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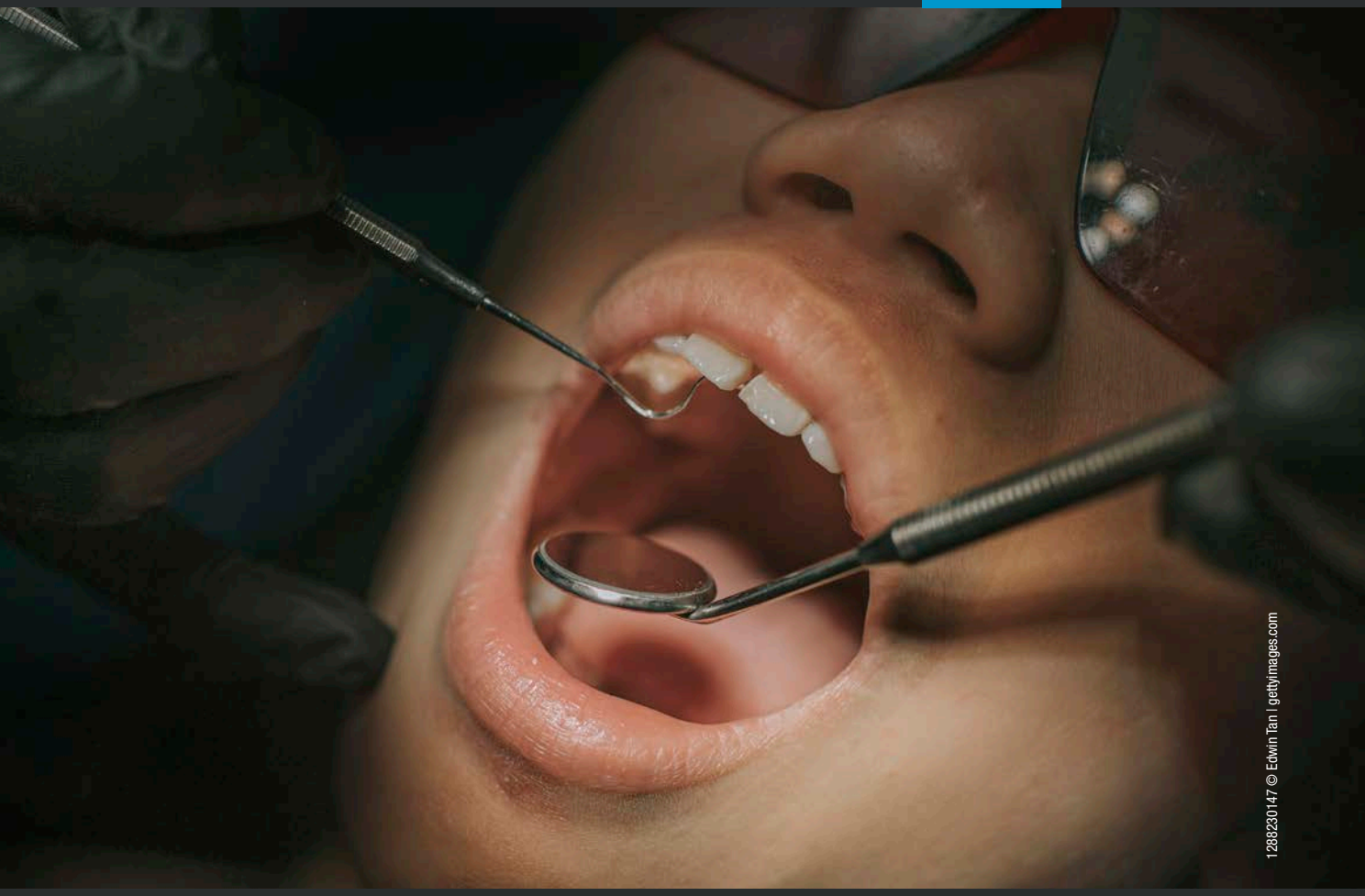

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Materials and techniques for restoring contacts in class II composites

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Materials and techniques for restoring contacts in class II composites

Abstract

The goal of this article is to describe the materials used for matrices in class II composites and the wedges and rings used to adapt sectional matrix bands and provide tooth separation. Different matrix bands (sectional and circumferential), wedges (wooden, plastic, solid, hollow), and rings will be described. This review will summarize advantages and disadvantages of various options for this armamentarium. Additionally, several clinical applications of PTFE tape for class II restorations will be described. Finally, techniques for matrix placement in difficult clinical scenarios will be discussed.

Educational objectives

1. Describe the different types of sectional matrix bands
2. Differentiate between solid and hollow wedges and learn how to use them
3. Identify different types of separating rings and their separation force
4. Learn tricks for using PTFE tape while placing a matrix

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Very few dentists break a sweat at the thought of performing a class I composite; however, a class II composite can often be a very challenging clinical procedure. The clinical challenges with class II composites are achieving great adaptation in the bottom of the box and achieving tight, well-contoured contacts. In order to achieve these clinical goals, a clinician must have a well-adapted matrix for which its thickness is compensated by adequate tooth separation.

Circumferential matrix systems, such as a Tofflemire matrix system, are necessary for amalgam restorations because a tight seal around the preparation is necessary when condensing amalgam. Although composites (particularly more viscous composites) should be condensed into a preparation, a much lower condensing force is required. Therefore, sectional matrix systems may be used for composite restorations.

These sectional matrix systems are composed of a metal or clear matrix band, a wedge, and a separating ring. Sectional matrix systems provide advantages for composite restorations. First, the sectional matrix can often provide more anatomical contour of the proximal wall. Second, the separating ring can provide sufficient separating force to compensate for the fact that composite is not condensed like an amalgam, and composite shrinks during polymerization.

Sectional matrix systems used with separating rings lead to stronger contacts than can be achieved with circumferential matrix systems without a ring.[1-3] In fact, a clinical trial confirmed that contacts restored with composite with a sectional matrix system and separating ring became stronger after treatment, whereas contacts restored with a circumferential Tofflemire system became weaker.[1] Another study found that the use of sectional matrices and separating rings provided tighter contacts than a Tofflemire matrix for two-surface class II restorations, but not three-surface class II restorations. The explanation for this outcome was that placing separating rings on both sides of the tooth pushed the tooth in opposite directions and diminished the separating force at either side. The authors mentioned a technique to overcome this issue would be to restore either side of the tooth separately, using only one ring at a time.[4]

Each component of a sectional matrix system has multiple functions. The matrix band provides contour to the proximal wall and seals the composite within the preparation. The wedge seals the cervical portion of the matrix and may provide separating force. The separating ring provides separating force and seals the proximal walls of the preparation. In order to improve the seal of the matrix band, polytetrafluoroethylene (PTFE) tape may also be used as an adjunct to the armamentarium. Each of these components will be discussed in detail.

Matrix bands

Sectional matrix bands differ from traditional flat circumferential matrix bands as they are contoured incisal-gingivally. The original sectional matrix bands were bean-shaped (figure 1). This relatively simple geometry is helpful to allow incisal-gingival curvature; however, this shape was not ideal for tightly sealing the box or forming an occlusal embrasure. Later modifications of the shape of the sectional matrices involved distinct ridges in the matrix bands at their cervical and occlusal borders (figure 1). These ridges help to adapt the matrix band to the unprepared tooth at the gingival edge and form the occlusal embrasure at the occlusal edge. Also, the matrix bands were modified to a U shape to better wrap around the tooth preparation buccal-lingually without deforming.

FIGURE 1: Sectional matrix bands: simple bean-shaped geometry (left) and modified matrix band with distinct ridges at cervical and occlusal borders.

Sectional matrix bands come in several different sizes. Most systems have bands with different heights, such as 4 mm, 5 mm, and 6 mm. The size of band is important for adequate contour of the restoration. If the band is too short, it will not be able to contour the composite at the marginal ridge or occlusal embrasure. If the band is too tall, it may prevent the operator from sufficient visualization and access to the preparation. Additionally, an improper sized matrix band may cause the contact point to be located too far cervical or occlusal if its height of contour is not properly adjusted.

As a rule of thumb, the size of the matrix band should be picked such that when it is fully seated, the top of the matrix band is approximately 0.5 mm taller than the adjacent marginal ridge (figure 2). Therefore, the size of matrix can be approximated by using a periodontal probe to measure the deepest part of the preparation and adding 1 mm. This size will allow 0.5 mm of the matrix to extend beyond the bottom of the box and 0.5 mm to extend beyond the marginal ridge.

FIGURE 2: The matrix band should be placed such that the top of the matrix band is approximately 0.5 mm taller than the adjacent marginal ridge.

Sectional matrices are either metal or transparent. Perhaps the biggest advantage of metal matrices is that they are generally firmer and more capable of wedging between teeth when inserted. A translucent matrix may fold when attempting to insert it into an unbroken contact. Translucent matrices have the advantage of allowing light to pass through them.[5]

The translucency of the matrix also allows the operator to ensure that the composite material is adequately adapted to the tooth without voids or bubbles. On

the other hand, the translucency of the matrix can make it difficult to visualize if the matrix is indeed sealed around the tooth preparation.

Matrix band materials may range in thickness between about 35 to 50 microns and translucent matrices range between 50 to 75 microns.[6] Thicker matrix bands are stiffer, which allows them to be more easily inserted between unbroken contacts. These firmer matrix bands may also resist deformation created by the placement of a strong separating ring. Conversely, a thinner matrix band will require less space compensation by wedging forces when building a sufficiently tight contact. Therefore, thinner sectional matrices are advantageous when proximal contact of the preparation is broken buccally, lingually, and gingivally. Additionally, thinner sectional matrices may be helpful when restoring back-to-back class II composite restorations.

Metal matrices were often burnished when placing amalgam restorations in order to thin and contour them. With sectional matrices and composite restorations, burnishing is not typically necessary. The inherent contour of the sectional matrix band provides a more natural curvature than can be achieved with burnishing. Additionally, composite has more flow and adaptability than amalgam, so any irregularities produced by burnishing a matrix band will be reproduced in the composite (figure 3). These irregularities will then be present at the contact point. Burnishing a soft metal matrix band may also lead to a concave contact point. In fact, dead-soft metal matrix bands have been shown to produce an undesirable concave contact point just from condensing composite against them.[7]

FIGURE 3: Irregularities produced by burnishing a matrix band are reproduced in the composite restoration at the contact point.

Wedges

Wedges are used to provide separation force as well as seal the gingival portion of the matrix band. Wedges can be fabricated from wood or plastic. Wooden wedges are advantageous because they can be modified with a scalpel blade or rotary instrument. Modifying a wooden wedge with a scalpel blade can be performed to seal the matrix around a root concavity, such as the mesial root concavity on a maxillary first premolar. Additionally, a wooden matrix may be placed prior to preparation of a deep class II box. If any of the wedge material is removed during preparation, this modification of the wedge may be useful when restoring the tooth. The modified wedge may be less likely to displace the matrix band into the space reserved for the composite restoration. Wooden wedges are also firm enough to provide separation force but compressible enough to seal the gingival box.

Plastic wedges may be fabricated with either a hollow or solid cross-section (figure 4). Hollow wedges are more compressible, allowing better ability to seal the matrix. Some hollow wedges will contain a cutout that allows the wedge to expand once it passes through the contact. Additionally, they do not interfere with the papilla or rubber dam. Solid wedges are more rigid and provide higher separation force.

The separating force of several different wedges was evaluated using a custom testing fixture (figure 5). In this fixture, two typodont premolar teeth were placed into a typodont. A metal rod was placed into the mesial surface of the first premolar and the distal surface of the second premolar (figure 6). The metal rods were connected to a force sensor. Wedges were placed in between the two premolars and the maximum separation force registered on the force sensor was recorded.

Measurement of the separating forces confirmed that solid wedges provide more separating force than hollow wedges. Also, larger wedges provided higher separating force. Some solid wedges contained flexible plastic fins to help adapt the matrix

FIGURE 4: Wedges: solid cross-section (left) and hollow cross-section (right).

FIGURE 5: Custom testing fixture for measuring separating force.

FIGURE 6: Two typodont premolar teeth with a metal rod placed into the mesial surface of the first premolar and the distal surface of the second premolar.

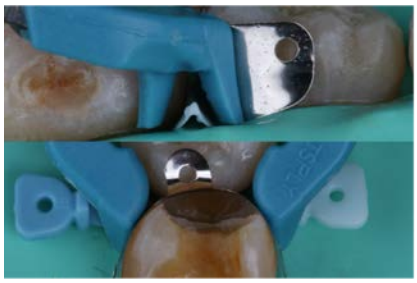

FIGURE 7: Hollow wedges can be stacked on top of each other.

to the tooth. These types of solid wedges did not provide as high separation force as solid wedges.

The wedge may be placed from the lingual, buccal, or both. The side from which the wedge should be placed should actually be determined by which side of the contact point has the most prepared tooth. Typically this will be from the lingual surface since the lingual embrasure is larger than the buccal embrasure. However, sometimes the rotation of the tooth or location of caries will lead to more tooth preparation on the buccal side of the contact point.

Wedging can also be performed from both sides of the tooth. Hollow wedges can be stacked on top of each other (figure 7). When solid wedges are placed on either side of the tooth, caution should be taken to ensure that the wedges do not stack on top of each other and encroach into the incisal-gingival dimension of the contact point (figure 8).

Insertion of the wedge can often disrupt the positioning of the matrix. For this reason, the matrix band should be stabilized prior to wedge insertion to prevent buccal or lingual drifting of the matrix. A thumb and finger can be placed to secure the matrix in place while the wedge is inserted. If a rubber dam is in place, the dam may need to be stretched gingivally to prevent buildup of the dam in the gingival embrasure, elastically preventing the wedge from being inserted. Finally, the wedge should be placed below the gingival margin of the box preparation. Therefore, the tip of the wedge can be directed gingivally when it is first inserted and then turned occlusally once the wedge passes under the margin of the box.

FIGURE 8: Wedges inserted from both sides of the tooth that have stacked on top of each other and encroached into the incisal-gingival dimension of the contact point.

Rings

Separating rings provide separation force and help seal the matrix to the proximal walls of the preparation. The original separating rings are composed entirely of steel and contain thin tines with small feet at their ends. These tines engage between the prepared tooth and the wedge. If the proximal box is wide, the tines can slip into the preparation. A clinical technique to avoid this issue with thin tine rings is to place the tines between the wedge and the neighboring tooth (figure 9). With this configuration, the wedge places the separation force on the prepared tooth.

FIGURE 9: For wide preparation, a thin-tined separating ring may be placed with its tines between the wedge and the neighboring tooth.

Modern rings are modified to have V-shaped feet through which the wedge may be placed. The V-shaped feet allow more surface to contact the matrix band to provide a better seal.[8] Additionally, the V-shaped feet allow the ring to place separating forces on the prepared and neighboring teeth. Different rings vary based on the geometry and composition of their feet (figure 10). Some feet have a simple geometry, whereas others have more complex shapes. If the foot engages deeper into the buccal and lingual embrasures, it may allow better adaptation of the matrix band to the preparation. A more complex shape, however, limits the adaptability of the ring to different sized and shaped teeth. Feet with more complex shapes are also harder to clean off residual composite. The ring feet may also be fabricated from different materials. Soft silicone feet can better adapt to the tooth preparation than hard plastic feet. But soft silicone feet may also slip on the preparation. Additionally, hard plastic feet may be less likely to wear out over time.

Modern separating rings are typically composed of nickel titanium, which gives them excellent resilience. Several modern separating rings were evaluated for separating force with a load sensor as described previously. The separating rings were capable of producing similar separating force as solid cross-section wedges. The separating force produced by combining the separating ring and wedge was greater than the individual separating force of either method used alone. Since the separating force produced by a separating ring is at least equivalent to the separating force produced by a strong wedge, most clinical scenarios

FIGURE 10: Modern separating rings: small-diameter ring with hard, simple V-shaped feet (left), large diameter ring with soft silicone, V-shaped feet (center), double-ring with hard, complex-shaped feet (right).

should not require both a strong wedge and separating ring. However, there may be situations in which a strong wedge and separating ring may be beneficial, such as when simultaneously restoring two adjacent interproximal composites or with the use of thicker matrix bands. Of the separating rings tested, a separating ring that contained two independent rings was able to generate the highest separation force.

Separating rings often come in at least two sizes, with one size having a smaller buccal-lingual dimension. The smaller size ring is capable of producing more separating force because it can squeeze the teeth tighter. The smaller size of the ring, however, can prevent it from seating on larger molars.

The size of the ring as well as its pitch can also affect the way that it can be placed in the mouth. Smaller diameter rings can be placed in the mouth without interfering with retromolar tissue or a rubber dam clamp. Larger diameter rings, however, allow the operator t0 work within the ring if needed. Rings with a low pitch (i.e., parallel to the occlusal plane) may be less obtrusive to the operator, whereas rings with a high pitch better allow stacking of rings when multiple interproximal surfaces are being restored.

FIGURE 11: Wide separating rings used to engage the tooth closer to the middle.

Circumferential matrices

If a buccal or lingual line angle of a tooth is missing, the use of a sectional matrix becomes more difficult. There are wide separating rings that are used to engage the tooth closer to the middle to compensate for large preparations (figure 11); however, even these rings have limitations. In these clinical cases, circumferential matrices are a preferred option.

The limitation of a traditional flat circumferential matrix and a Tofflemire retainer is that the flat matrix lacks incisal-gingival curvature. As a result, the restored contact point is often located near the occlusal surface of the tooth with a relatively small contact area.[2] If the marginal ridge of the tooth is adjusted, this contact may be obliterated. A solution for this clinical challenge is the use of a circumferential matrix with incisal-gingival curvature. Precontoured circumferential matrix bands may be obtained for use with Tofflemire retainers or preloaded into disposable retainers (figure 12).

Another challenge with circumferential matrices is that the retainer can often get in the way of the operator, or the weight of the retainer can cause the matrix to slide off of the tooth preparation. If the tooth being restored is also being used to retain a rubber dam clamp, matrix retainers cannot be used. Retainerless circumferential matrices are available to avoid this inconvenience (figure 12). A retainerless matrix may be tightened with a separate tightener, or there is a retainerless matrix with an integrated tightening knob. The integrated tightening knob removes the need for keeping a separate tightener in the armamentarium; however, the tighteners aid with reaching the matrix in the posterior aspect of the mouth.

FIGURE 12. Circumferential matrices (left to right): Tofflemire retainer with straight circumferential band; precontoured circumferential matrix band in disposable retainer; retainerless circumferential matrix with separate tightener; retainerless circumferential matrix with integrated tightening wheel.

PTFE tape

Polytetrafluoroethylene (PTFE) tape, also known as Teflon or plumbers tape, is an adjunctive material that is useful for many applications in clinical dentistry. It is a relatively inert material; however, the clinician may choose to autoclave the material prior to its use.[9] It may be wrapped around a tongue depressor for support and placed into an autoclave. PTFE specific for dental applications may instead be purchased directly from a dental manufacturer.

One application for PTFE tape is to adapt the PTFE tape in between the matrix and the feet of the separating ring when the feet do not completely seal the matrix band to the tooth (figure 13). This tape will prevent excess composite flash. When compressing the PTFE tape in this crevice, care should be taken not to overcondense the space such that the matrix begins to fold or loses contact with the adjacent tooth. If flash occurs in this portion of the restoration, often it is easier to smooth with either a polishing disk or #12 blade. The use of a needle-shaped finishing carbide will often gouge the restoration and create unfavorable contours.

PTFE tape can also be used to wrap around a wedge to create more adaptability and compressibility of the wedge (figure 14). Alternatively, a small ball of PTFE can be formed and pressed between the wedge and the matrix band. This ball is useful when restoring teeth with root concavities.

A final application for PTFE tape is for use when restoring adjacent interproximal restorations. The tape may be placed in the tooth adjacent to the tooth being restored. It serves to reserve space for the

FIGURE 13. PTFE tape is adapted in between the matrix and the feet of the separating ring to better seal the matrix band.

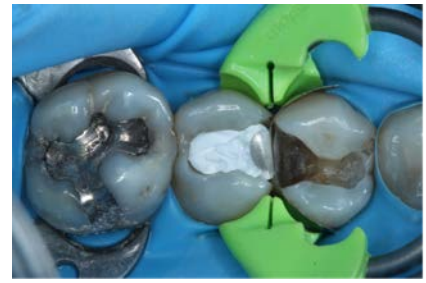

FIGURE 15. PTFE tape is placed in the tooth adjacent to the tooth being restored to reserve space for the second restoration.

FIGURE 14. PTFE tape is wrapped around a wedge to create more adaptability and compressibility of the wedge.

FIGURE 16. A circumferential matrix with a second sectional matrix placed inside in order to seal the deep distal box of the most posterior tooth in the arch.

second restoration and prevent the operator from overcontouring the first tooth being restored (figure 15).

Challenging clinical situations

There are several challenging clinical scenarios in which modifications to traditional matrix techniques may be employed, including deep margins, adjacent restorations, unbroken contacts, and the most posterior tooth in an arch.

The challenge with restoring teeth with deep margins of the box preparation is that often the matrix band will not extend deep enough to seal the box. In this case, bone or soft tissue buccal and/or lingual of the interproximal area is preventing complete seating of the matrix band. In some cases, matrix bands with gingival aprons that have projections that extend into the deep part of the interproximal area may be used. For deeper preparations, the use of a second matrix band or copper band may be necessary. In this technique, a circumferential matrix band is placed around the tooth in order to stabilize the second matrix band. Then a sectional matrix band or copper band is inserted between the circumferential matrix and the tooth. Occasionally, PTFE tape can be placed between the two matrix bands to better adapt the second matrix band to the tooth. Once the cervical aspect of the box has been restored, the clinician may either remove the second matrix and complete the restoration using the circumferential matrix or apply a new matrix system.

Restoring adjacent interproximal restorations can be challenging because the operator should attempt to provide even allocation of space for both teeth. If one tooth is contoured larger than the other, it may sacrifice the ability to insert floss or create an open gingival embrasure. If attempting to place matrices on both teeth and restore them both at the same time, the matrices should be examined from the occlusal to ensure that their contact is centered between the two teeth. As mentioned previously, the operator may place PTFE tape into the preparation that is not being restored in order to reserve space. In this case, a strong wedge and strong ring may be indicated in order to compensate for the use of two matrix bands. Alternatively, the restorations may be restored individually. Although there is some loss of efficiency with this method, it is a more predictable method to ensure even and tight contacts between the teeth.

Restoring teeth with unbroken contacts can be challenging because the matrix band may bend or distort during placement. For this situation, a thicker matrix band may be helpful. Alternatively, a metal interproximal saw may be used to slightly open the contact area without removing excessive tooth structure. Placement of a large solid wedge prior to placing the matrix may also help. Tooth separation of 90 to 150 microns has been recorded following one minute of wedging with a wooden wedge.[10]

Finally, restoration of the distal surface of the most posterior tooth in the arch is hindered by the inability to adapt a sectional matrix to this surface with a separating ring. Of course, a circumferential matrix may be used for this purpose; however, sometimes it also does not seal the distal aspect of the preparation. For this clinical situation, a circumferential matrix may be used with a second sectional matrix placed inside (figure 16).

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Notes

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QUESTIONS

1. Why are circumferential matrices needed for amalgam?
   A. A tight seal around the preparation is necessary when condensing amalgam.
   B. Amalgam restorations are only performed for large restorations.
   C. Circumferential matrices are thinner than sectional matrices.
   D. Only circumferential matrices can be burnished.

2. Which of the following is not a component of a sectional matrix system?
   A. Section matrix band
   B. Tofflemire retainer
   C. Separating ring
   D. Wedge

3. Based on clinical and laboratory research, which provides a stronger contact?
   A. Sectional matrix with a separating ring
   B. Circumferential matrix
   C. Sectional matrix without a separating ring
   D. They all provide equal contact.

4. Which technique can be used to restore three-surface class II composites with a sectional matrix system?
   A. Restore both the mesial and distal surfaces simultaneously.
   B. Restore without the use of a separating ring.
   C. Restore either side of the tooth separately, using only one ring at a time.
   D. Place extra-large wedges on either side of the tooth.

5. Which are functions of the matrix band?
   A. Provides contour to the proximal wall
   B. Seals the composite within the preparation
   C. Neither A nor B
   D. Both A and B

6. Which is a function of the wedge?
   A. To seal the matrix band to the proximal wall of the preparation
   B. To seal the cervical portion of the matrix
   C. To compress the papilla
   D. To push the rubber dam away from the tooth preparation

7. Which is not a function of the separating ring?
   A. To provide tooth separation
   B. To seal the matrix band to the proximal wall of the preparation
   C. To seal the cervical portion of the matrix
   D. None of the above

8. What contour is present in a sectional matrix that is not present in a flat circumferential matrix band?
   A. Incisal-gingival
   B. Mesial-distal
   C. Buccal-lingual
   D. Anterior-posterior

9. What modification was made to modern sectional matrices from the original bean-shaped matrices?
   A. Distinct ridges in the matrix bands at their cervical and occlusal borders
   B. Increased thickness
   C. Improved flexibility
   D. Decreased friction against the neighboring tooth

10. How much taller than the adjacent marginal ridge should a sectional matrix be?
    A. .25 mm
    B. 0.5 mm
    C. 1 mm
    D. 1.5 mm

11. What are advantages of a clear matrix band?
    A. Ability to cure through the band
    B. Ability to visualize potential voids or bubbles during composite placement
    C. Ability to slide matrix through unbroken contacts
    D. Both A and B

12. What thickness are metal matrix bands?
    A. Between 10-20 microns
    B. Between 35-50 microns
    C. Between 50-75 microns
    D. Between 75-100 microns

13. What thickness are clear matrix bands?
    A. Between 10-20 microns
    B. Between 35-50 microns
    C. Between 50-75 microns
    D. Between 75-100 microns

14. Why is it generally not recommended to burnish sectional matrix bands?
    A. Irregularities can be formed that are replicated in composite.
    B. A concave contact point may be formed.
    C. The contact area may be rough.
    D. All of the above

15. Which is not a strategy for restoring teeth with mesial root concavities?
    A. Modify a wooden wedge with a scalpel.
    B. Place a ball of PTFE tape into contact with wedge.
    C. Inject flowable directly into the concavity without a matrix band.
    D. Wrap the wedge in PTFE tape.

16. Which is not an advantage of a hollow cross-section wedge?
    A. It will provide a higher wedging force.
    B. It will not interfere with the papilla.
    C. It will not interfere with the rubber dam.
    D. It will allow more compressibility than a solid wedge.

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QUESTIONS

17. Which type of wedge provides the most separating force?
    A. A hollow cross-section wedge
    B. A solid cross-section wedge
    C. A wedge with flexible plastic fins
    D. A smaller sized wedge

18. Which side of the tooth should the wedge be placed into?
    A. Whichever side of the contact point has the most prepared tooth
    B. Whichever side of the contact point has the least prepared tooth
    C. Only from the lingual
    D. Only from the buccal

19. Why is caution needed when placing solid wedges on either side of a contact area?
    A. So wedges do not stack on top of each other and encroach into the incisal-gingival dimension of the contact point
    B. So the separation force is not too great
    C. So the wedges do not go below the gingival margin of the preparation
    D. So the wedges do not cause discomfort to the patient

20. What should be considered when placing the wedge?
    A. The matrix band is not displaced.
    B. The wedge is not impeded by the rubber dam.
    C. The wedge is placed below the gingival margin of the box preparation.
    D. All of the above

21. For wide class II preparations, which placement technique of thin-tined separating ring is least likely for tines to slip into the preparation?
    A. Occlusal of wedge
    B. Between wedge and prepared tooth
    C. Between wedge and neighboring tooth
    D. Without the use of wedge

22. Rings with V-shaped feet provide:
    A. Better seal than rings with thin tines
    B. Less seal than rings with thin tines
    C. The same seal as rings with thin tines
    D. Less separation force than rings with thin tines

23. Most modern separating rings are composed of:
    A. Nickel titanium
    B. Titanium
    C. PTFE
    D. Copper

24. Which provides the highest separating force?
    A. Wedge used alone
    B. Separating ring used alone
    C. Wedge used with separating ring
    D. No difference between any of these

25. What is the advantage of separating rings with a large diameter?
    A. They are easier to fit into the mouth.
    B. They provide a higher separation force.
    C. They allow the operator to work inside of them.
    D. The can fit more easily on short teeth.

26. Which is an indication for a circumferential matrix band?
    A. If a buccal or lingual line angle of preparation is missing
    B. If the space between prepared teeth is large
    C. If restoring adjacent interproximal restorations
    D. If a flowable composite is used in the bottom of the box

27. Which of the following regarding PTFE tape is true?
    A. It may be autoclaved.
    B. It dissolves when exposed to phosphoric acid.
    C. It is rigid.
    D. It cannot get wet.

28. Which is a clinical use for PTFE tape?
    A. Insert between matrix band and feet of separating ring
    B. Wrap around wedge for improved adaptability
    C. Place in neighboring tooth to preserve space when restoring adjacent interproximal restorations
    D. All of the above

29. Which of the following is not a technique for restoring deep proximal margins?
    A. Placement of a sectional matrix band within a circumferential matrix band
    B. Placement of flowable in the deep area of the preparation without a matrix band
    C. Placement of a copper band within a circumferential matrix band
    D. Placement of a sectional matrix band with a gingival apron

30. Which of the following is not a technique for applying a matrix between tight contacts?
    A. Use of a firm matrix band
    B. Use of a separating saw to break contacts
    C. Asking the patient to clench for one minute
    D. Placement of a wedge for one minute

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ANSWER SHEET

Materials and techniques for restoring contacts in class II composites

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Educational Objectives

1. Describe the different types of sectional matrix bands
2. Differentiate between solid and hollow wedges and learn how to use them
3. Identify different types of separating rings and their separation force
4. Learn tricks for using PTFE tape while placing a matrix

Course Evaluation

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Objective #1: Yes No Objective #3: Yes No

Objective #2: Yes No Objective #4: Yes No

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5.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	20.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
6.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	21.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
7.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	22.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
8.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	23.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
9.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	24.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
10.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	25.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
11.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	26.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
12.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	27.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
13.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	28.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
14.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	29.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
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