DENTAL AMALGAM FILLINGS
Dental amalgam is a self-hardening mixture of silver-sinter-copper alloy powder and liquid mercury and is sometimes referred to as a silver filling because of its color. It is often used as a filling material and replacement for broken teeth.

Advantages
1. Durability
2. Long lasting
3. Strength when bonded to tooth
4. Relatively inexpensive
5. Generally completed in one visit
6. Self-curing: minimal to no shrinkage and resists leakage

Disadvantages
1. Requires removal of some healthy tooth
2. May require more than one visit
3. May cause discomfort to the patient during the procedure.
4. The length of time a restoration will last is dependent upon your dental hygiene, home care, and diet and chewing habits.

The Facts About Fillings

Composite fillings are a mixture of powdered glass and plastic resin, sometimes referred to as white, plastic, or tooth-colored fillings. It is used for fillings, inlays, veneers, partial and complete crowns, or to repair portions of broken teeth.

Advantages
1. Strong and durable
2. Tooth colored
3. Single visit for fillings
4. Resists breaking
5. Maximum amount of tooth preserved
6. Small risk of leakage if bonded only to enamel
7. Does not corrode

Disadvantages
1. May break or crack
2. Material shrinks when hardened and could lead to further decay and/or tempera-
ture sensitivity
3. Requires more than one visit for inlays, veneers, and crowns
4. May wear faster than dental amalgam

Dental Materials Fact Sheet

What About the Safety of Filling Materials?

Porcelain (Ceramic)
Porcelain is a glass-like material formed into fillings or crowns using models of the prepared tooth. The material is tooth-colored and is used in inlays, veneers, crowns, and fixed bridges.

Advantages
1. Good resistance to further decay if the restoration fits well
2. Excellent durability; does not become brittle
3. Resists leakage because it can be shaped for a very accurate fit

Disadvantages
1. Is not tooth colored; alloy is a dark silver metal color
2. Conducts heat and cold; may irritate sensitive teeth
3. Can be abrasive to opposing teeth
4. High cost; requires at least two office visits and laboratory services
5. Slightly higher wear to opposing tooth

Dental Materials – Advantages & Disadvantages

COMPOSITE RESIN FILLINGS
Composite fillings are a mixture of powdered glass and plastic resin, sometimes referred to as white, plastic, or tooth-colored fillings. It is used for fillings, inlays, veneers, partial and complete crowns, or to repair portions of broken teeth.

Advantages
1. Refer to "What About the Safety of Filling Materials?"
2. Gray colored, not tooth colored
3. May not wear and corrode; may stain teeth over time
4. Requires removal of some healthy tooth
5. In larger amalgam fillings, the remaining tooth may weaken and fracture
6. Because metal can conduct hot and cold, there may be a temporary sensitivity to hot and cold
7. Contact with other metals may cause occasional, minute electrical flow

Disadvantages
1. Refer to "What About the Safety of Filling Materials?"
2. Moderate occurrence of tooth sensitivity; sensitive to dentists' method of application
3. Costs more than dental amalgam
4. Material shrinks when hardened and could lead to further decay and/or tempera-
ture sensitivity
5. Requires more than one visit for inlays, veneers, and crowns
6. May wear faster than dental amalgam
7. May leak over time when bonded beneath the layer of enamel

Dental Materials – Advantages & Disadvantages

CHROME ALLOYS
Nickel or cobalt-chrome alloys are mixtures of nickel and chromium. They are a dark silver metal color and are used for crowns and fixed bridges and most partial denture frameworks.

Advantages
1. Good resistance to further decay if the restoration fits well
2. Excellent durability; does not fracture under stress
3. Does not corrode
4. Does not require subsequent treatment

Disadvantages
1. May leak over time when bonded beneath the layer of enamel
2. Resists breaking
3. Does not corrode
4. Resists leakage because it can be shaped for a very accurate fit

Porcelain (Ceramic)
Porcelain is a glass-like material formed into fillings or crowns using models of the prepared tooth. The material is tooth-colored and is used in inlays, veneers, crowns, and fixed bridges.

Advantages
1. Very little tooth needs to be removed for use in a veneer; most tooth needs to be re-

Disadvantages
1. Moderate occurrence of tooth sensitivity; sensitive to dentists' method of applica-
tion
2. Costs more than dental amalgam
3. Material shrinks when hardened and could lead to further decay and/or tempera-
ture sensitivity
4. Requires more than one visit for inlays, veneers, and crowns
5. May wear faster than dental amalgam
6. May leak over time when bonded beneath the layer of enamel

The Facts About Fillings

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Dental Materials — Advantages & Disadvantages

Porcelain Fused to Metal

This type of porcelain is a glass-like material that is "brazed" onto top of metal shells. It is tooth-colored and is used for crowns and fixed bridges.

Advantages
- Good resistance to further decay if the restoration fits well
- Excellent durability; does not fracture under stress
- Does not corrode in the mouth
- Minimal amount of tooth needs to be removed
- Wear is not an evident wear to opposing teeth
- Resists leakage because it can be shaped for a very accurate fit

Disadvantages
- More tooth must be removed (than for porcelain) for the substructure
- The material does not cause tooth sensitivity
- Limited use because it is not tooth-colored
- As it ages, this material may become rough and could increase the accumulation of plaque and the chance of periodontal disease
- Does not wear well; tends to crack over time and can be discolored

Dental Materials — Advantages & Disadvantages

Gold Alloy

Gold alloy is a gold-colored mixture of gold, copper, and other metals and is used mainly for crowns and fixed bridges and some partial denture frameworks.

Advantages
- Good resistance to further decay if the restoration fits well
- Excellent durability; does not fracture under stress
- Does not corrode in the mouth
- Minimal amount of tooth needs to be removed
- Wear is not evident wear to opposing teeth
- Resists leakage because it can be shaped for a very accurate fit

Disadvantages
- Gold alloy is a gold-colored mixture of gold and other metals and is used for crowns and fixed bridges and some partial denture frameworks
- Higher cost because it requires at least two office visits and laboratory services
- Substructure is required

Mineral Salt Cement

The material is used to bond amalgam fillings and to bond glass-ionomer cement crowns and porcelain/metal crowns, liners, and temporary restorations.

Advantages
- Reasonably good aesthetics
- May provide some help against decay because it releases fluoride
- Minimal amount of tooth needs to be removed and it bonds well to both the enamel and the dentin beneath the enamel
- Material has low incidence of producing tooth sensitivity
- Usually completed in one dental visit

Disadvantages
- It is not tooth colored; alloy is yellow
- Conducts heat and cold; may irritate sensitive teeth
- High cost; requires at least two office visits and laboratory services

Resin-Ionomer Cement

Resin-Ionomer cement is a glass-ionomer cement. It is most used for small fillings, cementing metal and porcelain/metal crowns and liners.

Advantages
- Very good esthetics
- May provide some help against decay because it releases fluoride
- May hold up better than glass ionomer cement
- Usually completed in one dental visit

Disadvantages
- Cost is very similar to composite resin (which costs more than amalgam)
- Limited use because it is not recommended for biting surfaces in permanent teeth
- As it ages, this material may become rough and could increase the accumulation of plaque and the chance of periodontal disease
- Does not wear well; tends to crack over time and can be discolored

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Dental Amalgam

Dental Amalgam

Dental Amalgam is created by mixing elemental mercury (43-54%) and an alloy powder (46-57%) composed mainly of silver, tin, and copper. This has caused discussion about the risks of mercury in dental amalgam. Some concerns have been raised regarding possible toxicity. Scientific research continues on the safety of dental amalgam. According to the Centers for Disease Control and Prevention, there is no evidence that the health of the vast majority of people with amalgam is compromised. The Food and Drug Administration (FDA) and other public health organizations have investigated the safety of amalgam used in dental fillings. The conclusion: no valid scientific evidence has shown that amalgam cause harm to patients with dental restorations, except in rare cases of allergy. The World Health Organization reached a similar conclusion stating, "Amalgam restorations are safe and cost-effective." A diversity of opinions exists regarding the safety of dental amalgams. Questions have been raised about its safety in pregnant women, children, and diabetics. However, scientific evidence and research literature in peer-reviewed scientific journals suggest that otherwise healthy women, children, and diabetics are not at an increased risk from dental amalgams in their mouths. The FDA places no restrictions on the use of dental amalgam.

Composite Resin

Some Composite Resin include Crystalline Silica, which is on the State of California's Proposition 65 list of chemicals known to the state to cause reproductive toxicity. Mercury may harm the developing brain of a child or fetus.

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