



## **Letter to Editor**

### **The debate of Water Fluoridation**

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Dear Sir;

Water fluoridation is one of preventive oral health interventions where people don't have to change their behavior to get the benefit <sup>1</sup>. The low fluoride intake has been linked to lower risk of dental caries. Dental caries is an infectious and multifactorial disease affecting most people in developed and developing countries. Fluoride reduces the incidence of dental caries and slows or reverses the progression of existing lesions. Water fluoridation is a whole population approach that will be directed to all individuals in the community.

Fluoride is considered beneficial when given systemically during tooth development and topically after the eruption of teeth. Centre of Disease Control (CDC) implies that water fluoridation is one of the best public health achievements in the 20<sup>th</sup> century <sup>2</sup>. However, a counterargument exists that water fluoridation may be harmful by causing dental fluorosis, if the individual takes another source of fluoride or the fluoride concentration in the water was higher than the recommended number by the World Health Organization (WHO). In the next few paragraphs, I will summarize the two sides of argument regarding water fluoridation as a public health intervention to reduce the risk of dental caries.

The CDC Stated that it has a great money saving to the USA, as "every dollar spent for community water fluoridation saves from \$8 to \$49 in treatment costs depending on the size of the community" and "it saves more than 4.6 billion annually in dental costs". CDC pointed to the benefit of fluoride to children and adults throughout their lives, as they will have stronger teeth, fewer cavities, less severe cavities, lesser need for fillings and removing teeth. Moreover, less pain and suffering because of tooth decay <sup>3</sup>.

On the other side of the Atlantic, the public health in England when answered a question about the risk of fluoridation stated that the only potential negative impact is a greater risk of dental fluorosis and the PHE monitors the oral and general health of people in fluoridated and non-fluoridated areas. In 2013 almost (31%) of 5 years old and

nearly half (46%) of 8 years old children had tooth decay. Poor oral health can also negatively impact a person's ability to sleep, eat, speak and socialize <sup>4</sup>.

In areas lacking public water supplies and where fluoride is not naturally present in the well water, school fluoridation programs have been shown to be effective and safe. Reductions of up to 38.9% in the rate of dental decay have been reported. Higher levels of fluoride are used in the school water than in public water because of the limited time the children are in school. The relatively low cost of the necessary equipment and chemicals can easily be justified by taking into account the amount of dental decay that can be prevented <sup>5</sup>.

Water fluoridation has two edges (i.e. when safe and adequate exposure for fluoride is exceeded, it becomes potentially toxic). For example, the consumption of levels between 0.5–1.0 ppm via drinking water is beneficial for prevention of dental caries, but its excessive consumption leads to the development of fluorosis. Further health issues like dental fluorosis, skeletal fluorosis, thyroid problems, neurological problems were reported profusely in some geographical residential areas. Drinking water naturally has high concentrations of F<sup>+</sup> in southern Asia, the eastern Mediterranean, and some parts of Africa.

**From an ethical side:** The 'right' for an individual to drink water with no fluoride added to it. Some people argue that the local authority would be interfering with the right for an individual to drink water that has no fluoride added. Experts have responded by stating that the adjustment of the quantity of fluoride to an optimum level cannot be compared with adding to water a substance not found there naturally. Water fluoridation effectively replicates a naturally occurring benefit where fluoride is already present at the optimum level of 1 ppm, therefore, there is no such thing as a 'right' to drink fluoridated water, only a personal preference.

**From another ethical perspective:** there is no right to ask for unfluoridated water be-

cause it's one of the water compositions they only adjust the concentration so they get the benefits rather than the side effects.

**From my point of view**, water fluoridation is the best way to overcome the inequality in dental caries, as it targets every individual person in the community. However, the increased use of bottled and filtered water as source of drinking water in our country could reduce the impact of fluoridated water supplied by other community resources. The policy makers should give more attention to water fluoridation as extreme approach that can lower the cost incurred by primary preventive measures and alleviate individual's need to the expensive secondary and tertiary interventions.

## REFERENCES

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