



Sodium fluoride in the disinformation spotlight

Coffee Beans

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Toothpastes containing fluoride and fluoridated water are designed to prevent tooth decay by strengthening teeth through the formation of fluorapatite, a natural component of tooth enamel. Special preparations, fluoride gels or tablets are produced to improve the remineralisation of tooth enamel. Fluoride is considered the most effective measure to reduce the incidence of tooth decay. It is the most widespread oral disease worldwide. It affects both permanent and deciduous teeth in approximately 2.3 billion people worldwide, including more than 500 million children [1]. In addition to teeth, fluoride is also found in bones along with other minerals such as calcium and phosphorus. Chemically, sodium fluoride is the water-soluble inorganic salt of hydrofluoric acid [1, 2].

False or misleading messages are being spread on social media, especially on Instagram. This refers to the health benefits of fluoride. Although most of this information is not based on truth, it raises concerns about the efficacy and safety of its use. The messages generally concern the toxicity of fluoridated products and water. The manipulated information on the side effects of fluoridated products has been transferred to the promotion of dental products containing natural compounds and the promotion of fluoride-free oral care products [3].

Typical myths about fluoride spread on social media: (1) *People who drink fluoridated water develop fluorosis.* The reality is this — fluorosis occurs when a person ingests very high amounts of fluoride. The amount of fluoride that is added to drinking water is controlled. (2) *Fluoride is dangerous for children.* Giving it to children lowers their IQ. In fact, fluoride is not considered dangerous to children if it is taken as intended. Drinking fluoridated water not only helps strengthen teeth as they grow, but it can also help prevent future decay and tooth loss. (3) *Water fluoridation is very costly to society/state.* The opposite is true, adding fluoride to water is considered one of the less expensive ways to prevent tooth decay. It is generally cheaper than treating it. (4) *Drinking fluoridated water causes cancer.* This is not true — numerous studies and research have shown that adding fluoride does not increase the risk of cancer or other serious health problems such as diabetes, heart disease or kidney problems. (5) *Fluoridated water does not affect tooth decay.* There have been many studies in the US and Europe that have shown that fluoridation helps reduce tooth decay in adults and children. (6) *Europe does not allow fluoridated water.* On the contrary, European countries have a system of water fluoridation in place. Fluoridation is a common method used in Europe [4, 5].

Misinformation about fluoride is generally based on reputable studies showing the adverse effect of really high doses of fluoride on some indicators of human health. These include, for example, fluoride deposition in the pineal gland (a small endocrine gland in the brain). This can lead to changes in melatonin production or induce fluorosis, where chronic fluorosis can cause brain damage and compromise a person's mental health. Based on the currently available scientific evidence, it cannot be assumed that fluoride should be considered a neurotoxicant for human development at current exposure levels in Europe [6, 7].

In this negative context of misinformation, it is very important that dentists, in particular, become aware of the need to spread awareness and start talking to patients about this topic. It is desirable to ensure universal access to information about the importance of oral health and to improve health literacy in general. Social media administrators themselves should start to take an active role in developing procedures to detect false or misleading content shared in real time. Despite the difficulties in detecting the intentions of the authors of misinformation posts, society needs to start discussing possible measures and sanctions for the disseminators of misinformation within the limits available within the framework of democratic values. This applies in particular to situations where the authors of such information are health professionals. The whole truth must always be told.

Sources

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