

Restorative dentistry

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Restorative treatment shall be based upon the results of an appropriate clinical examination and ideally be part of a comprehensive treatment plan. The treatment plan shall take into consideration:

1. The developmental status of the dentition;
2. A caries-risk assessment based upon the caries history of the patient;
3. The patient's oral hygiene;
4. anticipated parental compliance and likelihood of timely recall;
5. the patient's ability to cooperate for treatment.

The restorative treatment plan must be prepared in conjunction with an individually tailored preventive program.

STRUCTURAL DIFFERENCES BETWEEN DECIDUOUS AND PERMANENT TEETH

The structural differences between primary and permanent teeth is the key factor governing the principles of cavity preparation; design and choice of restorative materials used in pediatric restorative dentistry. They are as follows:

1. Shorter crowns:
 - Restricts the depth of cavity preparation due to proximity of pulp chamber and pulp horns.
2. Narrow occlusal surface
 - Reduced width of the cavity than in permanent teeth.
3. Cervical constriction
 - Probability of pulp exposure is greater due to cervical construction during proximal cavity preparation if depth of cavity is increased.
4. Reduced thickness of enamel and dentine than in permanent teeth.
5. Occlusal orientation of enamel rods cervically necessitates not to provide beveling at the gingivocavo surface line angle as it may lead to many unsupported enamel rods that may fracture under stress of a restoration.
6. Broad and flat contact areas suggest the proximal preparations to be wider than in permanent teeth.
7. Histological differences in enamel and dentine composition necessitate more etching time (especially in fluoride treated teeth) in use of composite resin

isolation techniques

objective of isolation

- A dry, clean operating field
- Access and visibility
- Improved properties of dental materials
- Protection of the patient and operator

- Improved operating efficiency.

1. Moisture control—excludes saliva, sulcular fluid and gingival bleeding from the operating field.
2. Retraction and access—provides maximal exposure of the operating site. Involves maintaining mouth opening, depressing or retracting gingival tissue, tongue, lips and cheek.
3. Harm prevention—prevent aspiration or swallowing of small instruments, restorative debris or irrigation material and also prevents soft tissue injury.

Different methods of isolation

1. Rubber dam
2. High volume evacuator
3. Absorbents
4. Retraction cord
5. Mouth prop
6. Cotton rolls and holders
7. Medicines that reduce saliva—atropine, local anesthesia.

Rubber dam

It was introduced by SC Barnum in 1864. It is used to define the operating field by isolating one or more teeth from the oral environment. The dam eliminates saliva from the operating site and retracts the soft tissues.

Advantages of rubber dam

- It provides clean, dry operating field
- It provides clear access and visibility
- It improves properties of dental materials
- Protection of the patient and operator
- Improves operating efficiency
- Prevents aspiration of fluids used
- Prevents accidental ingestion of files/reamers
- Prevents injury to soft tissue such as tongue, cheek, gingiva
- Prevents patient from putting the tongue into the cavity
- Prevents the irrigating fluid coming in contact with oral soft tissues
- Reduced patient conversation
- Patient feels that the tooth is separated from the rest of the body and he will not feel the pain.

Disadvantages of rubber dam

- Time consumption
- Patient objection
- Certain conditions may preclude the use of rubber dam like:
 - Incompletely erupted teeth

- Third molar isolation
- Extremely malpositioned teeth
- People suffering from asthma, mouth breathers

Precautions to be taken while using rubber dam

- Patient must not be a mouth breather
- Clamps used must be tightly secured in place and a floss thread must be tied to the clamp, which helps retrieve the clamp if ingested or aspirated.
- The dam should be checked not to cover the nostril
- If patient is allergic to latex, rubber dam napkin should be used
- Lips should be lubricated to provide drying
- The clamp must not impinge on the gingiva or traumatize the adjacent teeth.

Armamentarium used for rubber dam application

1. Rubber dam material : It is made of latex material and is available as:
Size 5 × 5 inches (Pediatric purpose) or 6 × 6 inches (Adult size)

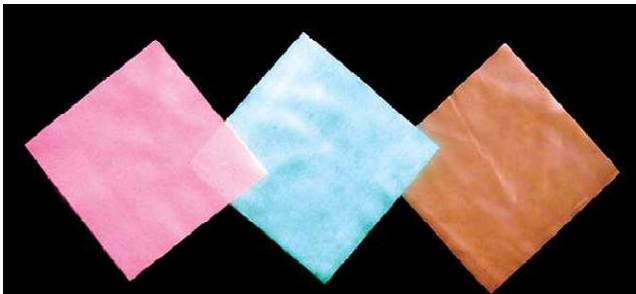
Thickness

- Thin (0.006")
- Medium (0.008")
- Heavy (0.010")
- Extra-heavy (0.012")
- Special heavy (0.014")

Color green, blue, black, brown.

It has a dull and bright surface. The dull surface should face the occlusal aspect as it reflects less light.

Thicker material resists tear and the thinner ones pass through the tight proximal contact easily.



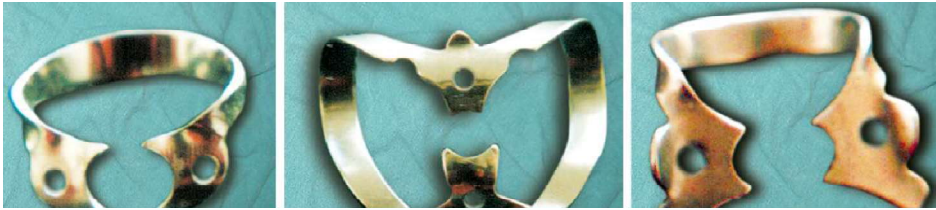
2. Retainers:

Wingless retainers

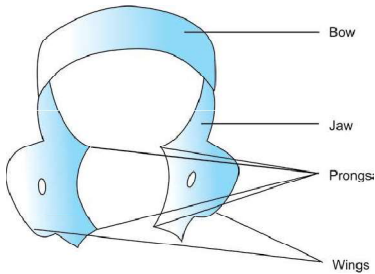
Retainers for anterior teeth

Winged retainers

Retainers are used to anchor the dam to the most posterior tooth to be isolated. Different sizes are available for different teeth.



Parts of a retainer: It includes bow, jaws, prong . The prongs contact the tooth at 4 regions, two on the buccal and two on the lingual.

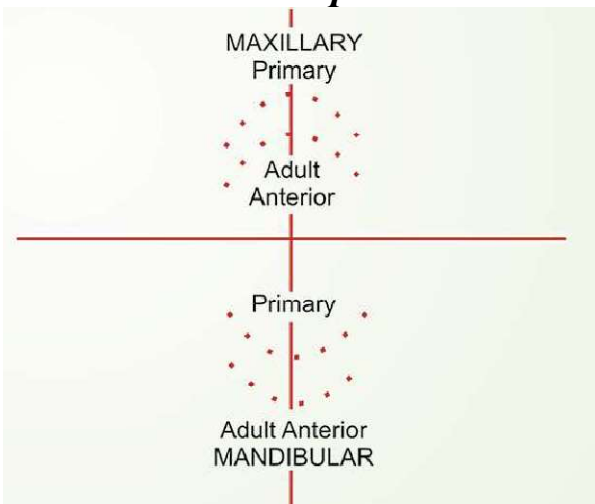


3. Rubber dam forceps: Used to hold the retainer.



4. Rubber dam punch: Used to punch hole on the dam

5. Rubber dam template: Guides during placement of the hole



6. Rubber dam holder/frame: It is used to stretch the rubber dam sheet to gain clear access of the operating site.

It can be made of plastic



or metal



7. Rubber dam napkin: Used to keep the dam a way from the skin especially when the person is allergic to latex. It also absorbs moisture that may appear at the corner of the mouth.

placement of rubber dam Steps involved are:

1. Obtaining anesthesia
 2. Evaluate the interproximal contact with dental floss
 3. Mark the punch holes—using the template
 4. Make punch holes using rubber dam punch
 5. Lubricate the area of rubber dam around the punched hole with vaseline
 6. Selection of the correct retainer
 7. Rubber dam placement (one of the 3 methods)
 - Clamp is placed first on the tooth followed by the sheet
 - The sheet is placed first followed by the clamp
 - Both the clamp and the sheet are placed simultaneously; this is possible when winged clamp is being used.
- Areas where clamps cannot be placed, the sheet can be stabilized with dental floss tied around the neck of the teeth.
8. Placement of napkin and frame.

Errors in placement of rubber dam:

1. Off centered arch
2. Inappropriate distance between two holes
3. Incorrect arch form of holes
4. Inappropriate sized retainer
5. Retainer pinched tissue
6. Shredded or torn dam.