Water flouridation: what is going on in the USA?

10.23804/ejpd.2025.26.01.02

Letter to EJPD Editor

Dear Editor,

In August 2024, a monography highlighted the potential relationship between Fluoride added to potable water and lack of intellectual quotient scores IQ in children [National Toxicology Program, 2024]. This monograph asserts that the concentration of fluoride in U.S. water is below the limit recommended by the World Health Organization (WHO) of 1.5 mg/L. However, it raises the question of whether fluoride effectively benefits dental health when considering the risk-benefit ratio. A recent and extensive systematic review and meta-analysis reported an inverse relationship between fluoride concentration and reduced intellectual quotient scores (IQ) in children, being the relationship dose dependent. This positive association seem not so strong when fluoride concentration in potable water are below 1,5 mg/L, that is both the value recommended by WHO, but also the threshold of fluoride concentration permitted by European Community (EC) law. In United States water fluoridation is reality for many countries, while in Europe only for a few countries, such as certain regions of England, Ireland, and Spain, that added fluoride to the potable water. To discuss about fluoride water concentration in the European Community is not so important, as most of EU countries do not add fluoride to potable water. Instead, the role of fluoride in carious lesions prevention plays a topic contact between dental enamel and fuoride based agents, such as toothpastes or professional products like varnish, gel or silver diamine fluoride. It is necessary a certain evidence, with low risk of bias of studies considered and low heterogeneity between the studies, on fluoride toxicity over some systemic blood and urinary concentration. Furthermore, emphasising the important role that topic fluoride had on carious lesion prevention and caries prevalence reduction over the last decades.

Sincerely,

Stefano Daniele

National Toxicology Program.
NTP monograph on the state of the science concerning fluoride exposure and neurodevelopment and cognition: a systematic review.
NTP Monogr. 2024 Aug;(8): NTP-MGRAPH-8.

Taylor KW, Eftim SE, Sibrizzi CA, Blain RB, Magnuson K, Hartman PA, Rooney AA, Bucher JR.
Fluoride Exposure and Children's IQ Scores: A Systematic Review and Meta-Analysis.JAMA Pediatr. 2025 Jan 6. doi: 10.1001/jamapediatrics.2024.5542. Epub ahead of print. PMID: 39761023.

Levy SM.
Caution Needed in Interpreting the Evidence Base on Fluoride and IQ. JAMA Pediatr. 2025 Jan 6.