The Seamless Integration of Aesthetics, Form & Function:
The Restorative/Periodontal Interface
Today’s restorative and implant dentistry offers so many amazing opportunities for successful outcomes. However there is still much confusion about treatment planning, aesthetic concepts, the periodontal/restorative interface, occlusion and parafunction, materials and ceramic selections as well as selecting the appropriate implant restorative plans.

This program is designed for those wishing to develop an understanding of the relationships between restorative dentistry and the periodontal supporting structures. It is a TEAM APPROACH program and will detail the foundational principles necessary to ensure consistently excellent outcomes in treatment planning and treatment of everyday as well as complex restorative dentistry.

The program is based on the treatment concept that much of the diagnosed existing defective dentistry that we see requires replacement. The replacement of this dentistry often leads us into the subgingival environment. It is through the placement of an adhesive core build up and provisional restoration that allows the appropriate correction and subsequent long term stability of the cosmetic restorative/periodontal interface. It is applied to the simplest single tooth ceramic crowns as well as the most complex perio/restorative full mouth reconstructions. Enjoy the day and stay open minded and passionate!!!
PERIO DIAGNOSIS

- Biologic Width
- Mobility
- Occlusal Trauma
- Attached Tissue
- Furcations
- Crown:Root
- Phenotype
- Recession
- Pocketing

RESTORATIVE DIAGNOSIS

- Caries
- Old Restorations
- Defective Margins
- Overhangs
- Materials Selection

Requirements for Successful Restorative Dentistry

1. Complete caries removal
2. Adhesive core
3. Precise fitting provisional
4. Biologic shaping
5. Dense avascular tissue barrier
6. Perfect impression
7. Correct restorative design
8. Correct material selection
9. Meticulous placement
10. Occlusal and parafunctional management

Treating the Perio Restorative Case

1. Remove old restorations
2. Remove and verify complete caries removal
3. Place an adhesive core and surgical provisional
4. Refer for biologic shaping and SECTG/FGG
5. 4 week reline of provisional 1mm shy of tissue to zero margin
6. 8-16 weeks later, final impressions and definitive restoration
When To Use The Team Approach Utilizing My Periodontist

1. **SUBGINGIVAL MARGINS ON EXISTING DENTISTRY (BW)**

2. **FURCATION INVOLVEMENT ESPECIALLY CLASS 1**

3. **THERE ARE ABFRATIONS ON THE FACIAL ROOT SUBGINGIVAL TO THE RESTORATIVE MARGIN**
4. THERE ARE ROOT FLUTES OR CONCAVITIES SUCH AS THOSE ALMOST ALWAYS PRESENT ON FIRST PREMOLARS

5. ADVANCED CARIES

6. I NEED TO MOVE A MARGIN IN A CORONAL DIRECTION WITHOUT ORTHODONTICS

7. ATTACHED TISSUE
PERIODONTAL REFERRAL FOR PERIO-RESTORATIVE TREATMENT

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NOTES
ROOT RESHAPING FROM A RESTORATIVE PERSPECTIVE

In today’s world of advanced dental procedures and technology, traditional or classic dental principles can easily be lost. This may be especially true with the decision making process of saving teeth. Implants are wonderful options when appropriate, but they should not be selected when a tooth can be saved with a predictable perio/restorative protocol that yields excellent long term prognoses. Too often today, good teeth are being removed in favor of implant placement that is occurring in a clinical environment of inadequate bone and soft tissue as well as biomechanical compromise. Root reshaping and soft tissue grafting offer a classic proven methodology for treating teeth with absolute predictability.

Often our restorative treatment plans lead us to subgingival margins, furcation involvement, root flutes and concavities as well as a multitude of complex issues. Many of the issues we face are in the subgingival environment and periodontal corrective procedures are necessary to return the foundation to a healthy state. Traditionally, crown lengthening was indicated for deep subgingival margins not only to facilitate impression making, but to correct biologic width infringements. Root reshaping is a periodontal corrective procedure reported in the literature by Melker, Strupp, et al. It has distinct advantages over traditional lengthening and differs from traditional crown lengthening in the following ways:

1. Traditional crown lengthening moves the bone away from the margin.
   Root reshaping moves the margin away from the bone.

2. Traditional crown lengthening requires osseous surgery to re-establish the biologic width.
   Root reshaping may require minor osseous surgery, but generally avoids major osseous and still re-establishes biologic width because you have the choice to locate your restorative margin coronal to the old restorative margin. (.5mm apical to the core is the coronal extent)

3. Traditional crown lengthening may open furcations and render a poor prognosis.
   Root reshaping preserves the integrity of the furcation because aggressive osseous was not needed.

4. Traditional crown lengthening does not eliminate flutes, concavities or root clefts, leaving the post operative crown lengthened tooth at risk for disease recurrence due to increased susceptibility for plaque, calculus and caries formation.
   Root reshaping leaves the subgingival area smooth as glass. No areas for plaque, calculus or caries to hide.

5. Traditional crown lengthening worsens crown to root ratio.
   Root reshaping maintains crown to root ratio.

6. Traditional perio is about pockets and probing.
   Root reshaping is about preserving bone, smoothing out the rough spots and making restorative dentistry a joy and predictable.
Problems arising from subgingival margins
1. Biologic width complications.
2. Isolation challenges and core contamination.
3. Difficulty obtaining an accurate final impression.
4. Difficulty producing an accurate master cast.
5. Difficulty producing an accurate final restoration.
6. Difficulty isolating the field for cementation.
7. Difficulty in practicing effective oral hygiene.
8. Chronic biologic width invasion resulting in inflamed tissue, bleeding and a cascade of periodontal-restorative issues.
why a CORE

why a PROVISIONAL

1. Assign prognosis first.
2. Give our periodontist 360 degree access to treat.
3. Determine apical extent of caries and establish a definitive margin before a bone/restorative relationship can be developed.

THE CORE BUILDUP

THE BIOLOGIC PERIODONTAL TEMPLATE
Treat the Perio Restorative Case

1. Remove old restorations
2. Remove and verify complete caries removal
3. Place an adhesive core and surgical provisional
4. Refer for biologic shaping and SECTG/FGG
5. 4 week reline of provisional 1mm shy of tissue to zero margin
6. 8-16 weeks later, final impressions and definitive restoration

Pre-Operative

Subgingival caries
#12 mesial concavity
#14 furcation

Remove Old Restoration

KS1 diamond for porcelain
330 carbide for metal
Watch for cement line
Importance of verifying and affirming the patient's decision to have work done.

Caries Removal
- High speed diamonds and carbides (Star)
- Kavo Mid Range #4 steel bur
- Hand instrument - sharp spoon
- Verification with caries detector

Isolate & Scrub
- Ultradent colored cord for identification

Strupp's Triad
Adhesive Core
Etch, Prime & Adhesive
4th Generation, 3 bottle, total etch & rinse
Auto cure enamel shade Core Paste
Prep Refine
G-82 diamond Pollard
Feather edge margin
to facilitate biologic shaping
Auto cure enamel
shade Core Paste

Provisional

BENEFITS OF THE CORE BUILD UP

1. Provides caries removal.
2. Provides pulp protection.
3. Provides the biologic periodontal template.
4. Allows impressions with no tearing.
5. Allows uniform thickness of restorative material.

RESISTANCE TO THE CORE BUILDUP?

The Restorative Dentist:
1. Doesn’t want to take the extra time involved in the procedure. Doing cores is time consuming and therefore more costly to the practice and therefore more costly to the patient. It must be charged for adequately!!!!!!
2. Doesn’t understand or believe the benefit of the procedure.
3. Has a passion for implant dentistry and wants an implant practice and doesn’t want to save teeth.
4. Doesn’t normally remove old restorations under old crowns before making new ones. HAPPENS all the time!
5. Doesn’t want to take the care to thoroughly remove caries.
6. Has a belief that if he/she can “get the impression” anyway without a referral, then it will be okay.
7. Believes BW is a crock.
8. Still thinks perio is about probing once a year for vertical pockets. It still is, but only one of many factors involved.
9. Attempts the procedure but has the analogous restorative ignorance as referenced in #5 above.
10. Doesn’t have a referral base of periodontists that are willing to do the procedure.
11. Doesn’t have an office model in place to support the explanation and interpersonal patient management when questions arise.
RESISTANCE TO THE CORE BUILDUP?

The Periodontist:
1. Doesn’t want to prep teeth.
2. Doesn’t want to take the extra time involved in the procedure.
3. Doesn’t understand or believe the benefit of the procedure.
4. Has a passion for implant dentistry and wants an implant practice and doesn’t want to save teeth.
5. Attempts the procedure but doesn’t have the entire protocol and gets a poor result. I always hear periodontists saying “man those teeth were sensitive.” When I ask them if they used the Super Seal or Vanish….of course they have no idea what I am talking about. Even better are the ones who say they are doing the procedure but they let their restorative dentists wait until after the surgery to take the old restorations off. So, they really aren’t doing the procedure at all, they get a poor result and they believe the procedure is not worth it and would rather place implants.
6. Doesn’t have a referral base of restorative dentists that are willing to place cores and provisional restorations prior to surgery.
7. Doesn’t have an office model in place to support the explanation and interpersonal patient management when questions arise.

Restorative Contours

Ten Rules for Developing Crown Contours

1. Faciolingual Crown Dimension
2. Facial Contours
3. Lingual Contours
4. Proximal Contact Points
5. Proximal Surfaces
6. Axial Transitional Line Angles
7. Marginal Ridges
8. Crown Margin Gingival Relationship
9. Thickness of Subgingival Restoration
10. Crown Margin to Bone Relationship

BURCH, J 1971
SECTION 2

CORES

1. REMOVE OLD DENTISTRY AND CARIES, PLACE CORES AND TEMPORIZE.
2. PERIODONTIST ROOT RESHAPES TO ELIMINATE OLD MARGINS AND SUBGINGIVAL IRREGULARITIES. CONNECTIVE TISSUE IS PLACED WHERE INDICATED. THE PROVISIONAL TRIMMED TO AVOID TISSUE CONTACT AND REPLACED WITH NO RELINE. DESENSITIZATION WITH SUPER SEAL.
3. 4 WEEKS POST OP RELINE IMM SHY OF TISSUE. THERE IS NO MARGIN ON THE TOOTH, SO PICK A SPOT AND PLACE AND CLOSE THE MARGIN IMM AWAY FROM THE TISSUE
4. 8-12 WEEKS LATER FOR A TOTAL OF 12-16 WEEKS, MARGINATE WITH A CHAMFER, PLACE 1 CORD AND IMPRESS.

CORE BUILD UP PROTOCOL

1. CARIES REMOVAL AND VERIFICATION WITH CARIES DETECTOR.
2. DISINFECT WITH 4%CHG, TUBICID, NAOCL.
3. ETCH 32%BAE, PRIME ALL-BOND PRIMER A&B AND ADHESIVE D/E RESIN.
4. CORE PASTE ENAMEL SHADE - SELF CURE.
5. PREPARE WITH G-82 DIAMOND WITH MINIMAL MARGIN.

OVERCONTOURED FACIAL 30,31

PRE-OP

FURCATIONS AND CARIES
OLD RESTORATIONS REMOVED

SUBGINGIVAL CARIES AND FURCATIONS

GROSS CARIES REMOVAL

APPROACHING 1/3 OF FURCATION

NaOCl FOR INITIAL CLEANUP

CARIES DETECTOR TO ASSIST IN DETERMINING CARIES STATUS

#4 ROUND BUR - LATCH GRIP

SPOON FOR FINAL CARIES REMOVAL
INVERTED CONE FOR FINAL RETENTION IF NECESSARY

ULTRA- DENT #00 CORD FOR ISOLATION PRIOR TO BUILDUP

CHG 4%

TUBLICID

NaOCl

RINSE

32% BAC PHOSPHORIC ETCH

RINSE

6 COATS OF ALL BOND PRIMER A&B THEN AIR DRY
20 SECOND LIGHT CURE

22 ENAMEL SHADE CORE PASTE

23 BUILD TO EDGE OF MARGINS

24 REFINE WITH G-82 DIAMOND AND WATER