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Amalgam Fillings Are Safe, But Skeptics Still Claim Controversy, Researcher Says

ScienceDaily (Apr. 10, 2009) — Dental amalgam has been proven safe and effective for years, yet unfounded controversy still surrounds it, a Medical College of Georgia researcher says.

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about one microgram of mercury daily. About six micrograms are absorbed daily from food, water and air, according to the

Dentists have used amalgam, an alloy of mercury with at least one other metal, in fillings for over 200 years. Amalgam fillings don't contain enough mercury to cause potential health problems associated with larger doses, says Dr. Rod Mackert, professor of dental materials in the MCG School of Dentistry Department of Oral Rehabilitation.

"The dose makes the poison," he says, quoting 16th century Swiss physician Paracelsus. A person would need between 265 and 310 amalgam fillings before even slight symptoms of mercury toxicity could be felt. A person with seven fillings, which is average, absorbs only



Dental amalgam has been proven safe and effective for years, yet unfounded controversy still surrounds it, a Medical College of Georgia researcher says. (Credit: Image courtesy of Medical College of Georgia)

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Environmental Protection Agency.

To create a dental filling, liquid mercury dissolves and reacts with a powder of silver, tin and copper, forming a compound that contains no free mercury. "Anti-amalgam activists say mercury is soaked into metal powder, like water into a sponge, and can come back out of the fillings, but that's not at all true," Dr. Mackert says. In fact, the evaporation rate of mercury from amalgam is a million times lower than from pure mercury.

Anti-amalgam activists also say dental mercury pollutes the environment. However, dental mercury accounts for less than a quarter of a percent of mercury re-entering the environment.

Dr. Mackert presented an overview of amalgam, its controversy and its alternatives today at the 87th General Session of the International Association for Dental Research in Miami.

The amalgam controversy began in the 1970s. Awareness that dental fillings contained mercury was heightened and people were concerned by a couple of mercury-related health scares. In Japan, the release of methyl mercury into industrial wastewater caused a mercury buildup in shellfish and fish, leading to severe mercury poisoning and Minamata disease. Also, a grain covered in mercury fungicide was baked into bread and consumed in Iraq, killing hundreds. "Mercury poisoning was on people's minds and in the press," he says.

Urban legends abounded, including erroneous reports linking vapors from amalgam fillings to kidney damage and degenerative diseases such as Alzheimer's disease, multiple sclerosis and Parkinson's disease. The only documented health effects of amalgam fillings are rare allergic reactions, Dr. Mackert says, but the controversy led many people to have their fillings removed in the misguided hope of curing neurological diseases.

That controversy continues today. "It's mystifying that people persist in saying there is cause for concern with amalgam fillings when there's no evidence that they cause adverse health effects," Dr. Mackert says.

He also disputes claims that ulterior motives have influenced the American Dental Association position attesting to the safety and effectiveness of amalgam fillings. Anti-amalgam

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activists link the position to patent interests, but the association had only two amalgam patents, now expired, and neither was licensed, according to the U.S. Patent and Trademark Office. Most of the association's 78 patents are for white filling materials, including composite resin, an alternative to amalgam.

But composite fillings have their own problems. They cost more than amalgam and often are not covered by insurance. Numerous studies have shown that amalgam significantly outlasts composite, while composite causes more secondary cavities and may contribute to plaque formation, Dr. Mackert says.

"The bottom line is people don't need to be concerned with adverse health effects from any type of fillings – amalgam or composites," Dr. Mackert says. Since beginning his studies of amalgam in the early 1980s, his position has never changed. In fact, he has amalgam fillings himself.

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