

# Fluoride and Kidneys



Kidney disease markedly increases an individual's susceptibility to fluoride toxicity. In healthy adults, the kidneys are able to excrete approximately 50% of an ingested dose of fluoride. However, in adults with kidney disease the kidneys may excrete as little as 10 to 20% and young children may only excrete 15% of an ingested dose - thus increasing the body burden of fluoride and increasing an individual's susceptibility to fluoride poisoning (e.g. renal osteodystrophy).

**“Overall, an average of 86.6% of the dose was retained by the infants, which is about 50% higher than would be expected for adults...the pharmacokinetics of fluoride in infants reveal(s) a completely different pattern compared to what has been found in adults.”** Whitford GM 1994 Intake and Metabolism of Fluoride. Adv Dent Res 8(1): 5-14.

**"HD (hemodialysis) patients need to practice dietary control for the restriction of oral F intake."** Usuda K, Kono K, Yoshida Y (1997). The effect of hemodialysis upon serum levels of fluoride. Nephron 75:175-8.

**"According to the National Institute of Dental Research, also part of NIH, fluoride levels in water are set according to normal consumption of water. If an individual is consuming abnormally large quantities of water, drink bottled water."** Letter from National Institute of Diabetes and Digestive and Kidney Diseases, Dept. of Health & Human Services, 1991

**Case Study #1: "In my medical practice I have encountered two cases in which fluoridated water interfered with kidney function. One of these, Miss G.L., 27 years old, had been under my care from July 1966 to September 1969 for allergic nasal and sinus disease. She had a congenital cystic kidney necessitating consultation with a urologist. As shown by its inability to excrete indigo carmine, a dye employed as an indicator of kidney function, the left kidney was not working and was slated for removal. This patient also reported having pains and numbness in arms and legs, spasticity of the bowels, ulcers in the mouth, headaches, and a progressive general disability - symptoms of possible intolerance to fluoride - for about 15 years. Her water supply (Highland Park, Michigan) had been fluoridated since September 1952. On February 1, 1967, I instructed her to avoid fluoridated water for drinking and cooking. Within a few weeks all the above-mentioned symptoms disappeared, and another kidney dye test on June 12, 1967, astonishingly revealed that the left kidney had begun to function again! A follow-up 5 years later revealed that the patient had remained in good health as long as she refrained from drinking fluoridated water.**

**Case Study #2: The other patient, Mrs E.P., 39 years old, who visited me on August 25, 1969, had advanced pyelitis of the left kidney, beginning with osteosclerotic changes in the pubic bones, and exostosis at the sternum, accompanied by the same clinical picture as in**

the patient just discussed. The function of the diseased kidney and the other symptoms improved markedly within six weeks after she stopped drinking the municipal water in Midland, Michigan (fluoridated since January 1946). Twenty-four hour urinary fluoride excretions before and after the tests were 2.39 and 4.20 mg, respectively. For most of her life she had resided in Lubbock, Texas (water supply fluoride then 4.4 ppm). The development of osteosclerosis in this case was not surprising, since - as recorded in fluoridated Evanston, Illinois, and also in a fluoridated Finnish community - kidney patients retain as much as 60% more fluoride than do persons in normal health. In the Finnish work blood fluoride levels were 3 to 4 times higher than normal in the patients with renal disorders." Waldbott GL, et al. (1978). Fluoridation: The Great Dilemma. Coronado Press, Inc., Lawrence, Kansas. pp. 155-156.

**"Individuals with kidney disease have decreased ability to excrete fluoride in urine and are at risk of developing fluorosis even at normal recommended limit of 0.7 to 1.2 mg/l."** Bansal R, Tiwari SC. (2006). Back pain in chronic renal failure. *Nephrology Dialysis Transplantation* 21:2331-2332.

**"In patients with reduced renal function, the potential for fluoride accumulation in the skeleton is increased. It has been known for many years that people with renal insufficiency have elevated plasma fluoride concentrations compared with normal healthy persons and are at a higher risk of developing skeletal fluorosis."** National Research Council. (2006). Fluoride in Drinking Water: A Scientific Review of EPA's Standards. National Academies Press, Washington D.C. p140.

**"Persons with renal failure can have a four fold increase in skeletal fluoride content, are at more risk of spontaneous bone fractures, and akin to skeletal fluorosis even at 1.0 ppm fluoride in drinking water."** Ayoob S, Gupta AK. (2006). Fluoride in Drinking Water: A Review on the Status and Stress Effects. *Critical Reviews in Environmental Science and Technology* 36:433-487

**"It is important to control the intake of this element [fluoride] and the prolonged use of fluoridated dental products in the subjects with chronic renal insufficiency, to avoid a risk of fluorosis."** Torra M, et al. (1998). Serum and urine fluoride concentration: relationships to age, sex and renal function in a non-fluoridated population. *Science of the Total Environment* 220: 81-5.

**"[A] fairly substantial body of research indicates that people with kidney dysfunction are at increased risk of developing some degree of skeletal fluorosis. ... However, there has been no systematic survey of people with impaired kidney function to determine how many actually suffer a degree of skeletal fluorosis that is clearly detrimental to their health."** 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.