



January 7, 2013

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Councilman Matt Willhite  
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Because the Wellington City Council is exploring the issue of community water fluoridation, the Children's Dental Health Project wishes to share information summarizing the scientific evidence about fluoridation's safety and effectiveness. We are an independent, nonprofit organization that monitors research, provides technical assistance and advises policymakers on oral health issues.

Although America's dental health has improved significantly in recent decades, tooth decay is the most common chronic disease of early childhood—five times more prevalent than asthma.<sup>1</sup> One of the four elements of Wellington's vision is "great schools." With this in mind, it's worth noting the research showing that children with dental problems are much more likely to miss school, and teens with a recent toothache are four times more likely to struggle academically.<sup>2</sup>

Prevention is the best way to avoid the pain and cost of tooth decay. Community water fluoridation is the most cost-effective public health measure for preventing decay.<sup>3</sup> Fluoride is a mineral that exists naturally in nearly all water supplies, but usually at a concentration that is too low to prevent tooth decay. This explains why so many U.S. communities choose to fortify their water with additional fluoride.<sup>4</sup>

**Evidence of health and safety has created a strong consensus supporting fluoridation.** Dozens of studies have proven that fluoridated water reduces the rate of tooth decay. This evidence reveals that fluoridated water reduces tooth decay by about 25 percent over a person's lifetime.<sup>5</sup> This solid research is why the American Academy of Pediatrics, the American Dental Association, the Institute of Medicine and other respected medical and health organizations endorse the health benefits of fluoridation.<sup>6</sup> The U.S. Centers for Disease Control and Prevention (CDC) named water fluoridation one of "10 great public health achievements of the 20th century."<sup>7</sup>

**Brushing with fluoride toothpaste alone doesn't provide maximum protection against tooth decay.** Although brushing is crucial, numerous studies confirm that fluoridated water provides important, added protection against tooth decay. Over the past several years, studies in Nevada, Alaska and New York demonstrate that children in fluoridated communities have better oral health.<sup>8</sup> The Nevada study found that living in a community *without* fluoridated water was one of the top three risk factors for teens having dental problems.<sup>9</sup> Further, a 2002 research review concluded that water fluoridation is "the most effective and practical method" for reducing the gap in decay rates between low-income and upper-income Americans.<sup>10</sup>

**Fluoridated water benefits adults too.** Fluoridation has played a key role in helping to reduce tooth loss among adults by at least 40 percent.<sup>11</sup> A recent study showed that adults who were born before fluoridation became widespread but who resided in fluoridated areas for at least three-quarters of their lives had 30 percent less decay than those who resided in fluoridated communities for less than one-quarter of their lives.<sup>12</sup>

**Fluoridation remains an important strategy, even with the availability of topical fluoride treatments.** Anti-fluoride activists claim that only fluoride that is applied topically prevents decay, but the scientific evidence tells a different story. Even when fluoridated water is consumed, trace levels of this mineral remain in the mouth, both in saliva and in dental plaque. As an expert panel reported, drinking fluoridated water significantly raises the concentration of fluoride in saliva—making the surface of tooth enamel more resistant to decay.<sup>13</sup> A 2003 study of nearly 20,000 children found that fluoride’s preventive benefits “were maximized by continuous exposure both before and after” teeth first appeared in kids’ mouths. The co-authors of this study wrote, “*The results supported water fluoridation as a public health measure in view of the need for continuous exposure for the maximum benefit.*”<sup>14</sup> Many people lack dental insurance, and topical fluoride treatments are more expensive, yet no more effective, than fluoridated water.<sup>15</sup>

**Fluoridation is safe.** Numerous studies and reviews have demonstrated the safety of fluoridated water. Unfortunately, people searching this topic online encounter a variety of inaccurate or misleading statements. Many web pages posted by anti-fluoride groups misrepresent what the research shows:

- ***Opponents often cite studies that are flawed or do not reflect how fluoridation is practiced in the U.S.*** For example, opponents claim that fluoride lowers IQ scores in children. These studies involved children living in areas of China, Mongolia and Iran where the fluoride concentration in water reached levels as high as 11.5 parts per million—roughly 10 times higher than the level used to fluoridate in the U.S.<sup>16</sup> Further, these flawed studies fail to account for other factors, such as lead or arsenic, that could affect IQs. (Many of China’s water supplies are severely polluted.<sup>17</sup>) Even the leader of an anti-fluoride group admitted that attacks on the methodology of these studies were “fair” and “reasonable.”<sup>18</sup> The Harvard researchers who reviewed these studies publicly distanced themselves from the way anti-fluoride groups have interpreted the results.<sup>19</sup>
- ***Experts have found no link to cancer.*** In 2011, a peer-reviewed U.S. study found no link between fluoride and bone cancer.<sup>20</sup> This study is considered reliable for two reasons. First, the design of this study was approved by the National Cancer Institute. Second, unlike previous studies, this one examined actual fluoride levels in bone—instead of relying on people’s memories of whether or not their water was fluoridated. In addition, an expert panel created by California’s Office of Environmental Health Hazard Assessment voted unanimously in 2011 that the evidence did *not* support classifying fluoride as a cancer-causing substance.<sup>21</sup>
- ***U.S. fluoridation practices are held to high standards of quality and safety.*** Anti-fluoride groups often question the safety of the forms of fluoride that are added to water, but these additives’ quality and safety are ensured by Standard 60—a set of guidelines developed at the request of the Environmental Protection Agency (EPA). Hundreds of samples have been taken and tested under Standard 60 to confirm the quality and purity of fluoride additives.<sup>22</sup> In August 2013, the EPA reaffirmed the safety of a commonly

used form of fluoride in response to a petition raising concerns about this additive. The EPA found that the petitioners failed to provide “sufficient facts to establish” that the fluoride additive “presents or will present an unreasonable risk of injury to health or the environment” or that a new EPA rule is needed. The EPA also identified a major mathematical error in the petition.<sup>23</sup>

- ***Opponents have misrepresented reports.*** Opponents of fluoridation misinterpret the 2006 report issued by a National Research Council (NRC) committee. The NRC report explored the possibility of health concerns in U.S. communities where the *natural* fluoride levels in well water or aquifers are unusually high. Those natural fluoride levels are significantly higher than the level used to fluoridate public water systems. The NRC itself explained that its report was *not* an evaluation of water fluoridation.<sup>24</sup> In 2013, John Doull, the highly respected toxicologist who chaired this NRC committee, stated that he does not see “any valid scientific reason for fearing adverse health conditions from the consumption of water fluoridated at the optimal level.”<sup>25</sup>
- ***Toothpaste labels, cautioning against misuse, are not a valid reason to question fluoride’s safety.*** Some parents and policymakers are confused by the warning that appears on the labels of fluoride toothpaste. This message advises parents to seek medical assistance or call a poison control center if their child accidentally swallows an excessive amount of toothpaste. The largest newspaper in Wisconsin carefully investigated this issue when it was raised in 2012. *The Journal-Sentinel* spoke with officials at one of Wisconsin’s busiest hospitals and learned that a physician who had staffed the emergency room for 17 years had never seen a single case of a fluoride overdose. The newspaper concluded that it was deceptive for anyone to call fluoride in toothpaste a “poison.” *The Journal-Sentinel* wrote, “People generally don’t eat and swallow toothpaste. And if they did, it would take a massive amount to be at risk from fluoride poisoning.”<sup>26</sup>

**The experts continue to firmly endorse fluoridation.** For nearly 70 years, drinking water in the U.S. has been fortified with fluoride, and the scientific evidence shows this practice has improved Americans’ health and well-being. CDC has summarized the consensus: “For many years, panels of experts from different health and scientific fields have provided strong evidence that water fluoridation is safe and effective.”<sup>27</sup> A scientific article co-written in 2004 by the World Health Organization’s chief dental official reached this conclusion: “There is no credible evidence that water fluoridation is associated with any adverse health effects.”<sup>28</sup> An analysis by the University of West Florida in 2000 reported that roughly 35,000 research papers had been over the preceding 30 years “verifying the efficacy and safety of water fluoridation.”<sup>29</sup>

We hope this information is helpful as you continue to explore this topic. Please contact us if you have any questions.

Sincerely,



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Executive Director  
Children’s Dental Health Project

xc: Paul Schofield, City Manager  
Kathy Adler, Assistant to the Council  
Dr. Frank Catalanotto, Chairman, Oral Health Florida  
Roderick King, Executive Director, Florida Public Health Institute

## Sources

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