – Free-End Saddles
   2) Equipoise – Terminal Incisors
   3) Akers – Always Points Backwards
   4) Wrought Wire – Wrong Side of Fulcrum Line
VIII) Framework Design Worksheets in this Handout – See page 9
IX) Framework Fit – Most Important: Evidenced based research
A) Occlude Spray – Spray paint without adhesive
   1) Dry frame, spray frame in tooth contact areas
   2) Dry teeth, seat frame, rock across fulcrum line
   3) Adjust shiny areas of minor connectors, side walls of rest seats, avoid guide planes
   4) Adjust until rest seats bottom out on prepped tooth
X) Attachments – Ensure they are necessary – they replace clasps
A) Extracoronal Attachments – Preferred method
   1) Must Double Abut. – Creates cantilever
   2) Law of Beams: Stress/Strain = (K)l³
   3) Bredent Attachments – Smallest on the market
(a) Non-resilient
4) ERA – My favorite because of processing male
   (a) Resilient
   (b) Has Processing Male (non-resilient)
      (i) Can be used for relines
   (c) Easy to Change and Vary Retention Degree

XI) Removable Partial Prosthodontics Impression Techniques
A) Custom Tray Fabrication/Selection – Reinventing the wheel?
B) Impression Materials
   1) Irreversible Hydrocolloid (Alginate) – Mucostatic
      (a) Canned Alginate – canned.
      (b) “System 2” Syringable Alginate – Simple, inexpensive, quick to retake when needed
   2) Rubber Base – Functional – For use with custom trays.
   3) Polyvinyl siloxane and polyether – not ideal, but okay
C) Free End Saddle Registration
   1) Altered Cast Technique – Lacks Confidence
   2) Reline at Delivery with PVS, Polyether, or Rubber Base
      (a) 30 seconds of border molding
         (i) Use Massad Aquasil Technique – Dentsply DVD
   3) Hydrocast Reline Technique – 24 hrs of border molding
      (a) Fabricate RPD in standard fashion from System 2 Alginate impression with one
         modification – Add three times the normal relief below the retention webbing in the
         saddles for the framework. This will create the space necessary for the reline.
      (b) At delivery, hollow grind saddle intaglio and trim flanges short of the full extension
         with Myostatic Outline technique.
      (c) Mix Microseal and bench set for two minutes. Load saddles and seat in the mouth for
         7 minutes holding the framework in place – do not let the patient bite, nor apply
         pressure to the saddle areas. Trim Microseal to be 2 mm short of the flange. This is
         the “tissue stop” to support vertical.
      (d) Check and adjust centric and eccentric occlusion.
      (e) Mix Hydrocast and bench set for about five minutes. Fill the denture with Hydrocast
         and seat in the mouth. Have the patient read aloud for ten minutes then trim buccal and
         lingual excess from the outside of the denture with a hot spatula.
      (f) Reseat and have the patient wear for 24 hours straight – including meals and bedtime.
      (g) At next day appointment pour stone to support the saddles and create a base. Send
         cast to the lab for a lab processed reline. Redeliver when ready.

XII) RPD Case Completion - Start to Finish
A) Initial Models – Diagnosis and Offers Patient Treatment
B) Prep and Impress – Guide Planes, Rest Preps, Impression
C) Frame Trial – Use Disclosing, Centric Bite
D) Wax Trial – Confirm Esthetics and Bite
E) Reline at Delivery – PVS, Polyether or Rubber Base
F) Delivery – Confirm Centric and Balance
G) One Week – Confirm Centric and Balance

XIII) Conclusions – Three Steps to Quality Removable Prosthodontics
A) System 2, Hydrocast Reline at Delivery, Framework Design
# Partial Denture Lab Prescription

M. Nader Sharifi, D.D.S., M.S.  
Lics. No.:019-021617  
30 North Michigan  
Suite 1303  
Chicago, IL 60602  
Phone: 312-236-1576

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**Opposing Arch**

**Material**

**Major Connector**

**Retention Webbing**

**Tissue Stops**

Signature: ____________________________________________
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![Diagram of tooth guide plane and rest clasp](image)

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Opposing Arch  
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Material
Major Connector
Retention Webbing
Tissue Stops
Opposing Arch

Signature: ___________________________ Date  ____________
Reference List

Textbooks:

Journal Articles:
49. Millsap C: The posterior palatal seal area for complete dentures. DCNA 1964; 11:663.
Product List

1. **Alma Gauge** - For fabricating maxillary wax rims: Dentsply; 800-877-0020.
2. Attachments - **VKS** vertical or horizontal attachment. Bredent USA, Miami, FL; 800-328-3965.
3. Attachments - **Stern G/L and ERA** attachment. SternGold-Implamed.
4. Compound for border molding impression trays - **Green Stick Compound**. Kerr, Romulus, MI; 800-537-7123.
5. Denture Teeth - **Antaris/Postaris and Ortholingual**. Ivoclar, 800-533-6825.
7. Denture Teeth - **Trublend**. Dentsply; 800-877-0020.
8. Denture Teeth - **Enigma**. Leach and Dillon Products; 800-535-2633.
9. Denture Teeth - Myerson **Lingualized Integration Teeth**. Austenol; Chicago, IL; 800-621-0381.
10. Denture Tooth Selection Face Shield - **Trubyte Tooth Indicator**. Dentsply; 800-877-0020.
11. **Fox Plane** - For Leveling Occlusal Plane. Dentsply; 800-877-0020.
12. Functional Impression Material - **Hydrocast**. Kay See Dental, Kansas City, MO; 800-842-8844.
16. Intra-oral post dam tissue marking sticks - **Dr. Thompson’s Sanitary Applicators**. Great Plains Dental, Kingman, KS; 316-532-3888.
17. Impression Material - **System 1 & 2 Alginate**. Ivoclar; 800-344-5457.
20. **Pressure Indicating Paste** - For Post Delivery Adjustments of Denture Sore Spots. Order from your dental supplier.
22. Rubber base impression material (light and medium) - **Permlastic**. Kerr, Romulus, MI; 800-537-7123.