A Partial Course on Partial Dentures

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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. His presentations on restorative dentistry and patient care have earned him recognition from esteemed study groups, societies and associations nationwide. Dr. Sharifi 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 and in 2007 Chicago Dental Society honored him with the Gordon Christenson Distinguished Lecturer Award. He has also been honored with Fellowship in the American College of Dentists and Membership in the American Academy of Restorative Dentistry.

If you would like, you may find additional information regarding other courses and additional handouts on his website at www.DrSharifi.com. If you have interest in the live denture course where CORE provides the patient send an email with questions to LiveDentureCourse@DrSharifi.com. Please feel free to direct any other questions or comments you may have to Dr. Sharifi’s personal 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
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)
Patient Name____________________Social Security Number__________Date________

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

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![Diagram of denture](image)

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Opposing Arch  
Material  
Major Connector  
Retention Webbing  
Tissue Stops

Signature: ________________________________
Kennedy Class II

Kennedy Class I

Modification Space
Kennedy Class III

Kennedy Class IV

Rotational Path
Textbooks:

Journal Articles:
Product List

**Blue Dolphin Products** – Papilla Meter, Wax Spatulas, Bunsen Burner. 800-448-8855

**Brassler** – NSK Lab Handpiece, Acrylic Adjustment Burs, Ultra Denture Polishers. 800-841-4522

**Dentsply** – Fox plane, Aquasil Impression Material, Aquasil Impression Trays, Portrait, Trublend Acrylic Denture Teeth and Porcelain Denture Teeth, Alma Gauge, Trubyte Tooth Indicator, Vitallium Clasp Adjuster (N001960) Dentsply Prosthetic 800-786-0085

**Kettenbach** – Panasil Impression Material, Futar Bite Registration Material. 877-532-2123.

**Panadent** – PCH Articulator, Kois Occlusal Analyser (Fox Plane). Panadent 800-368-9777.

**Ivoclar** – Blue Line, Postaris and Phonares Acrylic Denture Teeth, Condular Porcelain Denture Teeth System XD Impression Material and Impression Trays, Stratus 2000 Articulator, Smile Design Kit (Two Versions of Kit – with and without Alma Gauge). 800-533-6825

**Kerr** – Permalastic Rubber Base Impression Material, Pink Baseplate Wax, Occlusal Indicator Wax, Green Stick Compound. 800-537-7123

**Bosworth Dental** – New Truliner (chairside reline material). 708-679-3400

**GC America** – Unifast TRAD (repair acrylic). 800-323-7063

**Lee Mark Dental** – Coble Balancer, Massad Balancer, Lessman Wax Knife, Wax Spatulas, Electric Waxer, Water Bath for Compound. 866-533-6275

**Miscellaneous Products:**
2. Attachments - **VKS** vertical or horizontal attachment. **Bredent** USA, Miami, FL; 800-328-3965.
3. Attachments – **Preci Clix**. **Preat Corp.** 800-232-7732
4. Attachments – **Locator**. **Zest Anchor**, 800-262-2310
5. Attachments - ERA attachment & EZ Pick Up with Light Cure Varnish to pick up attachments. **SternGold**. 800-243-9942
8. Functional Impression Material - **Hydrocast**. **Sultan Chemists**; 800-842-8844.
9. Intra-oral post dam tissue marking sticks - **Dr. Thompson’s Sanitary Applicators**.
11. **Lang Aquapress Pressure Pot** - For Strengthening Acrylic. **Benco**; 800-462-3626.
12. **Mizzy Pressure Indicating Paste** - For Post Delivery Adjustments of Denture Sore Spots. **Benco**; 800-462-3626.
14. **Wonderfill** – Impression Boxing Putty. **Dental Creations**. 254-772-4661