



COMMUNITY WATER FLUORIDATION

“ TOOTH DECAY IS ONE OF THE MOST COMMON CHRONIC DISEASES IN NORTH AMERICA AND WORLDWIDE (1-2).”

WHAT ARE FLUORIDE AND WATER FLUORIDATION?

Fluoride is a mineral that exists naturally in virtually all water sources and in trace quantities in food and soil (3). At low concentrations, fluoride in drinking water prevents dental cavities and improves oral health (3-5). Communities adjust the amount of fluoride in their community water supply to optimal levels that protect teeth from decay - this is referred to as community water fluoridation.

“ THE RATE OF TOOTH DECAY (IN PERMANENT TEETH) HAS DECLINED IN CANADA FROM 74% OF CHILDREN IN 1970-1972 TO LESS THAN 25% IN 2007-2009 AS A RESULT OF A VARIETY OF FACTORS, INCLUDING WIDESPREAD ADOPTION OF COMMUNITY WATER FLUORIDATION (1).”

Water fluoridation can reduce tooth decay in a community by providing frequent and consistent contact with low levels of fluoride (6-7). The recommended optimal level of fluoride in drinking water takes into consideration all sources of exposure to fluoride, including foods and dental products (8-9). It is well below the maximum acceptable concentration established by the Federal-Provincial-Territorial Committee on Drinking Water (3).

SAFETY

Utilities have been adjusting fluoride levels in Canadian drinking water supplies for 70 years (9). Decades of research and studies performed by reputable organizations have found that, in Canada, documented risks are limited to dental fluorosis (10-15). This condition is caused by exposure to too much fluoride during tooth development (i.e. under 6 years of age). The most common form of fluorosis is very mild and can change the appearance of tooth enamel, commonly resulting in small white spots on teeth (1;10-11). This is largely unnoticeable and not considered detrimental to the overall appearance or function of the teeth (1). For information on how to prevent dental fluorosis, please refer to Health Canada's webpage "It's your Health-Fluoride and Human Health" (<http://www.hc-sc.gc.ca/hl-vs/iyh-vsv/environ/fluor-eng.php>).

EFFECTIVENESS

By preventing tooth decay, community water fluoridation has been shown to save money, both for families and for the health care system, and evidence continues to indicate that the economic benefit of community water fluoridation exceeds the costs (16; 20-22). Every \$1 invested in a prevention measure like community water fluoridation at the optimal level can yield between \$5.00 and \$93.00 of savings per person in dental treatment costs (16; 20-22).

“ DID YOU KNOW? DRINKING FLUORIDATED WATER KEEPS THE TEETH STRONG AND REDUCES TOOTH DECAY BY APPROXIMATELY 25% TO 30% IN CHILDREN AND ADULTS (4;16-19).”



EQUITY

Low income Canadians are almost twice as likely to suffer from poor oral health compared to high income Canadians (1). Water fluoridation is a cost-effective measure to narrow the gap when it comes to oral health and tooth decay (15; 23-24).

“ WATER FLUORIDATION IS A SAFE, EFFECTIVE, EQUITABLE AND COST-EFFECTIVE PUBLIC HEALTH MEASURE THAT SIGNIFICANTLY REDUCES THE RATE OF TOOTH DECAY IN ALL SEGMENTS OF THE CANADIAN POPULATION (2; 4; 7-9; 23; 26).”

NATIONAL & INTERNATIONAL SUPPORT

Over 90 national and international governments and health organizations, such as the World Health Organization (WHO), endorse the fluoridation of drinking water to prevent tooth decay (6).

As demonstrated by existing research, fluoridation remains a safe and effective means of achieving community-wide exposure to the cavity-preventive effects of fluoride. For more information and additional resources, visit our Oral Health web pages at: <http://www.hc-sc.gc.ca/hl-vs/oral-bucco/index-eng.php>. (or <http://www.healthycanadians.gc.ca/healthy-living-vie-saine/oral-health-sante-buccodentaire/index-eng.php>)

REFERENCES

- 1 Health Canada (2010). Report on the findings of the Oral Health Component of the Canadian Health Measures Survey, 2007-2009. http://publications.gc.ca/collections/collection_2010/sc-hc/H34-221-2010-eng.pdf
- 2 FDI World Dental Federation (2015). The Challenge of Oral Disease: A Call for Global Action. The Oral Health Atlas, Second Edition. 120p. [http://www.fdiworldental.org/publications/oral-health-atlas/oral-health-atlas\(2015\).aspx](http://www.fdiworldental.org/publications/oral-health-atlas/oral-health-atlas(2015).aspx)
- 3 Health Canada (2011). Guidelines for Canadian drinking water quality: Guideline technical document – Fluoride. <http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/2011-fluoride-fluorure/index-eng.php>
- 4 CDC (2015) Community Water Fluoridation. <http://www.cdc.gov/fluoridation/>
- 5 McLaren L, McIntyre L. (2011). Drinking water fluoridation in Canada: review and synthesis of published literature. Public Health Agency of Canada, April 2011. <http://www.albertahealthservices.ca/poph/hi-poph-surv-phids-drinking-water-fluoridation.pdf>
- 6 Health Canada (2010). Healthy Living: It's Your Health -Health Benefits of Fluorides. <http://www.hc-sc.gc.ca/hl-vs/iyh-vsv/environ/fluor-eng.php>
- 7 WHO (2012). Oral Health Fact Sheet, April 2012. <http://www.who.int/mediacentre/factsheets/fs318/en/>
- 8 Health Canada (2007) Findings and recommendations of the fluoride expert panel (January 2007). <http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/2008-fluoride-fluorure/index-eng.php>
- 9 Rabb-Waytowich, Danielle (2009). Water Fluoridation in Canada: Past and Present. http://www.jcda.ca/sites/default/files/back_issues/vol-75/issue-6/451.pdf
- 10 Beltrán-Aguilar ED, Barker L, Dye BA. (2010). Prevalence and severity of dental fluorosis in the United States, 1999-2004. NCHS Data Brief No. 53. Hyattsville, MD: National Center for Health Statistics.
- 11 CDC (2013). Dental Fluorosis. http://www.cdc.gov/fluoridation/safety/dental_fluorosis.htm
- 12 Royal Society of New Zealand (2014). Health effects of water Fluoridation: a review of the scientific evidence. Wellington; Royal Society of New-Zealand, 2014. <http://www.royalsociety.org.nz/expert-advice/papers/yr2014/health-effects-of-water-fluoridation/>
- 13 Public Health England (2014). Water fluoridation: health monitoring report for England 2014. 41p.
- 14 Parnell C., Whelton H., O'Mullane D. (2009). Water Fluoridation. Eur Arch Paediatr Dent. 2009 Sep; 10 (3):141-8.
- 15 McDonagh & al. (2000). A Systematic Review of Water Fluoridation. NHS Centre for Reviews and Dissemination, University York. September 2000. 102p.
- 16 Tchouaket, E. & al (2013). The economic value of Quebec's water fluoridation program. Journal of Public Health. June 2013; 21 (6): 523-533
- 17 Rugg-Gunn. AJ & Do, L. (2012). Effectiveness of water fluoridation in caries prevention. Community Dent Oral Epidemiol. 2012 Oct; 40 suppl. 2:55-64.
- 18 Griffin SO, Regnier E, Griffin PM, Huntley V. (2007). Effectiveness of fluoride in preventing caries in adults. J Dent Res. 2007;86(5):410-415
- 19 Institut National de Santé Publique du Québec (2007). Fluoruration de l'eau : Analyse des bénéfices et des risques pour la santé. Avis Scientifique. Juin 2007. 42p.
- 20 CDC (2013). Costs Saving of Community Water Fluoridation. <http://www.cdc.gov/fluoridation/factsheets/cost.htm>
- 21 Ran, T. & Chattopadhyay, S.K & CPSTF (2015). Economic Evaluation of Community Water Fluoridation. A Community Guide Systematic Review. Am J Prev Med 2015. In press.
- 22 Griffin, S O, Jones, K and Tomar, S L. (2001). An economic evaluation of community water fluoridation. J Public Health Dent 2001; 61(2): 78-86.
- 23 McLaren L, Emery JC. (2012). Drinking water fluoridation and oral health inequities in Canadian children. Can J Public Health 2012;103:eS49-56.
- 24 McGrady MG, Ellwood RP, Maguire A, Goodwin M, Boothman N, Pretty IA. (2012). The association between social deprivation and the prevalence and severity of dental caries and fluorosis in populations with and without water fluoridation. BMC Public Health 2012;12:1122-39.
- 25 CDC (2013). Ten great public health achievements of the 20th century. <http://www.cdc.gov/about/history/tengpha.htm>
- 26 Howat, P., Binns, C. & Jancey, J. (2015). New International review supports community water fluoridation as an effective and safe dental health promotion measure. Health Promotion Journal of Australia, 2015 26, 1-3
- 27 Briss P, Bailey W, Barker LK, Beker LT, Beltran-Aguilar E, Bigley MB, et al.(2015). U.S. Public Health Service recommendations for fluoride concentrations in drinking water for the prevention of dental caries. Public Health Reports 2015; 130:1-14. http://www.publichealthreports.org/documents/PHS_2015_Fluoride_Guidelines.pdf