

## Advancements in Dentistry

Many of us have for the most part enjoyed the conveniences of modern dentistry. Most of our parents or grandparents still remember what it was like to go to the dentist in the old days. In this article we will review innovations which have made going to the dentist relatively pain free and enjoyable.

The most important advance has to be that of local anesthesia or numbing. Prior to 1844 and the discovery of nitrous or laughing gas there did not exist a way to eliminate pain during any surgical or dental procedure. In Hartford Connecticut on December 10, 1844 Samuel Cooley a clerk in a retail store volunteered to inhale laughing gas to demonstrate its intoxicating effects during a popular science lecture. Dr. Horace Wells, a local dentist was also in attendance and noticed that Mr. Cooley injured his leg but ran around without noticing it. On the following day Dr. Wells had the nitrous oxide or laughing gas administered to him until he was unconscious and had a wisdom tooth extracted without him being aware of any pain. This discovery had a profound impact on medicine. The first recorded use of local anesthetic or numbing as we know it today did not occur until 1884. Today after an injection of local anesthetic dental procedures are performed pain free.

Dental x-rays have had a profound impact on the way dentistry is practiced. In 1895, physicist Wilhelm Roentgen was intrigued by glowing cathode tubes and decided to see what they could do. He found that the rays they emitted could pass through certain solid objects and leave a shadowy image of that object on a fluorescent screen. The first x-ray of the teeth was made in 1896. Dental x-rays give dentist a tremendous amount of information regarding their patient's teeth. X-rays show areas of decay that may not be able to be seen with just a visual examination, such as tiny pits of decay that occur between teeth. Today we have digital x-rays with minimal doses of radiation which are able to be viewed on our computer monitors.

The high speed hand piece which is used to prepare or cut the teeth is another innovation which has led to faster easier and less painful dentistry. In 1871 hand pieces used pedal power much like a sewing machine. These cut very slow and generated heat. In the late 1940's air driven hand pieces came about which are still used today. They cut at 400,000 rpm and provide sufficient power to prepare teeth quickly. Electric hand pieces are also used today which provide high torque, efficient cutting and are much quieter than air driven hand pieces.

In 1945, Grand Rapids, Michigan became the world's first city to adjust the level of fluoride in its water supply. The adjustment of the fluoride level in community water supplies to optimal concentration is the most beneficial and inexpensive method of reducing the occurrence of caries. Epidemiologic data within the last half-century indicate reductions in caries of 55 to 60% and recent data still shows caries reduction of approximately 25%, without significant enamel fluorosis, when domestic water supplies are fluoridated at an optimal level. The Center for Disease Control and Prevention has proclaimed community water fluoridation as one of ten great public health achievements in the 20<sup>th</sup> century.

Modern dentistry has also brought about many changes in the types of materials we use. Dental amalgams or silver fillings are no longer our only choice of filling materials. Today we have composite or tooth colored fillings which are bonded to our teeth. We have a variety of crown materials available from porcelain fused to metal to all ceramic crowns. Implants are now widely used to replace missing teeth with a fixed restoration which closely mimics our natural teeth.

If you have not been to the dentist for a while you may be amazed and pleased at the changes. Remember that regular checkups and cleanings every 6 months with your dentist can help to keep your teeth healthy and trouble free.

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