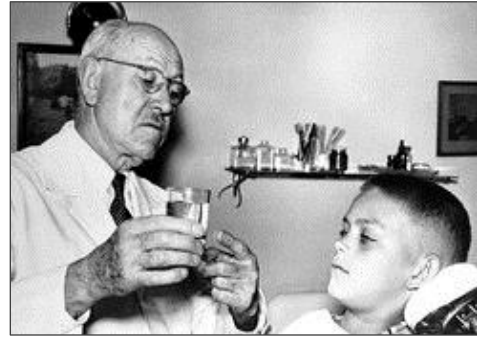


# The Story of Water Fluoridation: An American Scientific Breakthrough

**Dr. Frederick McKay** graduated from dental school in 1901 and traveled to Colorado to begin working as a dentist. He soon made a discovery that led to research that has improved the lives of tens of millions of children and adults. It's a story of scientific success that was made in America.

Dr. McKay noticed that many people living in his area of Colorado had teeth enamel with strange brown spots on them. He spent years studying these people and struggled to find an explanation for this. After lengthy research, Dr. McKay made a powerful discovery — children with the brown stains on their teeth were surprisingly resistant to cavities. But what caused the brown spots? Dr. McKay continued to pursue the answer by traveling to other areas of the U.S. where people's teeth had similar spots.

After many years of study, Dr. McKay found the answer. With help from a chemist who tested numerous water samples, Dr. McKay discovered that areas in which people had brown spots on their teeth were receiving their drinking water from sources with unusually high levels of a mineral called *fluoride*. These levels were far higher than the typical level in drinking water.



*Dr. Frederick McKay was a pioneer*

In the 1930s, a dentist named **Dr. H. Trendley Dean** took McKay's research to a new level. Dr. Dean was head of the Dental Hygiene Unit at the National Institutes of Health. By the late '30s, he and his research team discovered that fluoride levels of up to 1.0 parts per million (PPM) in water generally did not cause spots on enamel.



*Dr. H. Trendley Dean*

Dr. Dean went one step further. He realized that most supplies of drinking water in the U.S. were well below 1.0 PPM, and he wanted to learn whether adding more fluoride would affect the rate of tooth decay among children. In 1944, city officials in Grand Rapids, Mich. voted to fortify their drinking water with fluoride to answer this question. In 1945, Grand Rapids became the first city in the world to fluoridate its water. Over a 15-year span, health researchers tracked the tooth decay rate among Grand Rapids' nearly 30,000 schoolchildren and found that the rate dropped more than 60%.

This was a major scientific breakthrough because it firmly demonstrated that decay was a *preventable* disease. In the 1950s and 1960s, thousands of U.S. communities began fluoridating their drinking water and their tooth decay rates dropped significantly. Today, even in an era when fluoride toothpaste is widely used, the Centers for Disease Control and Prevention report that fluoridated water reduces tooth decay by 25% over a lifetime.

Fluoride and fluoridation are among the most thoroughly researched topics of the past 75 years. And the research continues to grow. Over the past five years, studies of children in Alaska, Nevada and New York State have confirmed fluoridation's crucial role in reducing tooth decay. In 2014, Public Health England examined more than 30 studies and research papers, and issued a report with its conclusion: "This report provides further reassurance that water fluoridation is a safe and effective public health measure." Fluoridation is one story that has a very happy ending.

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**Sources:** "The Story of Fluoridation," National Institute of Dental and Craniofacial Research, National Institutes of Health, updated July 18, 2013; "Is Fluoridation Effective?" Campaign for Dental Health (American Academy of Pediatrics), [www.ilikemyteeth.org/fluoridation/effects-of-fluoride/](http://www.ilikemyteeth.org/fluoridation/effects-of-fluoride/), accessed in September 2014; "Water fluoridation: Health monitoring report for England, 2014" Public Health England, March 2014, p. 6.