

Is Water Fluoridation Effective?

According to most major sources, estimates of fluoridation effectiveness amount to at most a reduction of only one-half cavity per child. Low end estimates find **no significant reduction at all**. Children aged 6-17 average 2.1 cavities in their permanent teeth¹:

- Cochrane Collaboration² (2015): 26% (**0.5 cavity per child**)
- CDC³ (2018): 25% (**0.5 cavity per child**)
- Iowa Fluoride Study⁴ (2018): **No significant reduction**
- World Health Organization data⁵ (2005): **No evidence of fluoridation's effectiveness**



There is already a consensus including CDC, Cochrane Collaboration, the Iowa Fluoride Study and others that fluoride's effectiveness in preventing cavities is mainly topical (not swallowed).

The **Cochrane Collaboration** is considered the gold standard of evaluating effectiveness. It said the cavity reduction referenced above was **"based predominantly on old studies and may not be applicable today."**

"Over 97% of the 155 studies were at a high risk of bias, which reduces the overall quality of the results... We did not identify any evidence... to determine the effectiveness of water fluoridation for preventing caries in adults... There is insufficient evidence to determine whether water fluoridation results in a change in disparities in caries levels across socio-economic status."

The **Iowa Fluoride Study (IFS)**, funded by the National Institutes of Health, is the most comprehensive, ongoing research project in the U.S., the only one measuring all sources of fluoride ingestion. The 2018 study from IFS referenced above found no significant correlation between ingested fluoride and cavity reduction, further validating a 2009 study⁶ from IFS that stated:

*"... achieving a caries-free status may have relatively little to do with fluoride **intake** (emphasis in the original) ... recommending an 'optimal' fluoride intake is problematic."*

Finally, World Health Organization data show cavity rates in children (age 12) have dropped as much in nations that don't fluoridate (darker solid lines) as in nations that do (red/yellow dotted lines). (See graph)

1. Slade et al, 2018, Journal of Dental Research, <https://www.ncbi.nlm.nih.gov/pubmed/29900806>
2. Cochrane Collaboration, 2015, https://www.cochrane.org/CD010856/ORAL_water-fluoridation-prevent-tooth-decay
3. CDC, 2018, <https://www.cdc.gov/fluoridation/index.html>
4. Curtis et al, 2018, Journal of Public Health Dentistry, <https://www.ncbi.nlm.nih.gov/pubmed/29752831>
5. Neurath, 2005, Fluoride, <http://www.fluorideresearch.org/384/files/384324-325.pdf>
6. Warren et al, 2009, Journal of Public Health Dentistry, <https://www.ncbi.nlm.nih.gov/pubmed/19054310>

**Tooth Decay Trends:
Fluoridated vs. Unfluoridated Countries**

(12 year olds; all data from World Health Organization; salt F countries excluded)

