

Critical review of any new evidence on the hazard profile, health effects, and human exposure to fluoride and the fluoridating agents of drinking water

http://ec.europa.eu/health/scientific_committees/environmental_risks/docs/scher_o_139.pdf

A report of the European Commission's Scientific Committee on Health and Environmental Risks (SCHER)

The British Fluoridation Society welcomes the publication of this important European Commission report. Below, the Society summarises and comments on the main points of the report.

1. Terms of reference included (inter alia):

- to evaluate the evidence of the role of fluoride in tooth decay prevention;
- to consider any concerns arising from the exposure of humans to fluoride; and,
- to assess health and environmental risks that may be associated with the use of the most common drinking water fluoridation agents.

2. Methods

Data from

- epidemiological studies,
- experimental studies in humans,
- experimental studies in animals, and
- cell culture studies

were considered and then drawn together to provide a combined health risk assessment. In this work SCHER took cognisance of previous reports from the Scientific Committee on Consumer Products (2005) and from the European Food Standards Agency (2005). In particular the EFSA had defined a Tolerable Intake Level of fluoride for various age groups designed to minimise the risk of moderate dental fluorosis. SCHER were concerned to identify relevant publications since 2005. In considering the environmental risks the Committee paid particular attention to the review published by Camargo (2003).

3. SCHER concluded that:

- 3.1 the occurrence of endemic skeletal fluorosis has not been reported in the EU general population;
- 3.2 there is not sufficient evidence linking fluoride in the drinking water to the development of osteosarcoma;

- 3.3 fluoride intake from drinking water at the level occurring in the EU does not appear to hamper children's neurodevelopment and IQ level;
- 3.4 human studies do not support adverse thyroid effects at realistic human exposure to fluoride;
- 3.5 there is no new evidence from human studies that fluoride in drinking water influences male and female reproductive capacity;
- 3.6 exposure of environmental organisms to the levels of fluoride used for fluoridation of drinking water is not expected to lead to unacceptable risks to the environment;
- 3.7 the Upper Tolerable Intake Level can be exceeded in children between 1 and 6 years living in areas with fluoride in drinking water >0.8mg/litre when consuming more than 0.5 litres of water, and when using excessive amounts of adult strength (1500ppm F) toothpaste from which they swallow 0.9mg fluoride per day;
- 3.8 for bottle-fed infants, when the fluoride concentration in drinking water is >0.8mg/litre, the exposure to fluoride is estimated to exceed 0.1mg/day;
- 3.9 an advantage in favour of water fluoridation is that caries prevention may reach disadvantaged children from lower socio-economic groups;
- 3.10 however, in children a very narrow margin exists between achieving the beneficial effects of fluoride in caries prevention and the adverse effects of dental fluorosis.

4. Comments from the British Fluoridation Society on the implications for water fluoridation at around 1ppm

The British Fluoridation Society notes that:

- 4.1 SCHER's conclusions concerning the lack of convincing evidence for adverse health effects are in agreement with systematic reviews published over the past twelve years (McDonagh et al 2000; AU-NHMRC 2007);
- 4.2 the lack of effect on osteosarcoma is supported by further studies published since SCHER reported (Comber et al 2011; Kim et al 2011);
- 4.3 the beneficial effects of water fluoridation for disadvantaged children is consistent with statements from the World Health Organisation's Oral Health Unit (Petersen and Lennon 2004);
- 4.4 SCHER seems to have been unaware that water fluoridation has an important and beneficial topical effect *after* the teeth have erupted (Hardwick et al 1982) and that this beneficial effect continues into adulthood (Griffiths et al 2007);
- 4.5 the risk of some young children exceeding the Tolerable Intake Level highlights the importance of guidelines for the sensible use of fluoride toothpastes promulgated widely in many countries.

References

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M A Lennon.October 2011