

Fluorosis



Distribution

Fluorosis affects millions of people, many of whom live in the Middle East, Sub-Saharan Africa, and Asia.



Cause

Long-term consumption of water containing the chemical fluoride, which is naturally found at high levels in certain water sources (usually groundwater).

When people regularly drink water with fluoride concentrations above the WHO guideline value of 1.5 mg/L, they often develop symptoms of dental or skeletal fluorosis.



Staining and pitting of teeth caused by dental fluorosis (public domain).



Symptoms

Typically, people first show signs of dental fluorosis such as staining and pitting of teeth.

Chronic, high-level fluoride exposure may also lead to skeletal fluorosis, with symptoms including joint stiffness, joint pain, and increased frequency of bone fractures.

Symptoms of fluorosis may also include abdominal pain, nausea, and vomiting.



Prevention

- Drink or cook with water that has fluoride concentrations less than the WHO guideline value of 1.5 mg/L.
- Find a water source with lower fluoride concentrations, or use a water treatment system designed to remove fluoride.
- Educate and engage community members to help them understand long-term risks.
- Encourage mothers in affected areas to breastfeed.

HOUSEHOLD WATER TREATMENT OPTIONS

Various technologies use methods to remove fluoride. These methods include bone charcoal, contact precipitation, the Nalgonda technique, and activated alumina.



Treatment

Sometimes dental fluorosis can be addressed through dental work.

Long-term effects of fluorosis are difficult to treat, especially after bones have become brittle or fractured.