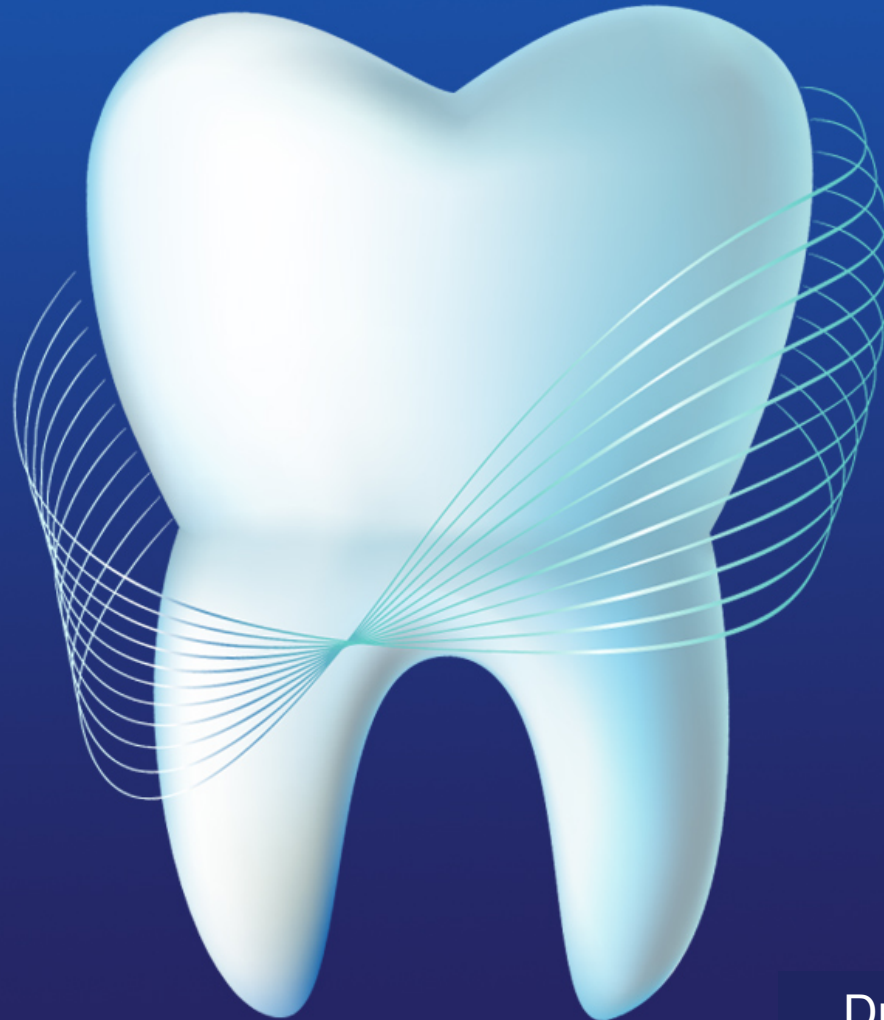


Part I: Principles of Tooth Preparation for Part II: Class I Composite Preparation Composite Restoration



Principles of Tooth Preparation for Composite Restorations



- Includes the following:
 1. Removing the fault
 2. Creating prepared enamel margins of 90 degrees or greater (>90 degrees preferable)
 3. Creating 90-degree (or butt-joint) cavosurface margins on root surfaces

Principles of Tooth Preparation for Composite Restorations



Differs from amalgam preparations:

1. Less outline extension

2. Axial or pulpal floor of varying depth

3. Incorporation of enamel bevels

4. Tooth preparation walls being rough

5. Use of diamond stone

Principles of Tooth Preparation for Composite Restorations



- Basic principles for tooth preparation must be followed:
 - Outline Form
 - Retention Form
 - Resistance Form
 - Caries Removal
 - Pulp Protection

Principles of Tooth Preparation for Composite Restorations



- Outline Form:
 - Extending the periphery to sound tooth structure while maintaining a specific initial depth in the most conservative manner possible
- Retention Form:
 - Results from micromechanical bonding
 - Beveling

Principles of Tooth Preparation for Composite Restorations



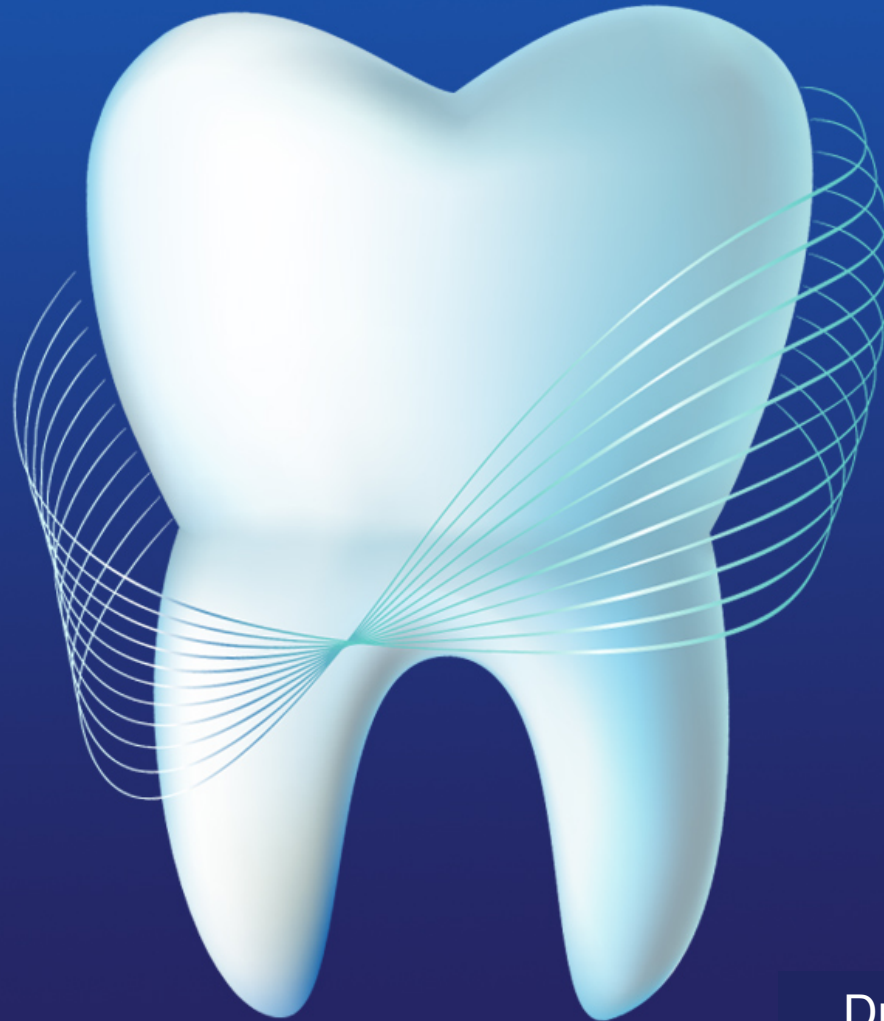
- Resistance Form:
 - Protects tooth and restoration from fracture
 - Results primarily from micromechanical bonding
 - Flat preparation floors
 - Floor prepared perpendicular to the occlusal forces
 - Boxlike forms

Principles of Tooth Preparation for Composite Restorations



- Caries Removal:
 - Slow speed round bur
 - Hand instrument: spoon excavators
- Pulp Protection:
 - Liner, Calcium Hydroxide
 - Resin Modified Glass Ionomer (RMGI)

Part II: Class I Composite Preparation



Class I Composite Preparation



- Indications:

1. Small, moderate restorations, enamel margins
2. Most premolars or 1st molars, esthetics
3. Does not provide all of the occlusal contacts
4. Does not have heavy occlusal contacts
5. Proper isolation is possible
6. Foundation for crowns
7. Large restorations, economic or interim use

Class I Composite Preparation



- Contraindications:
 1. Operating site cannot be appropriately isolated
 2. When heavy occlusal stresses are present
 3. When all occlusal contacts are on composite only
 4. In restorations that extend to the root surface

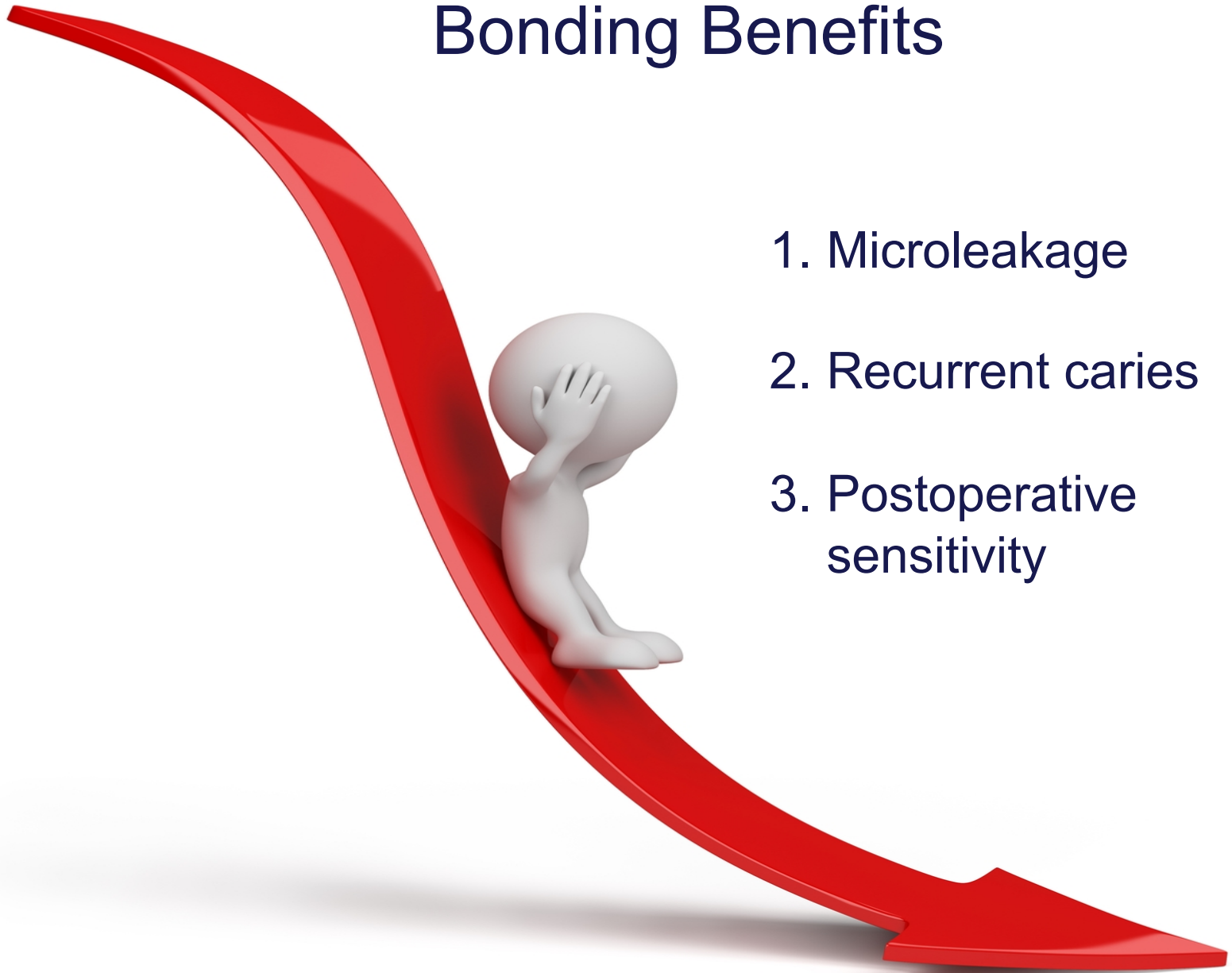
Class I Composite Preparation



- Advantages:
 1. Esthetics
 2. Conservative
 3. Easier, less complex tooth preparation
 4. Economics
 5. Insulation
 6. Bonding benefits

Bonding Benefits

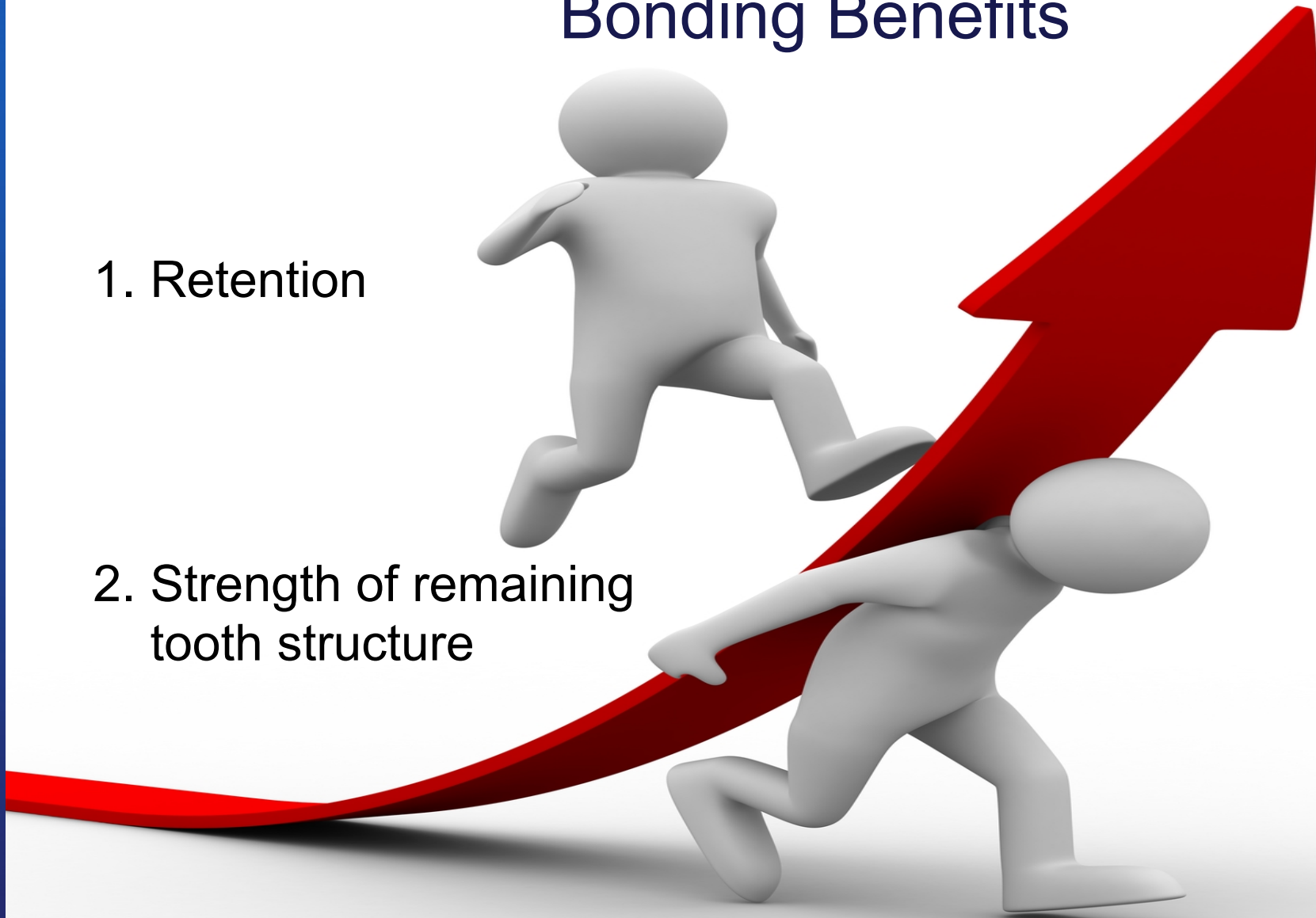
1. Microleakage
2. Recurrent caries
3. Postoperative sensitivity



Bonding Benefits

1. Retention

2. Strength of remaining
tooth structure

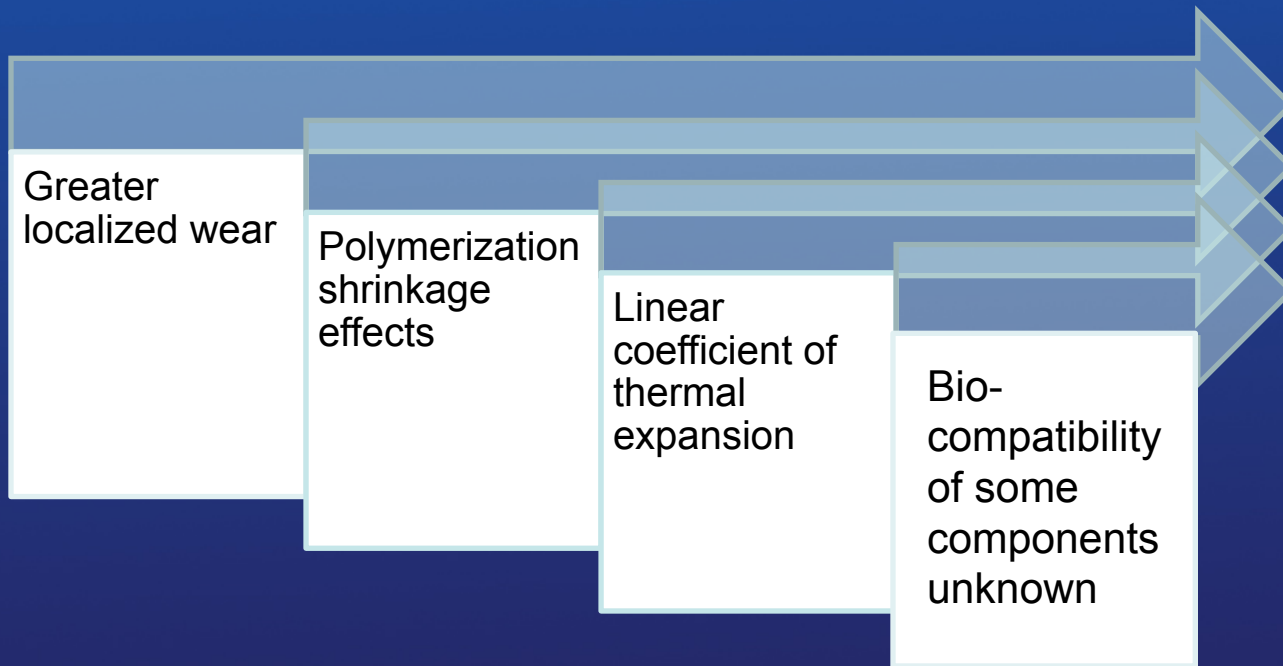


Class I Composite Preparation



- Disadvantages:

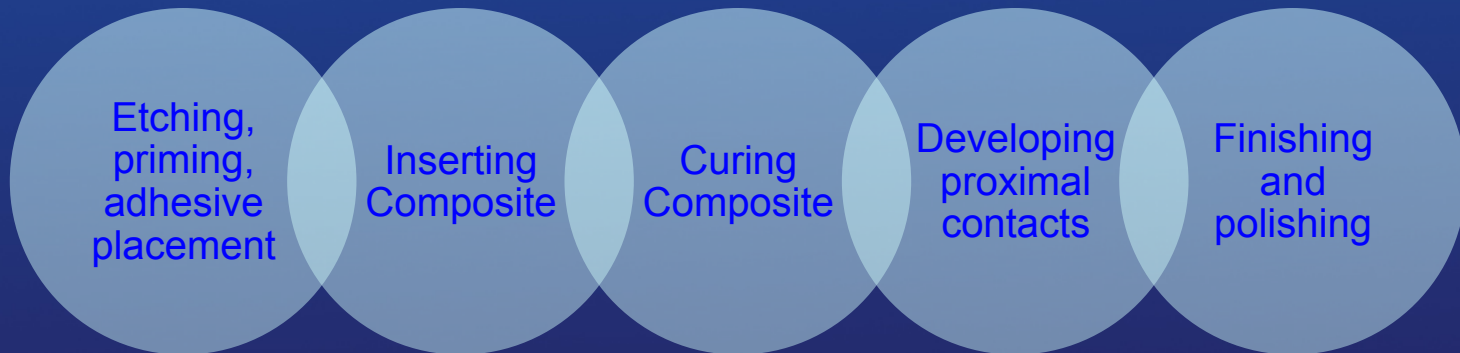
1. Material Related



Class I Composite Preparation



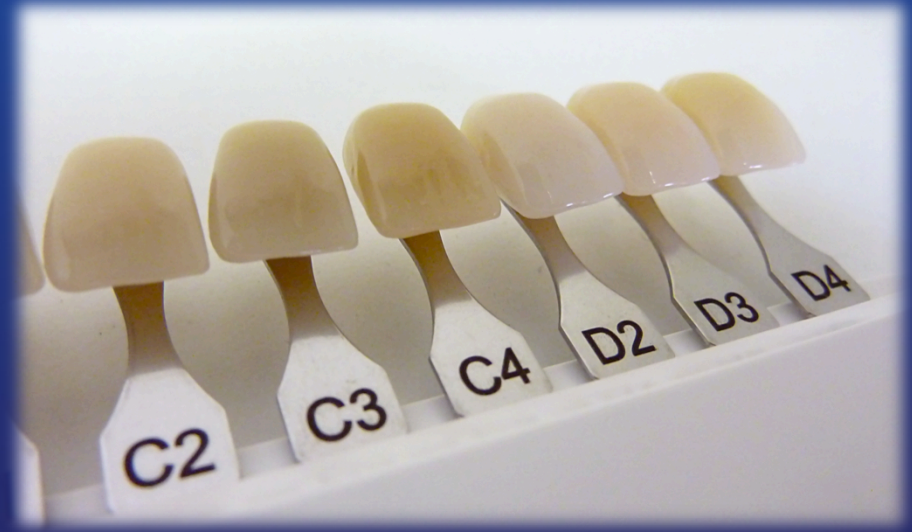
- Disadvantages:
 2. Time consuming
 3. Technique sensitive:
 4. More expensive than amalgam



Clinical Techniques for Direct Class I Composite Restoration



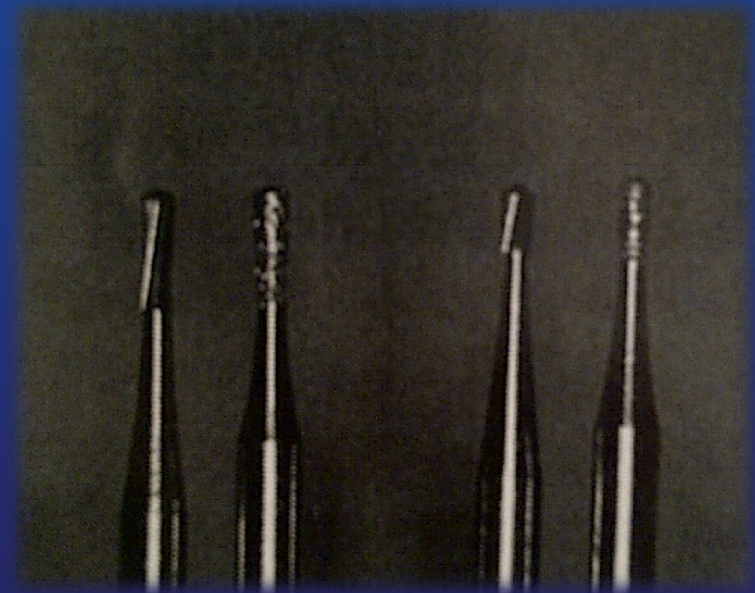
- Isolation of the operative field
- Shade selection



Clinical Techniques for Direct Class I Composite Restoration



- Selecting a cutting instrument:
 - Carbide burs: 330 pear shaped bur
 - Diamond burs

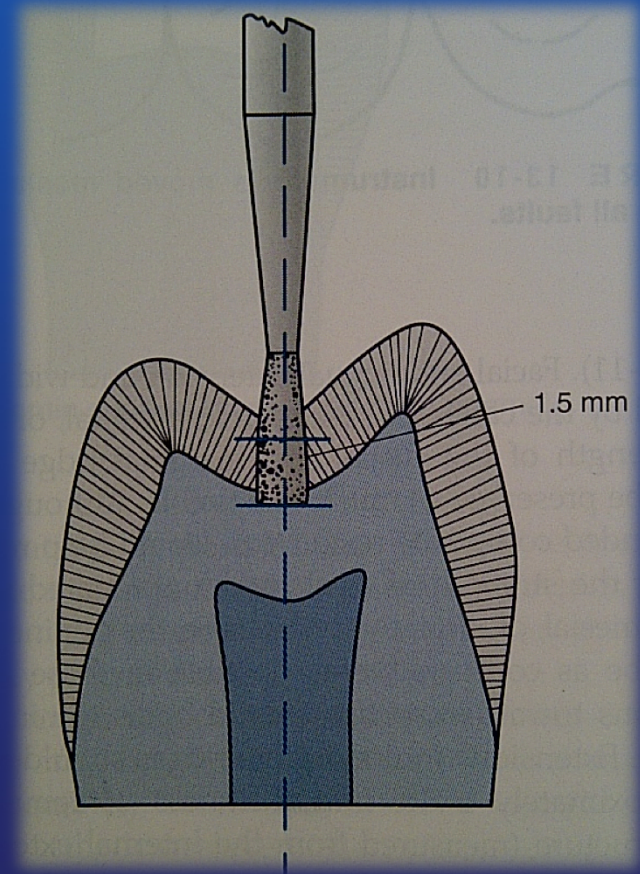
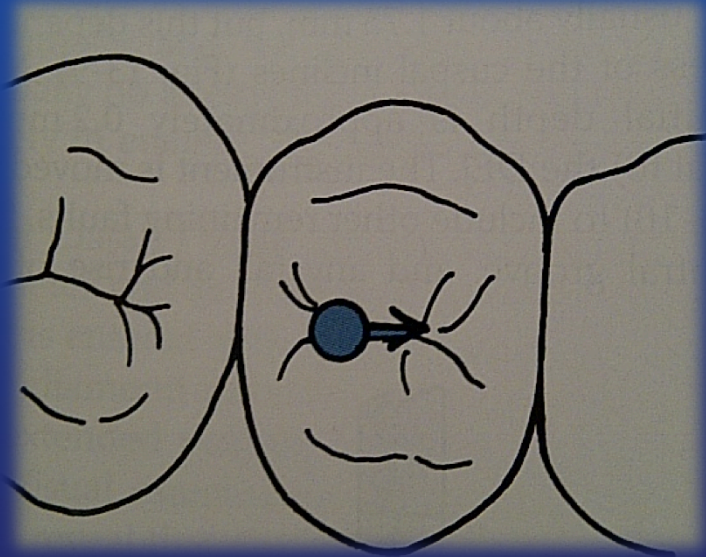


Clinical Techniques for Direct Class I Composite Restoration

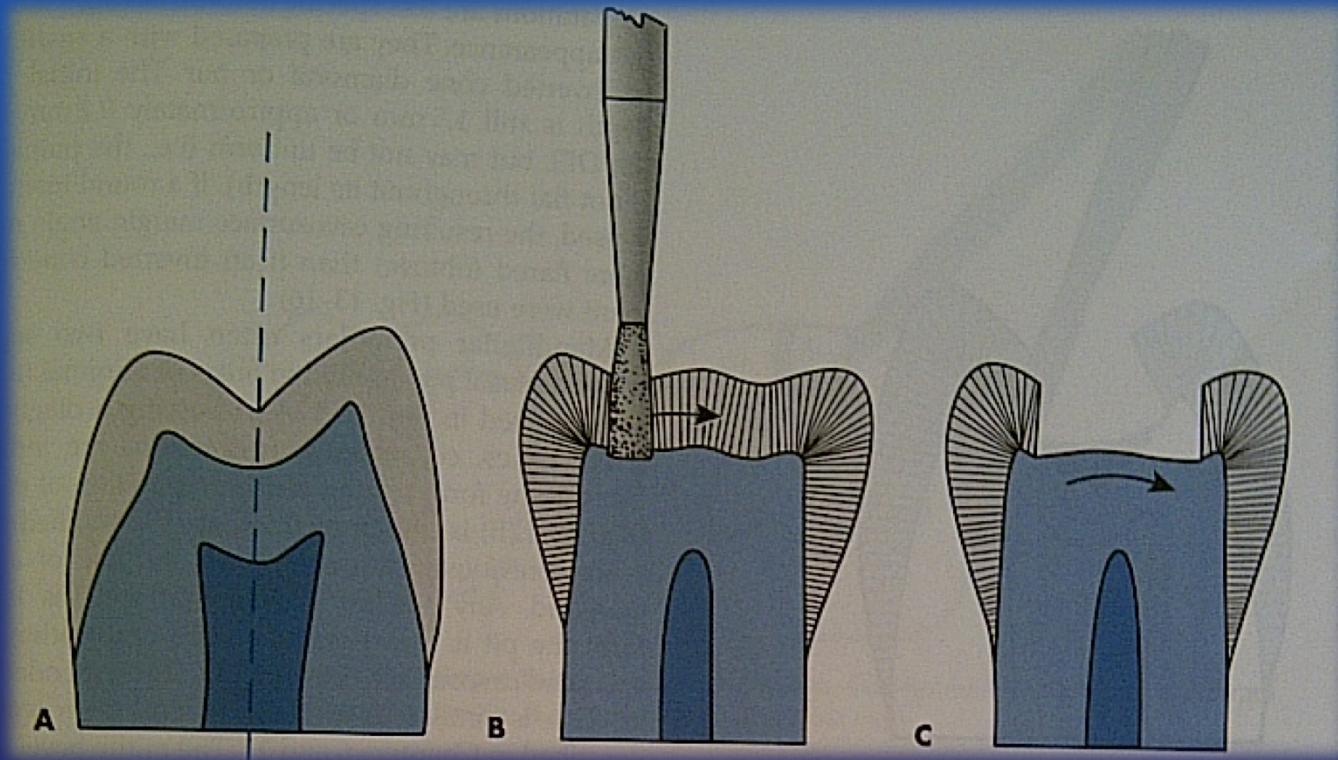


- Entry point is through the distal pit *Why?*
- Positioned parallel to the long axis of the tooth
- Initial depth of the pulpal floor: 1.5 mm

Clinical Techniques for Direct Class I Composite Restoration



Clinical Techniques for Direct Class I Composite Restoration



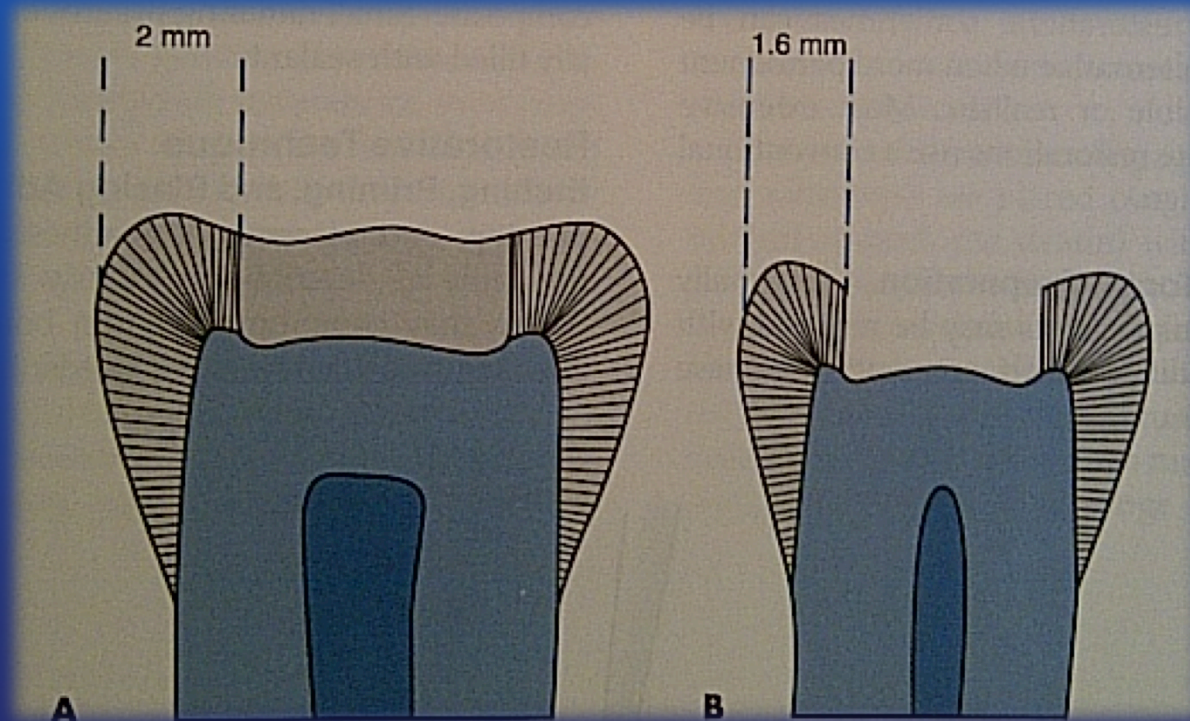
MD initial pulpal depth preparation follows DEJ

Clinical Techniques for Direct Class I Composite Restoration



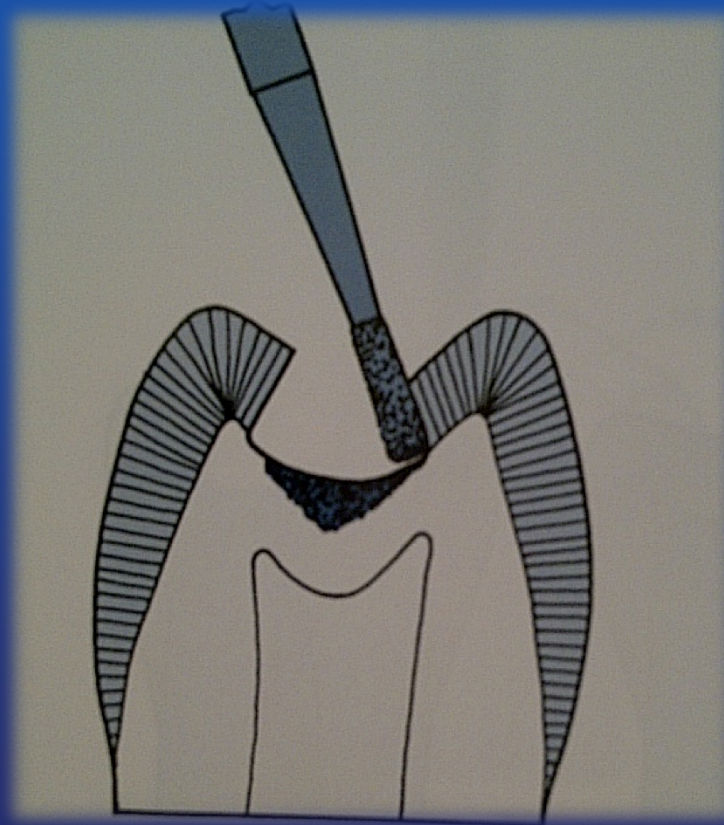
- Facial and lingual extension and width are dictated by:
 - Caries
 - Old restoration
 - Fault

Clinical Techniques for Direct Class I Composite Restoration



MD extension

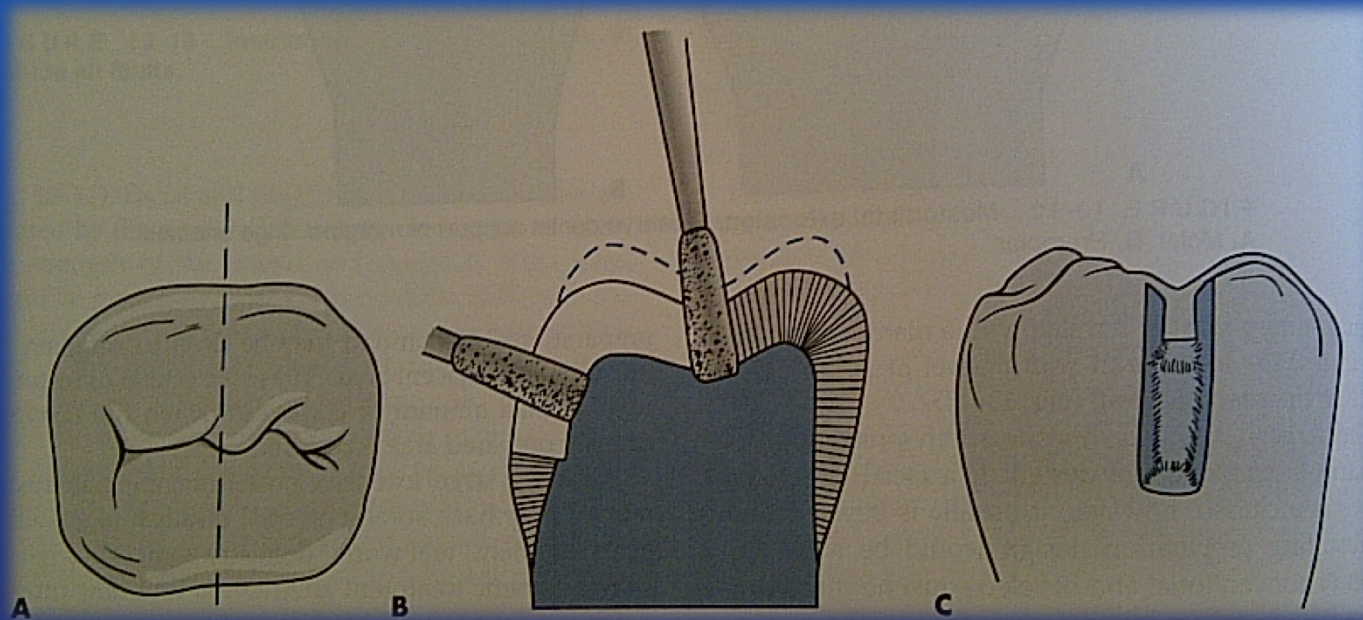
Clinical Techniques for Direct Class I Composite Restoration



FL extension

Maintain initial 1.5mm pulpal depth up the cuspal inclines

Clinical Techniques for Direct Class I Composite Restoration



Groove extension

Extension through cusp ridge at 1.5 mm initial pulpal depth

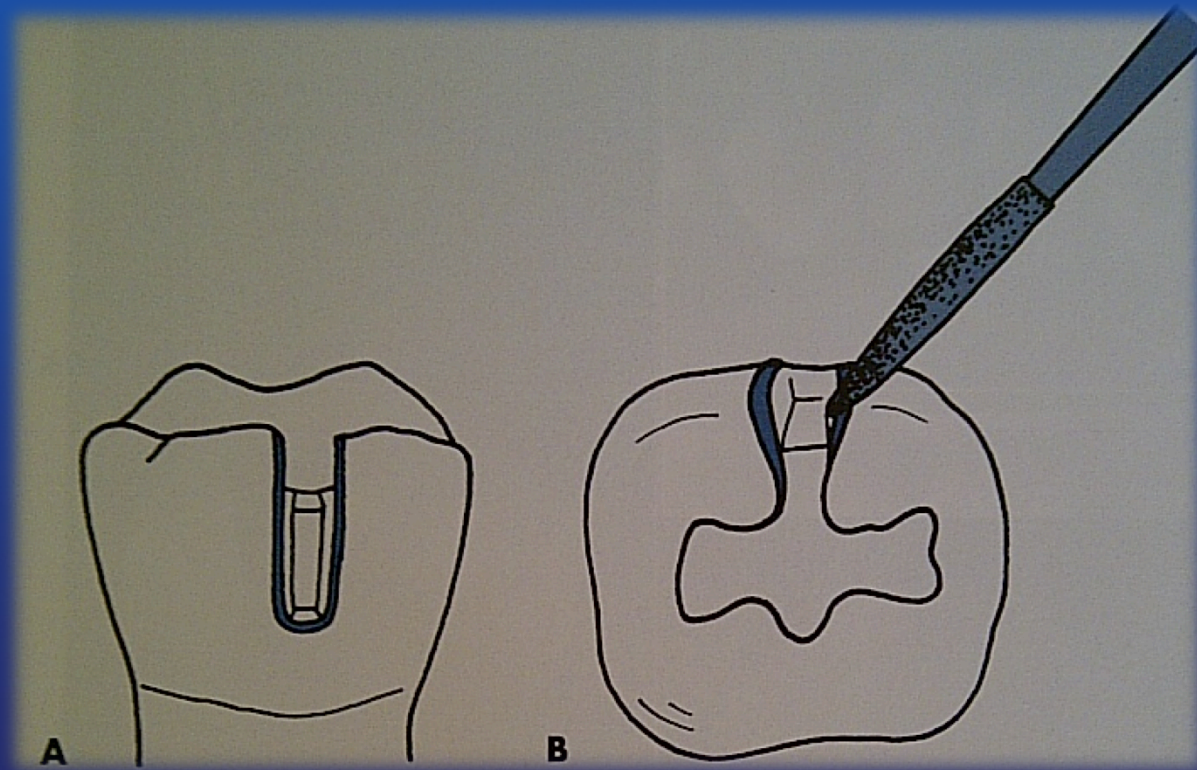
Axial depth (facial wall) of 0.2mm inside the DEJ

Clinical Techniques for Direct Class I Composite Restoration

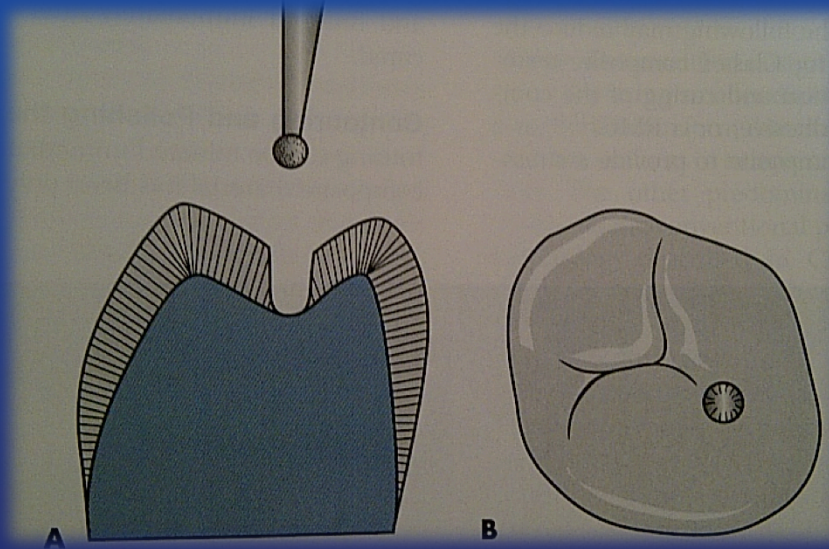


- Beveling
 - We **do not** bevel the **occlusal margin** of class I composite preparation *why?*
 - May bevel the facial or lingual margins using a diamond bur at 45 degree angle to the prepared wall (*0.25-0.5 mm width bevel*)

Clinical Techniques for Direct Class I Composite Restoration



Clinical Techniques for Direct Class I Composite Restoration



Thank You!!
Any Questions?

