Is Fluoridation Effective?

A Summary of Research

Fluoridated water adds even more to the protection our teeth get from toothpaste and other fluoride products. And it is the most cost-effective and equitable way to prevent dental disease for everyone.

Here is a sample of studies confirming the benefits of fluoridating public water systems.

Fluoridation reduces tooth decay in children.

- A study (2018) of over 13,000 U.S. children determined that for every 100 children with access to fluoridated water, there are **130 fewer** decayed surfaces of primary teeth and **30 fewer** decayed surfaces of permanent teeth. In other words, fluoridation reduces the risk of decay in both primary and permanent teeth.

- In 2013, the U.S. Community Preventive Services Task Force panel of experts examined 28 studies and concluded that there is **"strong evidence"** that fluoridated water reduces tooth decay among children.

- Canadian researchers (2021) compared children's tooth decay rates in Calgary, which stopped fluoridation in 2011, and Edmonton, which continued fluoridation. Decay rates in Calgary **increased significantly**, well above the rates among Edmonton children, after fluoridation was stopped. Research like this led the Calgary city council to vote to restart fluoridation.

- Researchers in Australia (2018) found that preschool-age children who didn't have fluoridated water had an **86% higher** rate of potentially preventable hospitalizations for serious dental conditions.

Fluoridation protects adults' teeth, too.

- Researchers in England (2021) found that older adults benefited significantly from growing up with fluoridated water. The researchers wrote, "Being exposed to fluoridated water was associated with having **more natural teeth in later life**."

- An Australian study (2017) of adults aged 20-35 found that those who had lifetime access to fluoridated water had **lower tooth decay rates** than those who didn't.

- A study in Brazil (2016) found that the people who lived most of their lives in a non-fluoridated community had **nearly three times** as many decayed, filled or missing teeth than those who lived in fluoridated communities for at least three-quarters of their lives.

- A study in the American Journal of Public Health (2010) found that people who consumed fluoridated water as children were less likely to have lost their teeth due to decay **40 or 50 years** later, when they were middle-aged adults.

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Fluoridation helps address disparities for families with low incomes.

- In its 2021 Oral Health in America report, the National Institutes of Health (NIH) mentioned fluoridation a dozen times, citing the fact that it "**benefits economically vulnerable groups**."

- In 2014, researchers in England studied the hospital admission rates for tooth extractions at dozens of hospitals, including many in economically disadvantaged areas — some of them were fluoridated and some were not. Nineteen of the 20 areas with the **highest hospital admission rates were in areas without fluoridation**.

- The co-authors of a 2010 study looking at the long-term impact of water fluoridation in the U.S. said their findings suggest that the benefits of fluoridation "may be larger than previously believed" and that fluoridation has "**a lasting improvement in racial/ethnic and economic disparities in oral health**."

Fluoridation saves money by reducing the need for dental treatment.

- An **Alaska** study (2021) examined changes in the cost of treating tooth decay in low-income children in two cities: Anchorage and Juneau. Before Juneau stopped fluoridating in 2007, the average cost to treat tooth decay was similar to Anchorage. After, costs in Juneau **jumped by 47%**, while treatment costs in fluoridated Anchorage increased only 5%.

- A **U.S.** study (2016) found that each person in a fluoridated community saves an average of **$32.19** a year (in 2013 dollars) in dental care that would otherwise be needed to treat decay. If non-fluoridated water systems (serving at least 1,000 people) were to fluoridate, the authors estimated that as much as **$2.5 billion** might be saved every year.

- A **New York** study (2010) revealed that low-income children in counties with less fluoridation needed more dental treatment than those in counties where fluoridated water was common. The annual Medicaid treatment costs were almost **$24 higher per recipient** (in 2006 dollars) in counties with less fluoridated water.

- A **Colorado** study (2005) showed that fluoridated water **saved nearly $149 million** each year (in 2003 dollars) by avoiding unnecessary treatment costs.

- A **Texas** study (2000) found that fluoridation **saved** the state Medicaid program an average of **$24 per child, per year** (in 1997 dollars).

- A **Louisiana** study (1999) compared areas that were fluoridated with those that were not. The study found that low-income children in communities without fluoridated water were **three times more likely to need expensive dental treatment** in a hospital operating room than those in communities with fluoridated water.