

## Mercury in Dental Fillings

As dental students, we were taught that mercury in fillings were safe. We were told that when mercury is mixed, or amalgamated with other metals, it hardens into a substance that is safe for the patient. This is the same position taken today by the American Dental Association with the largest dentist membership in the U.S. As students, we went along with this as all good students do, as well as continuing to think this way in dental practice. At the same time, there was no other material to use for the repair of back teeth aside from gold, which would be quite expensive, especially for patients that continued to develop a lot of decay. It is interesting that they are commonly called “silver amalgam” fillings when there is twice the amount of mercury in them as silver.

It wasn't long after dental school that I learned while mercury may look different when it is mixed and hardened with other metals, while being placed in a patient's tooth its vapor is emitted in large quantities – as well as when they are being removed from teeth - “details” that were missing in our dental education and still not given credibility in traditional dentistry. I learned that when amalgam fillings are placed – or removed - well over 2,000 micrograms (mcg) per cubic meter (m<sup>3</sup>) of mercury vapor diffuses into the surrounding air that is breathed by the dentist, assistant and the patient in the immediate area, and to a lesser degree throughout the office. This is well over 20 times the current Occupational Safety and Health Administration (OSHA) permissible exposure limit (PEL) of 100 micrograms per cubic meter in air\*.

Around this time there were other materials being developed for use in the repair of teeth and I discontinued the placement of mercury fillings in the mid 1980's. This was great news for my new patients, my staff and myself as we didn't have to breathe mercury vapor anymore during their placement, but how about when they needed to be removed when replacing them with other materials? A well-placed rubber dam would eliminate the drilled out mercury particles from getting into the patient's mouth, but how about the mercury vapor that we all would have to breathe? That is when I decided to develop a 3-way oxygen breathing system for the patient, my assistant and myself to be used during amalgam removal procedures. Soon realizing that any amount of mercury is unhealthy and that it's effects are cumulative, other precautions we've developed are:

- 3-way oxygen breathing system for patient, doctor and assistant
- A high volume vacuum system that is placed in front of the patient's mouth to take away mercury vapor
- Protective patient eyewear
- Mercury vapor absorbent cream used around the treatment area perimeter.
- Protective disposable gowns for patient, doctor and assistant
- Mercury separator to keep the removed mercury from getting into the waste water and our environment.
- Vacuum system air vented to the outside, not back into the office as it is with all vacuum systems without mercury separators.

These above facts that are representative of the forward thinking that resides within the foundation of The Dental Wellness Center.

\* The current Occupational Safety and Health Administration (OSHA) permissible exposure limit (PEL) for mercury vapor is 0.1 milligram per cubic meter (mg/m<sup>3</sup>) of air as a ceiling limit. A worker's exposure to mercury vapor shall at no time exceed this ceiling level.

(<http://www.osha.gov/SLTC/healthguidelines/mercuryvapor/recognition.html>)