

Dental Restorative Materials: The Choices

Dental Restorations

There are two types of dental restorations: *direct* and *indirect*.

Direct restorations are fillings placed into a prepared cavity in a single visit. They are usually soft and are hardened by a chemical reaction or a bright light. Most often these fillings are made of metal or resin.

Indirect restorations (i.e.: inlays, onlays, veneers, crowns and bridges) are large, more involved, often require two or more visits to complete, are cemented or bonded into place, and are usually made of metal, resin or ceramic materials.

The chart on the reverse side of this brochure provides information on all of these restoration techniques. The following discussion focuses on the more common direct restoration techniques.

Amalgam: Environmental and Health Concerns

Amalgam has been used as a dental filling material for more than a century. Dental amalgam is an alloy made by combining elemental mercury with several other metals including silver, tin, and copper. These metals form a relatively stable alloy, which has entirely different physical and chemical properties from mercury alone. However, there has recently been some controversy surrounding the potential environmental and health impacts of the mercury found in amalgam.

Environmental concerns: Mercury in amalgam can contribute to air and water pollution. Amalgam waste is released into the wastewater system when new fillings are put in and when old ones are removed. Mercury in this waste can enter the environment when the wastewater is discharged or when sewage sludge is disposed of. In order to minimize these releases, State law requires all general dentistry offices in NH to install special traps and filters. Although 95% efficiency is required, most dental offices use filters that are 98% efficient in collecting this material for recycling. Mercury in amalgam fillings also enters the environment during the cremation of human remains. Because very small amounts of mercury vapor are released from amalgam fillings and can be absorbed into the body, urine and feces can contain mercury that is released into the environment.

Health concerns: For decades amalgam has been regarded as a safe and reliable dental filling material. However, in recent years dental amalgam has received some attention directed primarily at possible exposures to trace amounts of elemental mercury that may be released from amalgam

fillings. *No scientific studies have shown any link between amalgam fillings and any health effects.* Organizations including the National Institutes of Health, US Public Health Service, Center for Disease Control and Prevention and the US Food and Drug Administration have all supported this conclusion. Nonetheless, where there is allergy to mercury and in instances where there may be sensitivity to mercury such as in children from conception to the age of six, parents may want to discuss filling material options with their dentists.

Available Filling Material Options

Amalgam and “composites” are the most common dental material options. Composites are mixtures of plastic resins that are normally white or “tooth-colored”. In recent years there has been a marked increase in the development of composites. More information on the characteristics and risks and benefits of these materials is presented in the chart on the reverse of this page. Several other less-common dental materials may also be used depending on your particular situation. Your dentist will be happy to discuss these options and can help you make the choice that’s best for you.

About this Brochure

In 2002, the NH legislature passed a law that requires dentists to provide patients with information on the benefits and risks of various restorative dental materials, including mercury amalgam fillings and to discuss these options with patients prior to their use. This brochure is designed to help fulfill this requirement. The chart on the reverse side of this brochure is a simple overview and not intended to be all-inclusive. In addition, the applicability of a particular filling material will vary from case to case depending on many factors. Your dentist will discuss the various options available for your particular situation.

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Dental Materials Fact Sheet

	General Description	Principal Uses	Relative Cost	Durability Strength	Esthetics Appearance	Patient Tolerance
PORCELAIN and similar materials	Porcelain, Ceramic and glass-like materials.	CROWNS (Caps) and VENEERS	HIGH Requires at least 2 visits and laboratory services.	VARIES May fracture under heavy biting loads.	EXCELLENT Looks like the tooth.	Well tolerated.
METALS	Alloys of Gold or Other Metals.	CROWNS and BRIDGES Also used for partial dentures.	HIGH Requires at least 2 visits and laboratory services.	EXCELLENT Very strong and durable.	POOR Looks like the metal used.	Gold alloys are well tolerated. Other metals sometimes cause allergies.
PORCELAIN FUSED TO METAL	Porcelain fused to an underlying metal to add strength.	CROWNS (Caps) and BRIDGES	HIGH Requires at least 2 visits and laboratory services.	EXCELLENT Very strong and durable.	VERY GOOD Does not quite have the translucency of natural tooth.	Gold alloys are well tolerated. Other metals sometimes cause allergies.
AMALGAM Silver+Mercury	Mixture of mercury and silver alloy powder forming a solid filling.	FILLINGS Especially where not easily seen and the bite is heavy.	LEAST COSTLY	GOOD to EXCELLENT	POOR Has a silver or blackened silver color.	Well tolerated, except in the rare case of allergy.*
COMPOSITE Tooth Colored	Mixture of glass filler and acrylic.	FILLINGS Which are easily seen.	MODERATE COST	GOOD If filling is small or average size.	GOOD to EXCELLENT Looks like the tooth but tends to stain.	Well tolerated.

*With more than 150 years of scientific study, there are NO known ill effects from the mercury contained in Dental Amalgam fillings. USF&DA "Consumer Update on Dental Amalgam" - www.fda.gov/cdrh/consumer/amalgams.html

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