

INCISAL ATTRITION

References from lecture given by

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ETIOLOGY OF INCISAL ATTRITION

EXCESS OCCLUSAL FUNCTION

- ROTATIONS
- CROSSBITES
- DEEP OVERBITE
- EXCESS CURVE OF SPEE
- LOSS OF CUSPID GUIDANCE
- POSTERIOR TOOTH LOSS
- OPPOSING PORCELAIN
- BRUXISM, CLENCHING
- EXTRUDED MOLARS
- CANTED MAXILLA
- OFTEN CO-PRESENT WITH ABFRACTION & RECESSION

EXCESS ACIDITY

- ACID DIET
- CITRUS
- WINES
- VINEGAR-BASED FOODS
- CHEWABLE ACIDIC SUPPLEMENTS
- CARBONATED SODAS
- ENDOGENOUS
- GERD, BULEMIA
- SOCIAL PATHOLOGY
- STREET DRUGS

CLASS VII (INCISAL EDGE) PREPARATIONS: 4 CLINICAL GOALS

1. REPLACE DENTIN WITH COMPOSITE RESIN, INCREASING BRINELL HARDNESS 100-FOLD
2. COHESIVELY BOND FRAGILE PERIMETER ENAMEL
3. RESTORE WITH SUFFICIENT DEPTH AND BREADTH TO POSTPONE RECURRENT DENTIN EXPOSURE FOR 10-20 YEARS
4. EFFECTIVELY INTERLOCK RESIN WITH DENTIN

QUANTIFYING WEAR IN TEETH

- Lambrechts P, Braem M, Vuylsteke-Wauters M, Vanherle G. Quantitative in vivo wear of human enamel J Dent Res 1989;68: 1752-1754

5 ENAMEL AXIOMS THAT DEFINE A CORRECT PREPARATION

- ALWAYS FRESH CUT
- ALWAYS ROD ENDS
- ALWAYS (ALMOST) A BEVEL
- SUFFICIENT THICKNESS FOR WEAR
- SUFFICIENT ENAMEL TO DIVERSE CONTRACTION

WHY ALWAYS ROD ENDS

- . Munichika T Suzuki K Nishiyama M Ohasi M Horie K. A comparison of the tensile bond strengths of composite reins to longitudinal and transverse sections of enamel prisms in human teeth J Dent Res 1984: 63:1079-1082
- “RESIN BOND STRENGTHS ARE TWICE AS HIGH WHEN ADHERING TO THE ACID-ETCHED ENDS OF THE CRYSTALS AS COMPARED TO THE SIDES OF THE CRYSTALS”

WATCH OUT FOR GNARLED ENAMEL

- Cate, A.R. Ten. Oral Histology: development, structure, and function. 5th ed. 1998. ISBN 0-8151-2952-1.

SOURCING INEXPENSIVE ACID ETCH

- Henry Schein 100-0572
- 210 cc
- \$45
- Dilute 3:1 by volume water:acid
- Makes up 840 cc
- Six years supply
- No environmental waste

BENEFITS OF LIQUID ETCHING

- SEE SUMMITT AND ROBBINS 3rd ed. TABLE 8-3 PG 214 FOR COMPARATIVE ETCH EFFICACY
- CONSISTENT, RAPID ETCHING OF ENAMEL AND DENTIN REGARDLESS OF PREP SIZE
- CONTROLLED ETCHING TIME
- DENTIN OPTIMUM ETCH TIME = 10 SECS
- ENAMEL OPTIMUM ETCH TIME = 15 SECONDS
- INEXPENSIVE
- EXCELLENT DEBRIDEMENT OF CAVITY
- COMPATIBILITY WITH HEMOSTATICS
- NO GEL RESIDUES
- QUICK RINSE

EFFECT OF WATERLINE ADDITIVES ON BOND STRENGTH

- REALITY YEARBOOK 2012 PG 144
- 22% DROP IN ADHESION VS DISTILLED RINSE

EFFECT OF RINSE TIME ON ADHESION

- REALITY YEARBOOK 2012 PG 524
- 5 SECONDS BETTER THAN 10 SECONDS

CONSTITUENTS OF MICROPRIME B

- HEMA 35%
- NAF 1%
- 5%BAC
- WATER 59%

SOFT TISSUE DAMAGE FROM DIFFERENT AGENTS: CRA AUGUST 2002

“SOFT TISSUE was irritated by all desensitizers

& severity correlated with exposure time. Photos at right show mucous membrane & attached gingiva after 5 minute contact times which represent cases where anesthetized patients were unaware of run off & the situation was not noted for a period of time.”

“PATIENT PAIN persisted 24+ hours with 7 of 9 products & was most severe with Gluma.

“ORAL DISINFECTION POTENTIAL was best for D/Sense & Hemaseal & Cide”

EFFECT OF CAVITY DISINFECTANTS ON MMPs AND DURABILITY OF THE ADHESIVE

- <http://www.peterwalforddentistry.com/tiki/tiki-index.php?page=MicroPrime>
- <http://www.peterwalforddentistry.com/tiki/tiki-index.php?page=Cavity+Disinfection>

PROPERTIES OF CLEARFIL PHOTOBOND

- KURARAY DENTAL
- 5 MICRON THICKNESS
- EXCEPTIONAL ENAMEL BOND AS HIGH AS 40 MPa
- GENERATION V
- WITHOUT PRIMER < 20 MPa DENTIN BOND STRENGTH
- DUAL CURE
- ALCOHOL-BASED

VAPOUR PRESSURE OF COMMON BOND SOLVENTS

- WATER 24
- ALCOHOL 59
- ACETONE 232

INCISAL ATTRITION: 4 DESIREABLE RESIN CHARACTERISTICS

1. WEARABILITY
2. PLASTICITY
3. BLENDING
4. LOW CONTRACTION STRESS

THREE BEST RESINS SO FAR FOR INCISAL ATTRITION

- ESTELITE-ALL SHADES
- Z250 D3
- MAJESTY AESTHETIC (NUANCE)-ALL SHADES

PROTOCOL; FOR SHADE SELECTION

- VALUE FIRST (DARKNESS/LIGHTNESS)
- WARM OR COOL (VITA A AND B vs C AND D)

- GRADATION GINGIVAL TO CUSP TIP

CONTRACTION STRESS :OVERCOMING THE HIGH C-FACTOR OF THESE PREPS
FLEXURAL MODULUS

- DENTIN AVERAGES 12 GIG
- ENAMEL IS 80 GIG= FELDSPATHIC PORCELAIN
- RESINS RANGE FROM 3.8 TO 22 GIG

MODULUS OF THREE BEST RESINS

- Z250 =9.1
- ESTELITE = 8.6
- NUANCE = 10.0

ESTIMATING CONTRACTION QUOTIENT=CQ

- $CQ = \text{CONTRACTION} \times \text{FLEXUAL MODULUS}$
- DESIREABLE RANGE= UNDER 20

CONTRACTION QUOTIENT

- ESTELITE 1.7% x 8.6 GPa = 14.6
- Z250 1.8% x 9.1 Gpa = 16.4
- MAJESTY AESTHETIC 1.9% x10,000 MPa= 19.2
- HERCULITE 2.3% x 7.39. = 17.0
- ESTHETEX 2.1% x 8.40 = 17.6
- FILTEK SUPREME ULTRA
- 2.1% x 10.6 = 22.2
- Z100 2.9% x13.0 = 37.7

CLINICIAN'S REPORT MARCH 2010

- "NEW RESIN-BASED COMPOSITES – A SHRINKING PROBLEM?"
- STRESS MPa –TENSOMETER
- STRESS RATE – MPa / min

MORE LOW-CONTRACTION RESINS (FROM CRA MARCH 2010)

- KALORE (GC)
- VENUS DIAMOND (HERAEUS KULZER)

HEATED RESINS :

CALSET COMPOSITE HEATER-ADDENT MODEL 110040 RECOMMENDED

BENEFITS OF HEATING

www.addent.com

- SHORTER CURE (50%)
- HIGHER POLYMERIZATION (+20%)
- GREATER HARDNESS (20%)

PLACEMENT: WALFORD LIGHT SHIELD

- DUOTANG OR SIMILAR REPORT COVER
- COST: 6 CENTS!!
- VERIFY CURE BLOCK FIRST

WHY SYRINGES VS COMPULES?

- OFTEN CHEAPER PER GM.
- IDENTIFICATION AT A GLANCE
- BETTER CROSS-CONTAMINATION CONTROL
- 100% USE
- BETTER INCREMENT CONTROL
- NO GUN/MULTIPLE GUNS
- NO LOADING FRUSTRATION
- ONLY ONE CALSET HEATER

TROLLSHADE LIGHT SHIELD

BALL BURNISHER = HUFRIEDY 27/29
OPTRASCULPT TO PLACE LARGE FLAT SURFACES

ANHYDROUS ETHYL ALCOHOL

- INSTRUMENT LUBRICATION IN PLACEMENT
- DOES NOT LEAVE SHEAR PLANES BETWEEN INCREMENTS
- NO LONGER REQUIRES A THREE-YEAR PERMIT TO PURCHASE PURE GRAIN ALCOHOL; JUST SHOW COLLEGE LICENCE AND ID
- STATE USE: " FOR SURFACE DISINFECANT AND INSTRUMENT LUBRICANT IN PLACING COMPOSITE RESIN IN RESTORATIONS"
- ONE LITER MAXIMUM PER SINGLE PURCHASE. ABOUT \$30
- SATURATE 2X2 GAUZE IN A CONTAINER WITH A TIGHT LID
- ALCOHOL VOLATIZES OFF DURING CURE, LEAVING NO RESIDUES
- VAPOUR PRESSURE OF ETHANOL IS 49 VS 232 FOR ACETONE

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-
- WHAT DEFINES MINIMAL OVERFILL
 1. 2% FOR CONTRACTION
 2. X MICRONS FOR OXYGEN-INHIBITED LAYER
 3. EVERYTHING ELSE IS A WASTE OF TIME

FINISHING.....

" A SHARP INSTRUMENT AND A LIGHT TOUCH"

SHOFU CY2 TO SHARPEN H6/7 SCALER

FORMULA FOR CARIES DETECTOR

- ACID RED 52 (2%) IN PROPYLENE GLYCOL

WHY CARBIDES?

- TACTILE FEEDBACK
- NO IATROGENIC DAMAGE TO ENAMEL
- FINAL SMOOTHNESS
- NON-CLOGGING
- LESS EXPENSIVE

WHY SHOFU BROWNIES?

- VERSATILE IN PRACTICE – REDUCES INVENTORY
- LARGE DIAMETER
- WATER COOLED
- BROWN RESIDUE IDENTIFIES VOIDS
- PRECAUTION: USE AT LOW RPMs

MEASUREMENT OF COMPOSITE SMOOTHNESS AFTER POLISHING

- CR APRIL 2014
- CR SEPTEMBER 2017
- COSMEDENT ENAMELIZE AND FLEXIBUFFS FOR WOW FACTOR

VERIFYING OCCLUSION EFFECTIVELY

ALMORE SHIMSTOCK 8 MICRONS THICK ITEM 72070

DISPENSER ITEM 72045

T-SCAN (NATIONAL DENTAL)- THE WAVE OF THE FUTURE