

Matrices in Restorative Dentistry

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Aim



- To enable you to have a sound treatment planning and provision in aspects related to the use of matrices in restorative dentistry

Objectives



- To elaborate on clinical scenarios that may require the use of matrices.
- To describe types of matrices commonly used during placement of direct restorative materials.
- To describe the clinical sequence of matrix band placement.
- To build up an evidence based approach toward posterior composite placement in relation to the type of matrix band.

- So When do we use a matrix during restorative procedure?



Procedures

- Proximal cavities to be restored by direct restorative material.
- Occlusal cavities with buccal and/or lingual extensions.
- Cervical cavities.

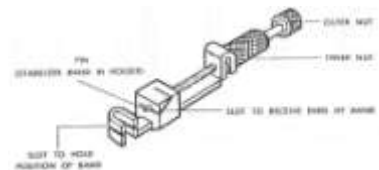
Ideal features of matrix bands

- Re-establish Contour
- Form positive contact
- Seal gingival margins
- Allow adequate bulk of material.
- As thin as possible
- Smooth surface

Types

- Permit easy withdraw.
- Easy to place
- Can be used with all direct restorative materials

- Toffelmire matrix retainer.



Toffelmire bands



Toffelmire bands



Toffelmire bands



•Matrix retainer always buccal.

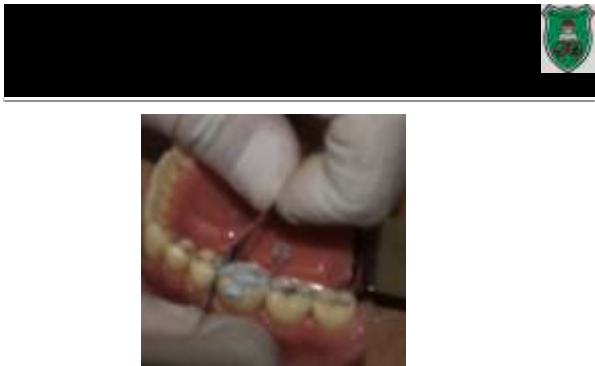
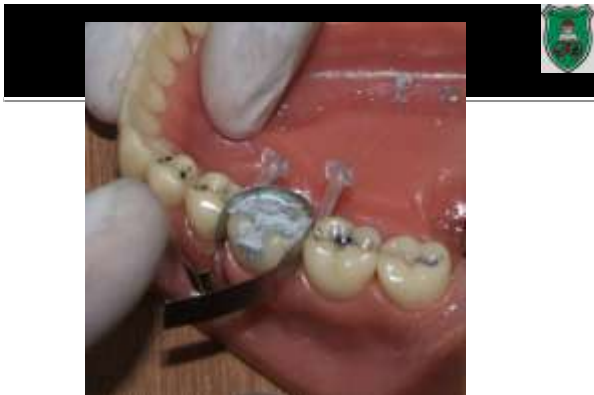
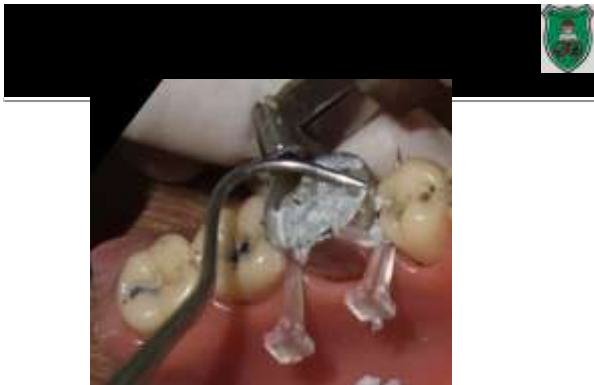
•Open part toward gingiva.

Toffelmire bands



•Sufficient height of matrix band to cover slightly higher than the marginal ridges

Matrix bands should be wedged and contoured to obtain optimal contact area.



Ivory retainer



Ivory retainer

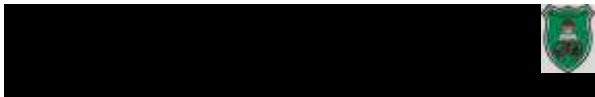
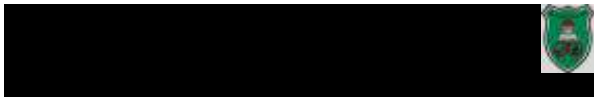
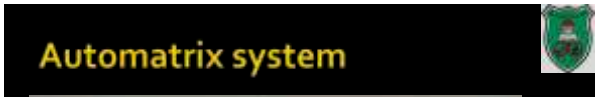
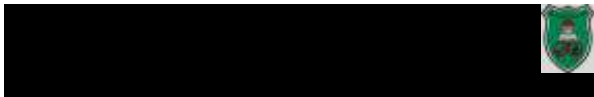


Ivory bands



Ivory bands





Posterior proximal composite



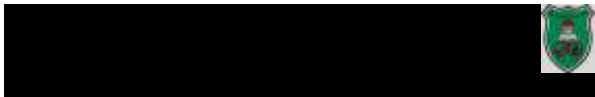
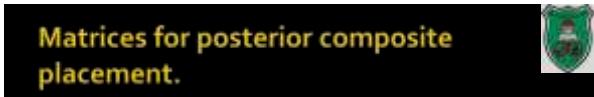
- Obtaining optimal contact with composite is less predictable than with amalgam.

Why?



- Sectional matrices

PRE-WEDGING is essential.
Reflective wedging is desirable.



PALODENT SECTIONAL MATRIX

1. BiTine Ring and BiTine.ii Ring.
2. Sectional matrix sizes.
 Standard matrix: 0.002-inch.
 Mini-matrix: 0.0015-inch.



<http://www.dentsplymea.com/products/restoratives/palodent.html>



- 1 - Separation**
 The spring action of the BiTine™ round ring and the BiTine™ II oval ring creates gentle separation needed to insert a contoured matrix without distortion. This gentle orthodontic separation eliminates the need for forced wedging that can create patient sensitivity and soft tissue trauma. With the Rubber Dam in place, and before preparation, a BiTine™ ring is placed by spreading the ring with rubber dam forceps. The tines are placed with one tine in each interproximal space buccal to lingual, and adjacent to the surface to be restored. The ring loop can be placed in either direction, however, the ring makes a convenient finger rest if placed mesially.
- 2 - Matrix Placement**
 Once the tooth is prepared with the BiTine™ ring in place, gentle separation is accomplished. Remove the BiTine™ ring. Finger roll the matrix to the approximate tooth circumference. Place the matrix and adjust the contact position. The Standard and Mini Palodent® matrices have a dot or a notch that should be placed occlusally. The Palodent® Plus matrix should be placed with the longer flap apically.
- 3 - Stabilisation**
 Close the gingival margin by placing an anatomical wedge. The wedge is used to only seal the matrix interface with the tooth, not to force separation. To further stabilise the matrix, the BiTine™ ring is placed with the tines in the proximal plane, engaging either the matrix or wedge. This stabilises the matrix against the tooth structure.
- 4 - Modelling**
 Lightly burnish the matrix against the adjacent tooth, both buccally and lingually to further adapt it to form proper contours. N.B. Over burnishing may distort the matrix and compromise the built-in contours in the matrix.
- 5 - Tips**
 Two BiTine™ rings may be used for MOD preparations, nested over the other or diverging like wings. One BiTine™ ring may be used to separate two Class II, side by side preparations

Triodent V3 ring system



<http://www.youtube.com/watch?v=GB7WY4OSaK&feature=related>



COMPOSI-TIGHT SECTIONAL MATRIX



FOUR SIZES OF SECTIONAL MATRIX.

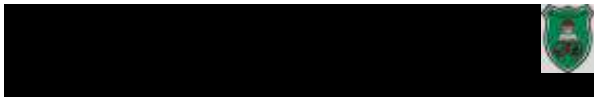
BURNISH MATRIX.



HO BAND METAL MATRIX:

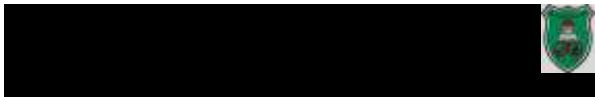
1. YOUNG DENTAL COMPANY.
2. DEAD SOFT METAL MATRIX.
3. 0.001-INCH THICKNESS.
4. USES A TOFFLEMIRE HOLDER.





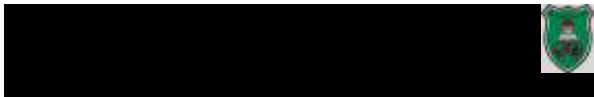
AUTOMATRIX II SYSTEM

**TRANSPARENT BANDS
AVAILABLE**



MATRIX SYSTEM

Used in standard Tofflemire
retainer.



SUPERMAT SYSTEM

PREMIERE DENTAL PRODUCTS
COMPANY
MYLAR: .075 MM THICKNESS.
METAL: .038 MM THICKNESS.
HANDY BAND: COMBINATION.



CONTACT-FORMING INSTRUMENTS

BELVEDERE CCF





LIGHT TIP

- Denbur Incorporated.
- Cone-shaped non-sticking transparent tip that fits onto curing light guides.
- Four sizes available.
- Pack resin into box form
- Press Light-Tip into resin, wedging it against axial wall, and light cure.
- Remove Light-Tip and fill void with new material.



Evidence based approach for composite placement in posterior proximal areas



- Class II posterior composite resin restorations placed with a combination of sectional matrices and separation rings resulted in a stronger proximal contact than when a circumferential matrix system was used.

Loomans et al J Dent 2006



- Tight contact areas made by composite restorations tend to lose some of their tightness after 6 months of placement.

Loomans et al J Dent 2007



- Pre contoured, pre wedged metallic sectional matrices are better in forming tight contacts than plastic/clear matrices.

Ritter, J Adhes Dent 2008



Simplicity is the ultimate sophistication

Thank you

L. Da Vinci