

5.5 Fluorosis in the people of the Dilmun Culture.

The damage that water containing even the 'recommended optimal concentration' of fluoride can cause at the population level in communities that are otherwise unexposed to fluoride is graphically revealed by the palaeopathology of the Dilmun Culture in the Persian Gulf. This branch of medicine examines the diseases of ancient civilisations, especially through the examination of skeletal remains exposed by archaeological excavations.

For seven thousand years the inhabitants of what is now Bahrain have been drinking water from wells and springs fed from an aquifer containing around 1.3mgF/l. This is slightly less than the maximum permissible concentration of fluoride (1.5mgF/l) established in the European drinking water quality legislation. The main additional dietary sources of fluoride intake were tea and fish, but no fluoridated dental products were available at that time. Since the absorption of calcium fluoride from food is relatively limited[14 ,15], drinking water was by far the most significant source of bioavailable fluoride for this community.

According to the claims of fluoridation proponents, the Dilmun people should have had excellent teeth, with very low levels of caries. Yet the archaeological evidence reveals that even the agrarian subpopulation had an extremely high incidence of dental caries. During the Islamic Period up to 80% of adult teeth were carious, whilst amongst children aged 3 to 6 years, 17% of deciduous teeth were carious.[16] At the same time, the prevalence of dental fluorosis was around 50%, with up to 20% of the population experiencing moderate or severe fluorosis. Even marked skeletal fluorosis was fairly common, with manual labourers being particularly prone to this debilitating condition.[17]

Since the prevention of caries in children is the principle objective of water fluoridation, the evidence of the high prevalence of dental fluorosis in children in this historical sequence of Bahraini populations confirms the significant medical risks that this practice presents to both children and adults. At the same time, it demonstrates that the recommended 'optimal concentration' of fluoride in the drinking water did not prevent the very high prevalence of dental caries in this population.

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Excerpt from "The application of human rights legislation to the practice of water fluoridation" by Douglas Cross (BSc, CBiol, EurProBiol, FSB, Independent Forensic Ecologist, Cumbria UK), *Forensic Ecologist*, January 2010. You can read the entire article at http://www.ukcaf.org/files/human_rights_and_fluoridation.pdf.