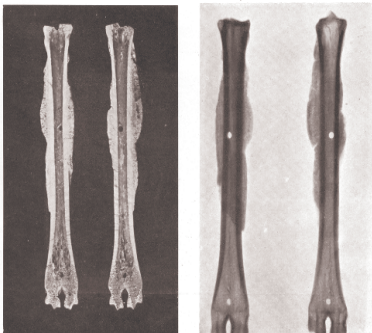


# Skeletal Fluorosis



FIG. 4. (a) Metacarpus. (b) Metatarsus. Diffuse periosteal deposits.

FIG. 5. (a) Tibia. (b) Metatarsus. Insular deposits.



**Photos:** Bones of Icelandic Sheep that died due to fluoride over-exposure. Roholm, K. 1937. Fluoride Intoxication: A Clinical Hygienic Study With a Review of Literature and Some Experimental Investigations. H.K. Lewis and Co.,

**"Clinical Phase 1 Fluorosis:** Sporadic pain; stiffness of joints; osteosclerosis of pelvis & vertebral column.

**Clinical Phase 2 Fluorosis:** Chronic joint pain; arthritic symptoms; slight calcification of ligaments..." Department of Health and Human Services. (1991). Review of fluoride: benefits and risks. Report of the Ad Hoc Subcommittee on Fluoride. Washington, DC.

Given the lack of training western doctors receive on fluorosis, it is plausible that early stages of the condition (including pain and stiffness) are being misdiagnosed as arthritis in artificially fluoridated areas. The causes of most forms of arthritis (e.g. osteoarthritis) are unknown.

**"increasing numbers of people with carpal-tunnel syndrome, arthritic-like pains, osteoporosis may be due to the mass fluoridation of drinking water."** EPA 2003 Annual Report

**"Although skeletal fluorosis has been studied intensely in other countries for more than 40 years, virtually no research has been done in the U.S. to determine how many people are afflicted with the earlier stages of the disease, particularly the preclinical stages. Because some of the clinical symptoms mimic arthritis, the first two clinical phases of skeletal fluorosis could be easily**

**misdiagnosed... Even if a doctor is aware of the disease, the early stages are difficult to diagnose."** Hileman B. (1988). Fluoridation of water. Questions about health risks and benefits remain after more than 40 years. Chemical and Engineering News August 1, 1988, 26-42.

Canadian National Research Council 1977 Environmental Fluoride reports that a retention of 2 mg of fluoride per day (corresponding approximately to a daily intake of 4-5 mg) **"would mean that an average individual would experience skeletal fluorosis after 40 yr,** based on an accumulation of 10,000 ppm fluoride in bone ash."

**"In a 55-yr-old woman with long-standing arthritis, but no obvious signs of fluorosis, X-rays exhibited degeneration of discs and calcification in disc spaces. Her daily fluoride intake, mainly from tea, exceeded 9 mg; her daily urinary excretion was 3 mg. When she discontinued consuming tea, her fluoride intake fell below 1 mg daily; excretion through the urine exceeded intake; the arthritic pains diminished and virtually ceased in 6 mo; mobility of her spine was restored and she was able to resume work. Arthritis of the spine of unknown cause might represent subclinical fluorosis which is not demonstrable radiologically."** Cook HA 1972 Crippling arthritis related to fluoride intake: Case report. Fluoride 5 (4):209-213 (1972)

**"'Skeletal fluorosis' is a condition associated with prolonged accumulation of fluoride resulting in fragile bones having low tensile strength. It affects the joints as well as the bones. It is not easily recognizable till advanced stage. In its early stages, its symptoms may resemble those of arthritis. In its most severe stages it becomes a crippling disability that has a major public health and socio-economic impact, affecting millions of people in various regions of Africa, China and India."** Ayoob S, Gupta AK. (2006) Fluoride in Drinking Water: A Review on the Status & Stress Effects. *Critical Reviews in Environmental Science & Technology* 36:433-487.

**"The authors describe a 50-year-old man with previously treated cancer who was using tray-applied topical fluoride gel. He complained of gastric symptoms, difficulty in swallowing, leg muscle soreness and knee joint soreness... The patient's fluoride regimen was altered, and within a short period his urinary fluoride levels returned to normal and his symptoms resolved."** Eichmiller FC, Eidelman N, Carey CM. (2005). Controlling the fluoride dosage in a patient with compromised salivary function. *Journal of the American Dental Association* 136:67-70.

**"Fluorine is known to bind calcium in the body, causing ionic calcium to decrease; this, in turn, causes secondary hyperparathyroidism. It is thus clear that the clinical picture of fluorosis includes softening of the bones and osteoporosis as well as secondary hyperparathyroidism on a global basis."** Trace Elements in Human and Animal Nutrition - Fifth Edition, Edited by Walter Mertz, U. S. Dept. of Agriculture, Agricultural Research Service, Beltsville Human Nutrition Research Center, Beltsville, Maryland, (1987)

**"The initial symptoms usually were headache and weakness. These were followed by multiple joint pains, mostly in the feet, knees, and back. Spinal stiffness and kyphosis developed in a few patients."** Wang Y, et al. (1994). Endemic fluorosis of the skeleton: radiographic features in 127 patients. *American Journal of Roentgenology* 162: 93-8.

**"Symptoms of pain, stiffness and diffuse aches may be dismissed as functional, but may in fact be early signs of fluoride damage to tendinous insertions and ligaments as well as joint capsules."** Anand JK, Roberts JT. (1990). Chronic fluorine poisoning in man: a review of literature in English (1946-1989) and indications for research. *Biomedicine & Pharmacotherapy* 44: 417-420.

**"Vague, diffuse aches and stiffness of joints with decreased range of motion are common initial symptoms. With disease progression, kyphosis with limited spinal mobility, flexion contracture of lower extremities, and restricted chest wall expansion occur."** Fisher RL, et al. (1989). Endemic fluorosis with spinal cord compression. A case report and review. *Archives of Internal Medicine* 149: 697-700.

**"The most frequent symptoms in those exposed >6 yr were low back pain, painful knee, elbow, and hip... Analysis of workers' complaints showed no specific pain or other symptom that we could refer only to fluorosis...The only characteristic feature would be multiple-joint involvement in the case of fluorosis. This would differentitate fluorosis from monoarticular osteoarthritis (OA), but unfortunately not from multiple-joint osteoarthritis or rheumatoid arthritis (RA)."** Czerwinski E, et al. (1988). Bone and joint pathology in fluoride-exposed workers. *Archives of Environmental Health* 43: 340-343.