

Comments from Fluoride Action Network to the European Food Safety Authority (EFSA).

Submitted by Michael Connett on June 13, 2013:

The EFSA Panel on Diabetic Products, Nutrition and Allergies has proposed establishing a dietary reference value (DRV) for fluoride of 0.05 mg/kg/day. This proposal should be rejected for 5 reasons:

1) Fluoride Is Not an Essential Nutrient:

The EFSA Panel report recognizes that fluoride is “not an essential nutrient” and that there is “no average [fluoride] requirement for the performance of essential physiological functions.” (p. 27).

2) Fluoride’s Alleged Dental Benefits Do Not Require Ingestion:

The EFSA Panel claims that a DRV is appropriate because of fluoride’s alleged dental benefits. This rationale, however, makes little sense because it is now known that fluoride’s predominant benefit for children’s oral health comes from topical contact, not ingestion. (NRC 2006; Fejerskov 2004; Zimmer 2003; CDC 2001; Featherstone 2000). Fluoride’s anti-caries effect during childhood, therefore, does not require that any fluoride be swallowed. The situation is even clearer for adolescents and adults, since the teeth in these populations are fully formed and thus no longer capable of receiving any benefit from systemic fluoride incorporation. Since adult teeth cannot benefit from ingesting fluoride, and since fluoride provides no known benefits to any other tissue in the body besides the teeth, there is no reason at all to set a DRV for adults. As the EFSA Panel notes on page 27, “[f]rom the available data, no beneficial effect of fluoride on bone health can be deduced.”

3) EFSA’s Basis for Relying on 1930s/1940s Data Is Flawed:

The EFSA Panel derived the proposed DRV by relying solely on data published in the 1930s and 1940s. The EFSA Panel justified its reliance on this 70-year-old data by noting that, unlike modern studies, these earlier studies were able to determine the anti-caries effect of total daily intake (because water was the only known source of fluoride in those studies). This rationale is flawed, however, because a recent, carefully conducted study by Warren, et al. (2009) assessed the anti-caries effect of total fluoride intake from all sources in a modern child’s diet (e.g., water, toothpaste, processed food/beverages, etc). It makes little sense, therefore, for the EFSA Panel to rely on very old studies with crude methods when new data, from much more sophisticated studies, are now available.

4) The Proposed DRV Runs Contrary to Recent Data & Recommendations:

The EFSA Panel’s proposal to create a DRV of 0.05 mg/kg/day runs contrary to recent data and recommendations. In the study by Warren et al. (2009), the authors monitored the total

fluoride intake of over 600 children for the first nine years of their life. When the authors conducted dental exams of these children, they found that the caries status of the children bore no statistically significant relationship to the amount of fluoride the children consumed. Based on this finding, the authors concluded that “achieving a caries-free status may have relatively little to do with fluoride intake.” By contrast, the authors found that fluoride intake had an obvious and statistically significant effect on fluorosis rates. Accordingly, the authors suggested that the concept of an “optimal fluoride intake” is “problematic” and that “perhaps it is time that the term optimal fluoride intake be dropped from common usage.” Other dental researchers have issued similar recommendations in recent years. According to Burt (1999):

“There was a time when the ingestion of fluoride in the range of 0.05 to 0.07 mg F/kg body weight/day was considered ‘optimal’ for preeruptive caries prevention. In light of present knowledge that preeruptive fluoride has little preventive effect, this range has better application as an estimate of the maximum amount to be ingested by young children if fluorosis is to be kept at its lowest level.”

Consistent with these recommendations, fluoride supplements (which are designed to ensure a fluoride intake of 0.05 mg/kg/day) are no longer recommended for the general population, as they are a major risk factor for dental fluorosis and have only “weak” evidence of benefit. (Zimmer 2010; Ismail 2008; Rozier 2003; Riordan 1999). In light of these recommendations, it makes little sense to adopt a DRV of 0.05 mg/kg/day, as doing so would run directly counter to recent data and recommendations.

5) The Proposed DRV Cannot Be Considered Safe for the Entire Population

Based on recent data, a DRV of 0.05 mg/kg/day cannot be considered safe for the entire population, particularly infants, people with end stage renal disease, people with thyroid disease, and people with iodine and calcium deficiencies. Consider, for example, the following:

- In 2006, the National Research Council in the U.S. found that existing research on fluoride and the thyroid gland suggests that fluoride at doses as low as 0.01 mg/kg/day can impair thyroid function among individuals with suboptimal iodine intake. (NRC 2006). This is consistent with clinical research from Europe which found that daily doses of just 2 to 5 mg/day of fluoride ion (= 5 to 10 mg/NaF) was sufficient to reduce thyroid function among individuals with hyperthyroidism. (Galletti 1958).

- In the Netherlands, the National Institute for Public Health and Environmental Protection has stated that “about 1.5 mg appears to be the maximum acceptable intake for nephritic patients.” For most adults, this translates into a dosage well below 0.05 mg/kg/day. (NIPHEP 1989).

- According to the World Health Organization, “Skeletal fluorosis is associated with a systemic uptake exceeding 5 mg/day in a relatively sensitive section of the general population.” (WHO 2000). For adults weighing over 100 kg, a dose of 5 mg/day will be less than 0.05 mg/kg/day.

- In India, researchers have found that “In calcium-deficient children the toxic effects of fluoride manifest even at marginally high (>2.5 mg/d) exposures to fluoride.” (Teotia 1998).

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