

Microdentistry

by Dr. Warren C. Edwards.

The majority of adults in our society have silver restorations on the chewing surfaces of their back teeth, particularly their molars. Many of these fillings have been replaced with crowns. Behind a crown is the story of a tooth that was improperly formed years before it erupted. The tooth emerges through the gum with pits and fissures that are open and incompletely formed. Food and bacteria fill these grooves. The decay process begins, and cavities take hold. The tooth gets drilled and filled and before long refilled. There may even be a root canal, which is needed when decay or fracture reaches the nerve of the tooth. Each time the tooth is filled, its integrity is weakened and in the end it often fractures - hence the crown

Is there no other option? What's wrong with this scenario? Just because that's the way it's always been, does that mean that's the way it has to be? The answer is a resounding "No!" Herein lies the advantage of Microdentistry, which challenges the old dental paradigm that was developed in the 1800's for treating decay. Dentists wait until the hole in the tooth is big enough and then fill it using the philosophy of "extension for prevention." This means, drill the hole big enough to remove the decay, extending the filling into all pits and fissures, regardless of whether they were decayed, sacrificing healthy tooth structure. These large fillings permanently compromise the strength of the tooth and it is only a matter of time before the tooth breaks down. Microdentistry enables early detection. It eliminates decay at an early stage with minimally invasive therapy, which maintains the integrity of the tooth. Microdentistry provides therapies to halt and if diagnosed early enough it may even be possible to reverse the carious process.

Microdentistry utilizes newer technologies such as Diagnodent, which is a simple laser diode to inspect your teeth. Reflection wavelengths are compared against a known healthy baseline wavelength to uncover decay. Diagnodent allows us to catch more area of decay sooner and with more precision. Early diagnosis helps prevent the spread of decay. Catching decay early, means fillings required are simpler and shallower, maintaining the integrity of the tooth. Instead of a large silver amalgam filling, the tooth is now conservatively filled with a tooth colored bonded preventive resin.

Microdentistry allows us to use minimally invasive decay removal procedures, such as drill-free air abrasion. First, a rubber dam is set in place to prevent debris from falling into the patient's mouth. A small handheld piece of equipment bombards the tooth area with a stream of aluminum oxide particles. These particles hit the tooth under high pressure, bounce off at high speeds, and consequently blast away any decay. Because of the tiny particles used, the technique is sometimes called *micro-abrasion*. Another name for it is *kinetic cavity preparation*, since the principle of kinetic energy gives the particles enough impact power to actually remove tooth structure and decay.

Even more exciting than technologies such as Diagnodent and minimally invasive dentistry, is the advancement of prevention systems such as CAMBRA, *Caries Management By Risk Assessment*. With CAMBRA we get to the cause of the disease instead of just treating the symptoms. CAMBRA essentially involves a more involved patient health history form specifically geared to help determine a patient's risk of caries, a test to measure the level of cariogenic bacteria in the patient's mouth and a set of recommendations for caries control and management. With CAMBRA we no longer have to accept dental decay as inevitable. We can be proactive and reduce caries development. If diagnosed early enough, it is even possible to reverse the carious process.

We are at the beginning of a radical change in dentistry. We now understand that cavities are more than just decay in a tooth. There is a larger picture. Research is exploring the bacterial connection, how it relates to our over all health, and is developing logic based treatments to prevent and treat dental disease. Strategies are now in place to eliminate and control the bacteria. We are able to use remineralization therapies with time-tested treatments such as topical fluoride. Newer therapies like Recaldent and Xylitol aid in the reversal of the decay process. There is an exciting new look to dentistry in the twenty-first century

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