

...
FACING YOUR FEARS:
How to SLAY
CLASS II COMPOSITES
 making your everyday dentistry reliable. predictable. successful.

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...
many thanks

VOCO THE DENTALISTS | **PULPDENT** | **PAPERPLANE** THERAPEUTICS | **CURION** dentistry. curated.

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INTRODUCTION

- Clinician/Educator
- Former Owner, Current Associate
- Faculty: University Level & Independent

Dr. Lauren Yasuda Rainey

UNIVERSITY OF THE PACIFIC School of Dentistry | Tufts School of Dental Medicine | DR. LAUREN YASUDA RAINÉY | DENTURE CERTIFIED MASTERTRACK | catapult education

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The vendors have paid me an honorarium to present this educational program to you.

The techniques, opinions and materials presented today are those of the speaker solely, and do not represent the opinions of JDIQ, the Ordre des dentistes du Quebec, or the vendors present.

While I utilize the materials presented in this program, I recognize that similar results may be accomplished with a variety of products.

I do not own stock or have a financial interest in the vendors represented, who have provided honorarium support today.

DISCLOSURES and THANK YOU

JDIQ Journées Dentaires Internationales Québec | Ordre des dentistes du Québec

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OBJECTIVES



marginal staining prevention

cracked & chipped marginal ridges

recurrent caries management

food traps, weird anatomy & open contacts

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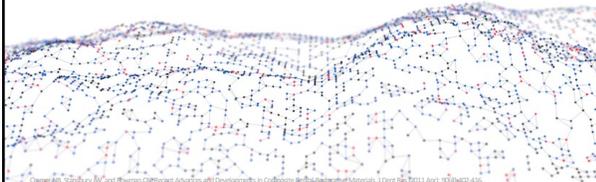


\$60 MILLION

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COMPOSITES

- polymerizable resin
- filler
- resin-filler interface



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RESIN

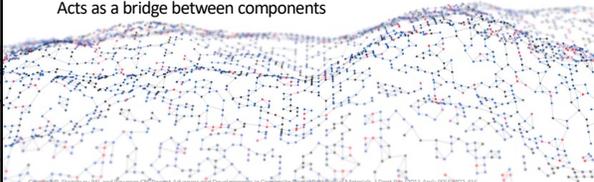
Polymerizable monomers that firm up when exposed to visible light

FILLER

- Enhance the modulus of elasticity
- Provides radiopacity
- Reduces polymerization shrinkage

FILLER-RESIN INTERFACE

Acts as a bridge between components



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BULK FILLS

depth of cure

'compromised' esthetics

decreased working time with effective curing lights

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BULK FILLS

- nano-ORMOCER technology
- BPA free nanohybrid paste
- universal shade

- multiple shades
- flowable & pastes
- anti-bubble flowable tips

- bioactive
- ergonomic, flowable
- dual-cure with WetBond technology

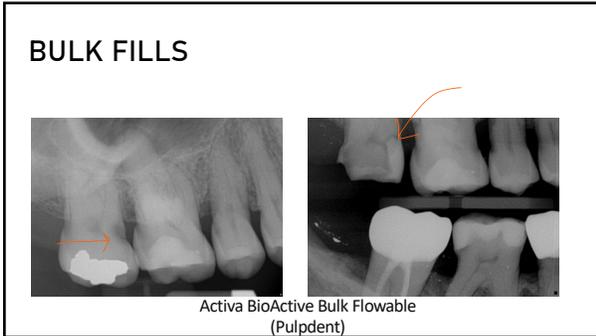
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BULK FILLS

Admira Fusion x-tra (VOCO)

Filtek One (Solventum)

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BIOACTIVES

the ability to react with living cells & tissues

reduces the susceptibility to loss of minerals

forms an apatite-like material in the presence of saliva

recharge ions

adapt to changes in oral pH

may* be placed in a damp environment

Spagnuolo, B. Bioactive Dental Materials: The Current Status. Materials (Basel) 2022 Mar; 15(6): 2016.* Depending on the specific material, check the IFU

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REMINERALIZATION SUPPORT

Microleakage defense through ion exchange

Bioactivity allows for ion exchange between saliva and tooth structure

Continuous apatite formation through ion exchange may decrease microleakage

ACTIVA™ BioACTIVE Bulk Flow™ Cumulative Ion Release/Recharge

Day	Fluoride (µg/g)	Phosphate (µg/g)	Calcium (µg/g)
0	0	0	0
5	~100	~50	~20
10	~150	~100	~50
15	~180	~120	~70
20	~200	~140	~80
25	~200	~150	~90
30	~200	~150	~100

Source: Pulpdent testing

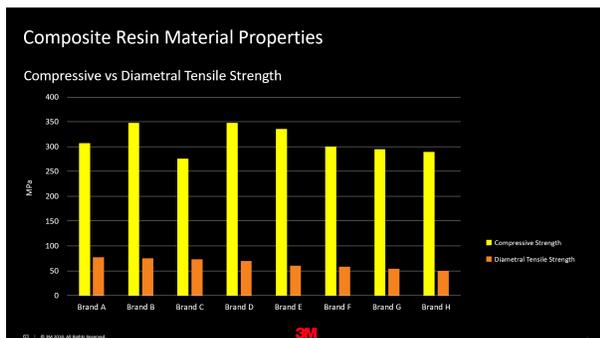
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Brittle materials

- glass
- ceramic
- graphite
- diamond

are stronger in **COMPRESSION**

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Esthetic DENTISTRY

“Despite the wide choice of restorative materials with dissimilar properties, preparation design should be similar for all options, with sealed dentin, detailed and overgingival margins, and a recommended minimum restoration thickness of 1 to 1.5 mm.”

Rocca, Giovanni Tommaso, et al. "Evidence-based concepts and procedures for bonded inlays and onlays, Part II: Guidelines for cavity preparation and restoration fabrication." *Int J Esthet Dent* 10.3 (2018): 392-412.

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A critical look at posterior composite restorations

Alan W. Lutz, PhD, DMD

“Problems with posterior composite resins include a high rate of occlusal wear, a high incidence of microleakage and recurrent caries, difficulties in obtaining suitable proximal contacts with adjacent teeth, isthmus fracture in two- and three-surface restorations, postoperative sensitivity, and lack of radiopacity...”

A critical look at posterior composite restorations
The Journal of the American Dental Association
Volume 114, Issue 3, March 1987, Pages 357-362

This isn't new!

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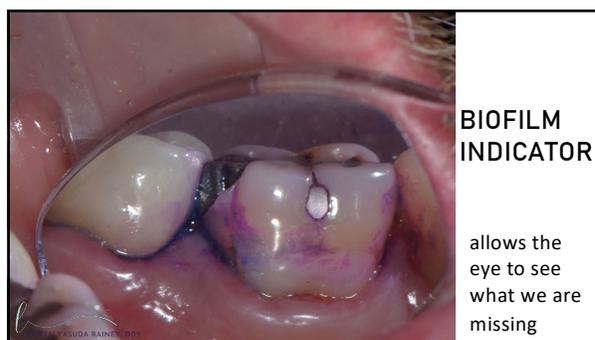
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Mohs Hardness Scale

Mineral Name	Scale Number	Common Object
Diamond	10	
Corundum	9	Masonry Drill Bit (8.5)
Topaz	8	
Quartz	7	Steel Nail (6.5)
Orthoclase	6	Knife/Glass Plate (5.5)
Apatite	5	
Fluorite	4	Copper Penny (3.5)
Calcite	3	
Gypsum	2	Fingernail (2.5)
Talc	1	

↑ Increasing Hardness

aluminum oxide

enamel

dentin
aluminum trihydroxide

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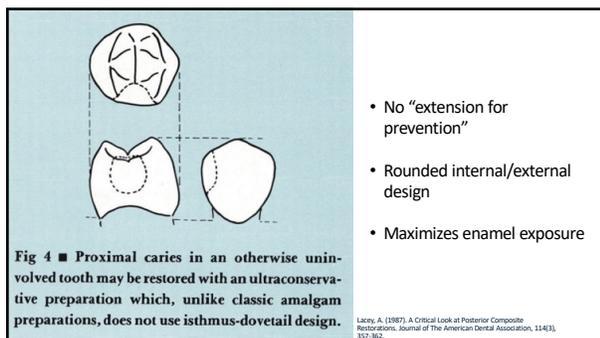
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proper preparation prevents poor performance

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adding 1-2mm gingival bevel

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- No “extension for prevention”
- Rounded internal/external design
- Maximizes enamel exposure



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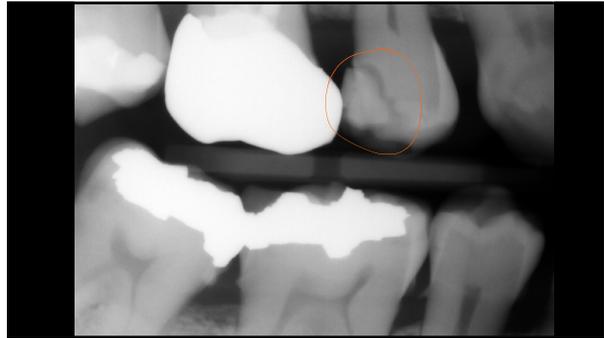
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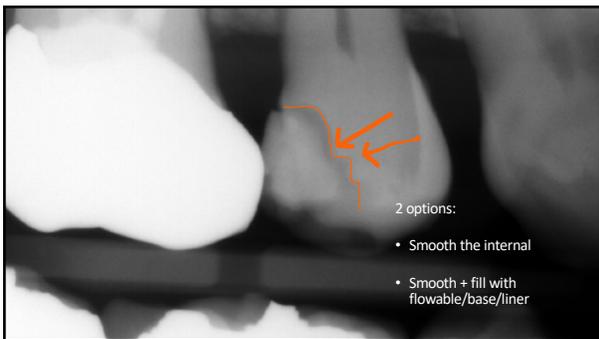
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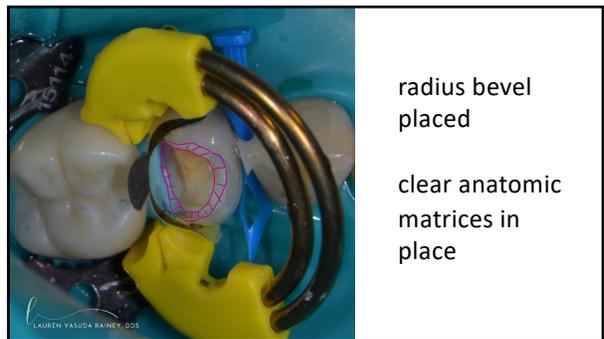
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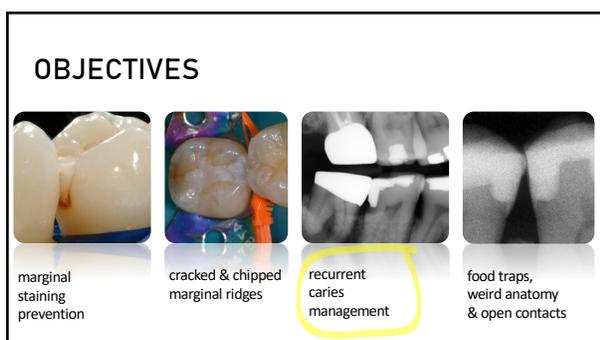
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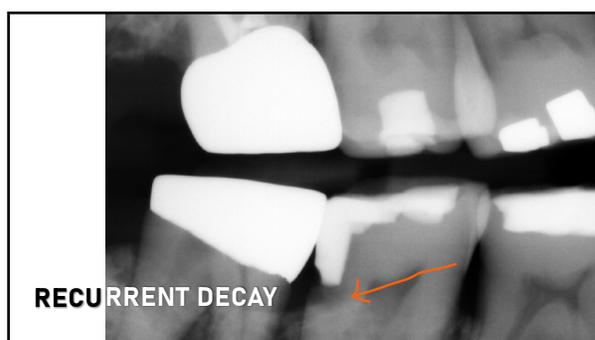
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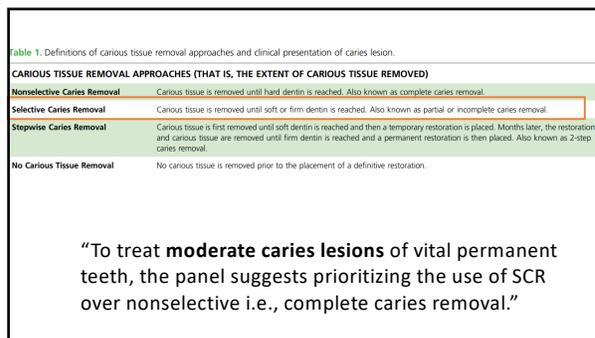
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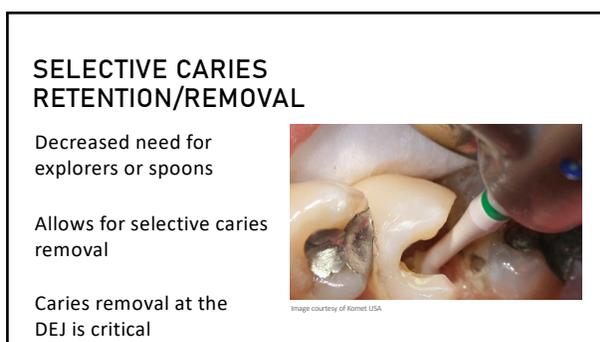
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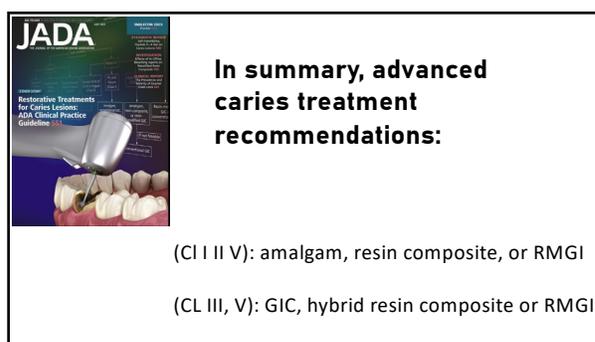
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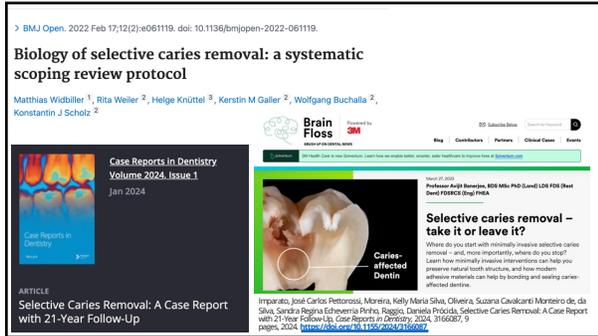
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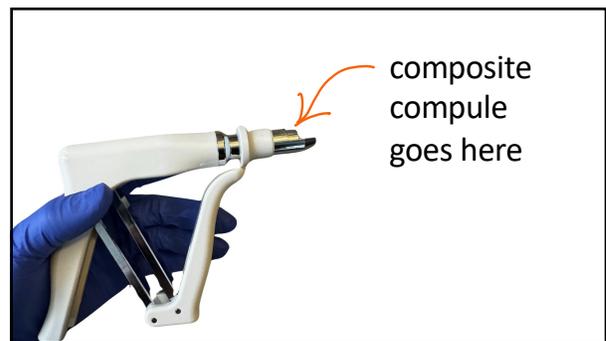
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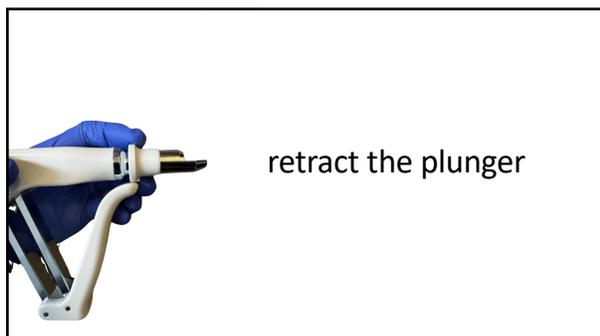
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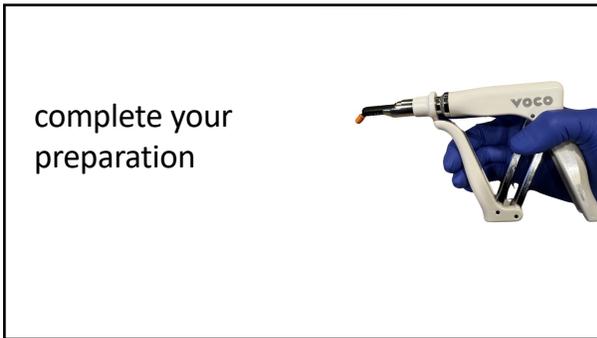
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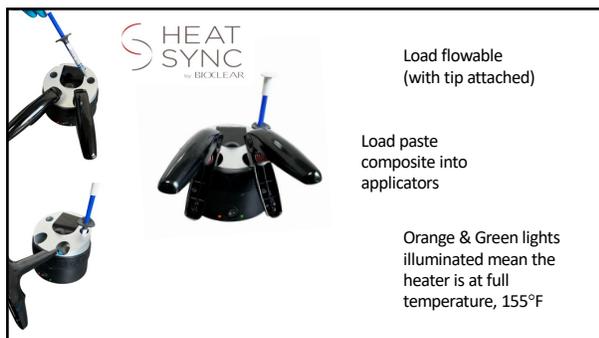
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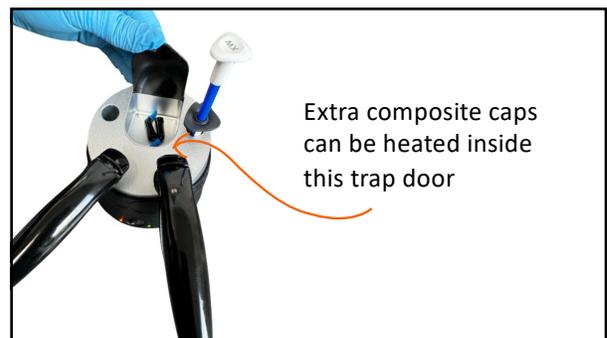
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Warmed composite resin is safe, effective & user-friendly



- ✓ No Degradation of Physical Properties*
- ✓ No Effect on Patient Safety or Product Performance
- ✓ Ability to Co-Cure Flowable and Paste
- ✓ May Improve Adaptation

*dependent on manufacturer, check IFU of individual products.

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“The physical demands and the hand motions used in providing oral health care may aggravate tendonitis and osteoarthritis.”



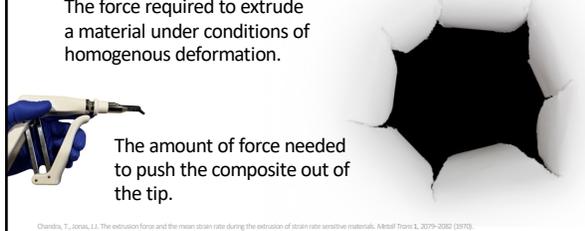
American Dental Association, Practice Resources

Shah, M, Sigurd B-R, Huan, A. Oral 1. Work related musculoskeletal disorders among dental surgeons: A pilot study. *Quintessence Int*. 2011 Oct Dec; 42(10): 808-812. doi: 10.1007/s00532-010-0250-2

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EXTRUSION FORCE

The force required to extrude a material under conditions of homogenous deformation.



The amount of force needed to push the composite out of the tip.

Chandra, T., Xiras, J.J. The extrusion force and the mean strain rate during the extrusion of strain rate sensitive materials. *Metall Trans B*, 2079-2082 (1976). <https://doi.org/10.1007/BF02653427>

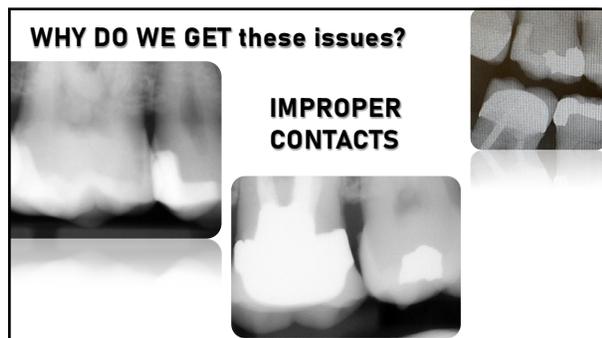
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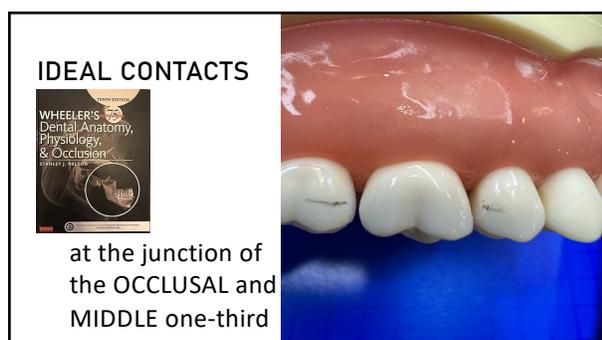
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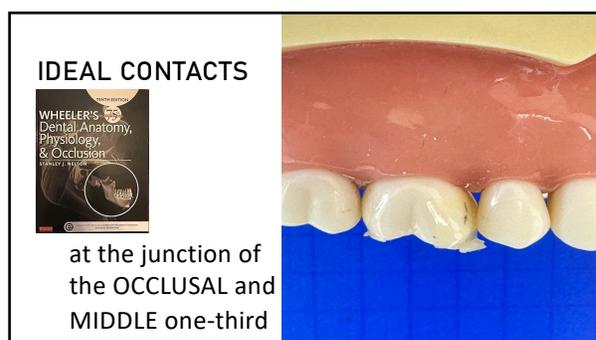
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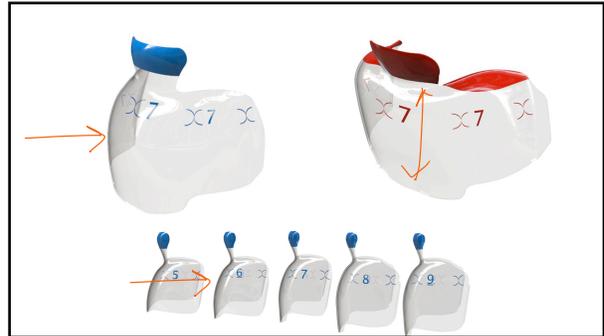
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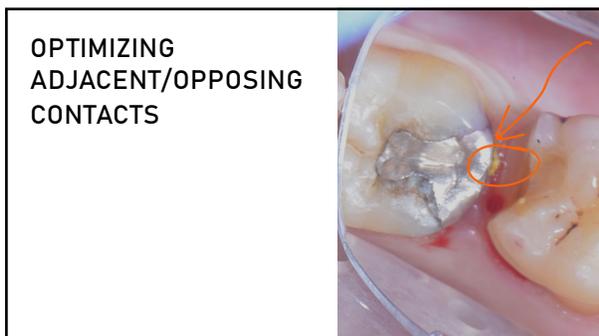
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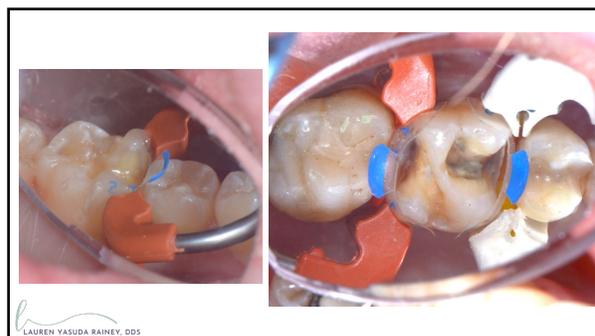
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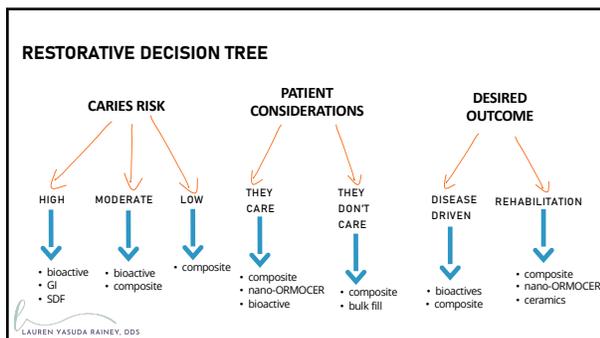
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