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# Dental Restorations

## Guidelines

### Table of content

Introduction	Direct & Indirect Restoration Amalgam	Dental composites Advantages Disadvantages	Reference
Page 1	Page 2	Page 3 -7	Page 8



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HEALTHCARE MANAGEMENT

## A-Introduction

Dental restoration, dental fillings, or simply fillings are treatments used to restore the function, integrity, and morphology of missing tooth structure resulting from caries or external trauma. They are of two broad types—direct and indirect—and are further classified by location and size.

Restoring a tooth to good form and function requires two steps:

1. preparing the tooth for placement of restorative material or materials
2. placement of these materials.

The process of preparation usually involves cutting the tooth with a rotary dental handpiece and dental burs, a dental laser, or through air abrasion (or in the case of atraumatic restorative treatment, hand instruments), to make space for the planned restorative materials and to remove any dental decay or portions of the tooth that are structurally unsound. If permanent restoration cannot be carried out immediately after tooth preparation, temporary restoration may be performed. Preparations may be intracoronal or extracoronal.

Intracoronal preparations are those which serve to hold restorative material within the confines of the structure of the crown of a tooth. Examples include all classes of cavity preparations for composite or amalgam as well as those for gold and porcelain inlays.

Intracoronal preparations are also made as female recipients to receive the male components of removable partial dentures.

Extracoronal preparations provide a core or base upon which restorative material will be placed to bring the tooth back into a functional and aesthetic structure.

Examples include crowns and onlays, as well as veneers.(1)



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DUBAI HEALTH AUTHORITY



None

**Prepared by :**

Dr. Sahar &amp; Dr. Mubeena

**Reviewed by :**

Dr. Ahmed Eldarawi

**Approved by :**

Dr. Islam Zakaria

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# Dental Restorations

## B-Direct restorations:

This technique involves placing a soft or malleable filling into the prepared tooth and building up the tooth. The material is then set hard and the tooth is restored.

The advantage of direct restorations is that they usually set quickly and can be placed in a single procedure. The dentist has a variety of different filling options to choose from. A decision is usually made based on the location and severity of the associated cavity. Since the material is required to set while in contact with the tooth, limited energy (heat) is passed to the tooth from the setting process

## C-Indirect restorations:

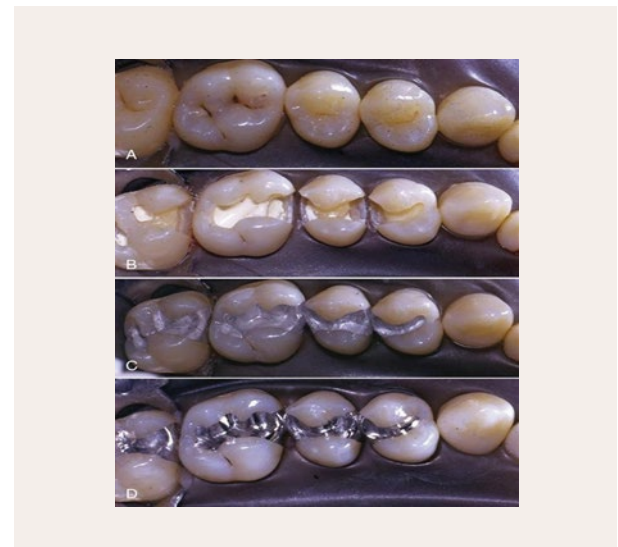
In this technique the restoration is fabricated outside of the mouth using the dental impressions of the prepared tooth. Common indirect restorations include inlays and onlays, crowns, bridges, and veneers. Usually a dental technician fabricates the indirect restoration from records the dentist has provided. The finished restoration is usually bonded permanently with a dental cement. It is often done in two separate visits to the dentist. Common indirect restorations are done using gold or ceramics.

## E-Amalgam

Amalgams are alloys formed by a reaction between two or more metals, one of which is mercury. It is a hard restorative material and is silvery-grey in colour. One of the oldest direct restorative materials still in use, dental amalgam was widely used in the past with a high degree of success, although recently its popularity

has declined due to a number of reasons, including the development of alternative bonded restorative materials, increase in demand for more aesthetic restorations and public perceptions concerning the potential health risks of the material.

Possible indications for amalgam are for load-bearing restorations in medium to large sized cavities in posterior teeth, and in core build-ups when a definitive restoration will be an indirect cast restoration such as a crown or bridge retainer. Contraindications for amalgam are if aesthetics are paramount to patient due to the colour of the material. Amalgams should be avoided if the patient has a history of sensitivity to mercury or other amalgam components. Besides that, amalgam is avoided if there is extensive loss of tooth substance such that a retentive cavity cannot be produced, or if excessive removal of health tooth substance would be required to produce a retentive cavity.



Amalgam-Advantages	Amalgam-Disadvantages
Durability - if placed under ideal conditions, there is evidence of good long term clinical performance of the restorations	Poor aesthetic qualities due to its color
Placement time of amalgam is shorter compared to that of composites and the restoration can be completed in a single appointment	Does not bond to tooth easily, hence it relies on mechanical forms of retention.
Dental amalgam is also radiopaque which is beneficial for differentiating the material between tooth tissues on radiographs for diagnosing secondary caries	Risk of marginal breakdown in the restorations. This could be due to corrosion which may result in "creep" and "ditching" of the restoration
The cost of the restoration is typically cheaper than composite restorations.	

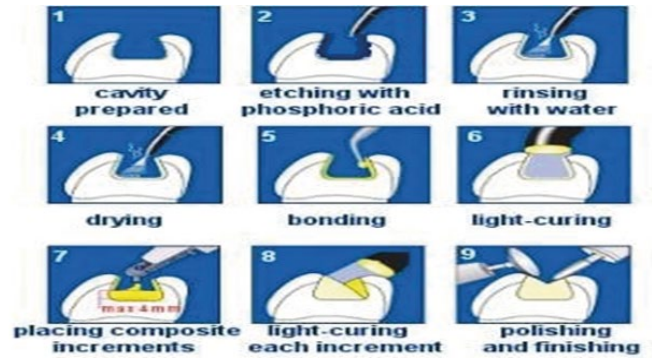
# Dental Restorations

## G-Dental composites:

Dental composites, commonly described to patients as "white fillings", are a group of restorative materials used in dentistry. They can be used in direct restorations to fill in the cavities created by dental caries and trauma, minor buildup for restoring tooth wear (noncariou tooth surface loss) and filling in small gaps between teeth (labial veneer). Dental composites are also used as indirect restoration to make crowns and inlays in the laboratory

### Method of application:

The placement of composite requires meticulous attention to procedure or it may fail prematurely. The tooth must be kept perfectly dry during placement or the resin will likely fail to adhere to the tooth. Composites are placed while still in a soft, dough-like state, but when exposed to light of a certain blue wavelength (typically 470 nm[6]), they polymerize and harden into the solid filling (for more information, see Light activated resin).



Advantages	Disadvantages
The main advantage of a direct dental composite over traditional materials such as amalgam is improved tooth tissue-mimicry. Composite fillings can be closely matched to the color of existing teeth. Aesthetics are especially critical in anterior teeth region	Composite shrinkage and secondary caries: Shrinkage permits micro leakage, which, if not caught early, can cause secondary caries (subsequent decay), the most significant dental disadvantage of composite restoration
The fact that composite fillings are glued (bonded) to the tooth means that unlike amalgam fillings, there is no need for the dentist to create retentive features destroying healthy tooth. Therefore less healthy tooth needs to be removed for a composite restoration.	Chipping: Composite materials can chip off the tooth
Less-costly and more conservative alternative to dental crowns: In some situations, a composite restoration may be offered as a less-expensive (though possibly less durable) alternative to a dental crown, which can be a very expensive treatment	Skill and training required: Successful outcomes in direct composite fillings is related to the skills of the practitioner and technique of placement
Reduced mercury exposure for dentists: Preparing new amalgam fillings and drilling into existing amalgam fillings exposes dentists to mercury vapor.	Need to keep working area in mouth completely dry: The prepared tooth must be completely dry (free of saliva and and blood) when the resin material is being applied and cured. Posterior teeth (molars) are difficult to keep dry.

# Dental Restorations

## Amalgam

D2140 amalgam – one surface, primary or permanent

D2150 amalgam – two surfaces, primary or permanent

D2160 amalgam – three surfaces, primary or permanent

D2161 amalgam – four or more surfaces, primary or permanent

## Resin-based composite

D2330 resin-based composite – one surface, anterior

D2331 resin-based composite – two surfaces, anterior

D2332 resin-based composite – three surfaces, anterior

D2335 resin-based composite – four or more surfaces or involving incisal angle (anterior)

D2391 resin-based composite – one surface, posterior

D2392 resin-based composite – two surfaces, posterior

D2393 resin-based composite – three surfaces, posterior

D2394 resin-based composite – four or more surfaces, posterior

## H-Universal tooth surfaces.

SURFACE	CODE	TOOTH
Facial (labial)	F	Anterior primary & Permanent
Buccal	B	Posterior primary & Permanent
Mesial	M	All Primary & Permanent
Distal	D	All Primary & Permanent
Incisal	I	Anterior primary & Permanent
Occlusal	O	Posterior primary & Permanent
Lingual	L	All Primary & Permanent

# Dental Restorations



## References

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2. **Appendix 1: CDT Code to ICD (Diagnosis) Code Crosswalk** (ada.org)
3. Universal tooth designation system –value set – version 1. (n.d.-b).  
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