A METHOD OF FINISHING THE OCCLUSION

Summary
Dr. Rebecca Poling

1. A Method of Finishing the Occlusion – a system of
   a. Observation
   b. Notation
   c. Implementation of final detailing wire bends

2. Examination of the Patient
   a. Facial form
   b. Smile characteristics
   c. Gingival esthetics and health
   d. TMJ health
   e. Function
   f. Interdigitation of the occlusion

3. The “Detailing Appointment”
   a. 4 to 7 months prior to anticipated debanding
   b. Basic Class I occlusion
   c. All teeth aligned
   d. Spaces closed
   e. Appointment is 45 minutes to one hour in length, 15-20 minutes doctor time

4. Steps in the Detailing Appointment
   a. Take panoramic radiograph
   b. Examine panoramic radiograph for root angle bends
   c. Mark detailing wires (17x25 TMA in .018 slot or 19x25 TMA in .022 slot)
   d. Examine facial form, smile characteristics, incisor display, gingival contours, gingival embrasures
   e. Evaluate occlusal plane cant or cant of incisors
   f. Evaluate coincidence of facial midlines with dental midlines
   g. Examine profile and anterior incisor torque
   h. Evaluate functional habits for retention concerns
   i. Evaluate TMJ and occlusal function
   j. Evaluate Angle classification by millimeters and overjet
   k. Evaluate posterior transverse relationships, buccal overjet, and crossbites
   l. Evaluate vertical relationships, overbite, and posterior openbites
   m. Evaluate spacing and tooth size relationships, anterior and posterior Bolton relationships
   n. Evaluate maxillary sextants tooth positions in all dimensions
   o. Evaluate mandibular sextants tooth positions in all dimensions
   p. Intraoral evaluation of interdigitation
   q. Bending the detail wires
   r. Insertion of the detailed wires
   s. Deband check appointment
   t. Procedures after removal of the braces

5. Advantages of System
   a. Detailing form is a record of the occlusal relationships, function, and TMJ signs and symptoms
   b. Detailing form is a continuing record of bends made to the wires
   c. A new wire could be bent with accuracy
   d. A detailing wire can be made during non-chair time
   e. Facilitates better communication in multi-doctor practices
   f. Analysis of Detailing Forms of different patients can reveal repeating problem areas in placement of brackets or in the design of the straight wire appliance being used
   g. The Detailing Form facilitates a comprehensive and integrated approach to achieving excellence in finishing.
6. Examine Panoramic Radiograph
   a. Note on Detailing form location, direction and degree of bend for movement of roots
   b. Notation on form is same direction as bend will be made in wire
   c. Mentally relate root angulation to incisor esthetics, triangular black spaces, incisal edge length, and occlusal plane cant
   d. Relate root angulation to cuspid position, function, interdigititation and marginal ridges

7. Marking of Detail Wires
   a. Check that wires are centered and long enough
   b. TMA (19x25 in .022 slot, 17x25 in .018 slot) or stainless steel edgewise wires
   c. Black marker in maxillary arch
   d. Red marker in mandibular arch
   e. Wide midline mark
   f. Interproximal marks centered between the teeth
   g. Solid mark on right end to distinguish right from left

8. Examination of Facial Form
   a. For efficiency of movement follow outlined sequence
   b. General sequence of observation from general facial and dental esthetics narrowing focus down to specific tooth positions
   c. Examine patient sitting upright at eye level
   d. Evaluate overall facial symmetry
   e. Evaluate lip and occlusal plane horizontal symmetry

9. Evaluation of Incisal Display and Gingival Contours
   a. Evaluate incisor display in millimeters at rest
   b. Evaluate incisor display smiling in percentage or display of millimeters of gingival display
   c. Determine if gingival display or gingival contours should be improved by gingivectomy or gingivoplasty procedures
   d. Determine if necessary frenectomies have been completed as originally treatment planned
   e. Evaluate gingival embrasures in the anterior sextants and the need for interproximal reduction with space closure or restorative changes
   f. Evaluate tooth characteristics of anterior sextants and need for restorative procedures after orthodontic treatment, bleaching, and need for coordination of retention procedures, make notes on Detailing Form

10. Evaluation of Coincidence of Facial Midline with Dental Midlines and Cant of Incisors
    a. Evaluate coincidence of facial midline with dental midline
    b. Note cant to occlusal plane
    c. Note “slant” to the incisors that is correctable with angle bends, correlate with findings on pano
    d. Mark necessary angle bends on Detailing form
    e. Be aware of undesirable side effects

11. Evaluation of the Profile and Anterior Torque
    a. Check profile for any additional changes that can still be made
    b. Assess potential growth
    c. Have patient smile and check anterior torque
    d. Note needed wire adjustments on the Detailing form

12. Evaluation of Functional habits
    a. Check for tongue thrusting, lip biting, digit sucking, mouth breathing, nail biting, clenching, bruxism, playing musical instruments with the mouth that might require additional retention
    b. Evaluate for concerns regarding stability
    c. Note at bottom of Detailing Form all necessary retention methods

13. Evaluation of Temporomandibular Joints and Occlusal Function
    a. With patient sitting upright, screen for abnormal signs or symptoms
    b. Evaluate interincisal opening, range of motion, deviation with opening, sounds, or pain
c. Check if CR=CO noting any IPCs, slides or shifts
d. Check functional excursions noting functional contacts and interferences
e. Evaluate achievement of functional objectives

14. Evaluation of Angle Classification and Overjet
a. If not Class I note how many millimeters it is Class II or Class III
b. May be a cuspid root angulation problem
c. May be a true Class II or Class III
d. May be a Bolton tooth-size problem
e. May be a spacing problem

15. Evaluate Posterior Transverse Concerns
a. Note posterior crossbites or tendencies
b. Note excessive buccal overjet
c. Note excessive palatal root torque in maxillary molars

16. Evaluate Vertical Relationships
a. Note curve of Spee
b. Note overbite in millimeters and percentage
c. Note on Detailing Form vertical bends in wires needed to improve gingival display as well as improve function
d. Note posterior openbites such as open second molars and plan corrective measures

17. Evaluate Spacing and Tooth Size Relationships
a. Note spacing in the maxillary and mandibular arches
b. If problem is a tooth size discrepancy discuss options to correct it such as restorative, interproximal reduction, treating to a slight Class II, or leaving space

18. Evaluate Maxillary Anterior Tooth Positions
a. Check that central incisors are even and equilibrate edges if necessary
b. Check that central incisors are balanced in their root angles with no black triangular embrasure spaces that can be changed by adjusting root angles, stripping and space closure, or restoratively
c. Check torque, especially with respect to the laterals for stability in alignment
d. Check that the lateral incisor edges are slightly higher than the central incisor edges for best protrusive function
e. Check that maxillary cusps are the same length as the maxillary central incisors for the best cuspid rise

19. Evaluate Maxillary Right Posterior Quadrant
a. Check crown torque of the cuspid
b. Check crown torque and parallelism of facial surfaces of bicusps and molars
c. Check facial cusp length with the cuspid longer than bicusps and molars for best cuspid rise
d. Evaluate the flatness of the occlusal table especially in the second molar area
e. Check alignment of central fossae for ideal interdigitation of mandibular functional buccal cusps
f. Check alignment of the functional lingual cusps, especially when there is a small second bicuspid

20. Evaluate Maxillary Left Posterior Quadrant
a. Check facial surfaces
b. Check torque
c. Check length
d. Check occlusal table
e. Check central fossae
f. Check lingual cusp tip alignment

21. Evaluation of Mandibular Anterior Sextant
a. Check for rotations
b. Check for even height of incisal edges
c. Check for normal triangular embrasures and correct root angulation
d. Check for ideal torque for best stability
22. Evaluation of Mandibular Right Posterior Segment
   a. Check alignment of functional buccal cusp tips
   b. Check parallelism of facial surfaces and need for changes in torque
   c. Check buccal cusp tip height
   d. Check alignment of the fossae
   e. Check flatness of the occlusal table
   f. Check flatness of curve of Spee

23. Evaluation of Mandibular Left Posterior Segment
   a. Check alignment of functional buccal cusp tips
   b. Check torque and parallelism of facial surfaces
   c. Check functional cusp tip height
   d. Check central fossae alignment
   e. Check flatness of curve of Spee

24. Intraoral Evaluation of the Interdigititation of the Occlusion
   a. Patient is supine
   b. Evaluate dental alignment
   c. Check anterior torque
   d. Check marginal ridge heights
   e. Check interdigititation with the patient in occlusion using a mirror
   f. Check with horseshoe articulating paper if necessary

25. Bending the “Detail” Wire
   a. Limit number of bends in wire to maintain control
   b. “Balance” root angle bends to minimize undesirable side effects
   c. Can be bent during non-patient time
   d. Bends are subtle
   e. Be cognizant of the potential undesirable side effects of each bend
   f. Use snubnose plier with thin blades
   g. Complete all bends in one appointment
   h. Use a full size wire if many torque changes are needed
   i. Adjust the maxillary wire for flatness
   j. Coordinate maxillary wire with mandibular wire
   k. Bend mandibular wire
   l. Adjust flatness of mandibular wire and coordinate with maxillary wire

26. Insertion of the Detailed Wires
   a. Completely seat wire with snubnose plier and wire director into bracket slot
   b. Tie in wire with wire ligatures

27. Deband Check Appointment
   a. Untie, mark, and remove wires
   b. Note desired changes on the Detail form using another ink color
   c. Make bends in wire and completely seat and tie in
   d. Centric stops and functional excursions can be checked with horseshoe articulating paper

28. Procedures at Removal of the Braces
   a. Place bonded retainers prior to removal of brackets
   b. Check centric stops and functional excursions with horseshoe articulating paper
   c. Adjust contacts for even distribution
   d. Adjust incisal edges for best esthetics and function
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Recommended Materials:

1. Sharpie fine point permanent marker by Sanford, No. 3001 Black, No. 3002 Red
2. Bausch Articulating Paper manufactured by Pulpdent Corporation, 80 Oakland Street, Watertown, MA 02272, available from Summit Orthodontic Services, item 036-003, 1-800-321-9124
3. AEZ Arch Bending Plier (.050”) with 1.27 mm thick blades, No. 803-0403 from Ormco Corporation, 1-800-854-1741
4. Wire and Ligature Director No. 305 by Dentronix, 1-800-523-5944
5. Diamond Stripping Discs No. 6918B (flexible double-sided), #940-220 (hyperflex double-sided) from Brasseler 1-800-841-4522
6. Protective cover for Brasseler stripping discs 1-800-841-4522
7. “Donut” Bur from Patterson called Two Striper No.863C
8. Shofu greenies and brownies (friction grip in high speed) for polishing after debanding
9. Triad Transheet Visible Light Cure Material no. 89271 by Dentsply 1-800-786-0085
10. Invisiain Retention acrylic sheets for clear retainers by INVISITAIN, LLC. at www.Invisiain.com and 800-801-0654 .040 inch thickness, 5 inch squares, Item # SC-0405000