Fluoride accumulation in bone: a preliminary investigation
by Dan Germouse

The 2006 US National Research Council report Fluoride in Drinking Water: A Scientific Review of EPA’s Standards, though far from perfect, is the most comprehensive review of fluoride toxicity conducted so far. In the chapter on musculoskeletal effects it says “A previous NRC report (NRC 1977) stated 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 years, based on an accumulation of 10,000 ppm fluoride in bone ash.’” (NRC, 2006, p. 143)

I thought I’d do a calculation to check that claim of 10,000 ppm accumulated fluoride in bone ash, which is enough to cause the crippling, third stage of skeletal fluorosis in many people.

Retention of 2 mg of fluoride per day for 40 years gives

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0.002(40)(365.25) = 29.22 \text{ grams}
\]

which happens to be far more than what is required to kill an adult if taken in a single dose. Bone ash weight is a measure of bone mineral content, and according to the US Centers for Disease Control and Prevention (CDC) the average total age-adjusted body bone mineral content for males 20 years and over is 2720.04 g, measured by dual energy x-ray absorptiometry (DXA) (Looker et al, 2013, 9). That gives a fluoride concentration of:

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29.22(1,000,000)/2720.04 = 10,742.5 \text{ ppm or 11,000 ppm to 2 significant figures.}
\]

The corresponding calculation for women is:

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29.22(1,000,000)/2108.32 = 13,859.4 \text{ ppm or 14,000 ppm.}
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On the face of it, the 1977 NRC calculation was an underestimate. However, the pathological increase in bone mass which can accompany skeletal fluorosis has not been taken into account here. It could also be argued that measurement by DXA is not an adequate substitute for measurement of bone ash weight, so let’s look at it from a different angle. The average dry, defatted skeleton weight for young human adult males has been estimated at 4.0 kg (Heymsfield et al, 2005, 291). Throwing the
racist fluoridationists a bone, the average percentage total skeleton ash weight for white adult males aged 30 to 85 years has been estimated as 66.4% (Trotter and Hixon, 1974, 13-14):

Percentage ash weight = (weight of ash)(100)/weight of dry, fat-free bone

so fluoride concentration in bone ash

= 29.22(1,000,000)/(4.0)(1000)(0.664) = 11,001.5 (i.e. 11,000) ppm

Again, the corresponding figure for women will be considerably higher.

The data upon which these calculations are based are not perfect, a daily fluoride retention of 2 mg is probably somewhat higher than average, and around 99% of retained fluoride is found in bone, not 100%. Nevertheless, this preliminary investigation strongly suggests that being force-fluoridated for a lifetime is very far from safe. “On the basis of data on fluoride in the iliac crest or pelvis, fluoride concentrations of 4,300 to 9,200 mg/kg in bone ash have been reported in cases of stage II fluorosis, and concentrations of 4,200 to 12,700 mg/kg in bone ash have been reported in cases of stage III fluorosis. The overall ranges for other bones are similar.” (NRC, 2006, p.143) From what I’ve read, some common early signs of skeletal fluorosis are gastrointestinal issues, neck stiffness, and knee osteoarthritis.

REFERENCES


Source: http://forcedfluoridationfreedomfighters.com/a-preliminary-investigation-into-fluoride-accumulation-in-bone/