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Research Shows No Mutagenic Effects From Fluoride

The following statement was prepared by the Chief, Laboratory of Developmental Biology and Anomalies, National Institute of Dental Research, National Institutes of Health, and summarizes the findings of recently completed studies done in collaboration with other scientists at the Department of Biochemistry of the University of Minnesota and the Laboratory of Cellular and Comparative Physiology of the National Institute on Aging.

Fluorides Shown to Have No Mutagenic Effects in Controlled  
Animal Experiments and Microbial Assays (Ames Method)

Recently, Mohamed and Chandler from Kansas City, Missouri, reported that adult mice given various levels of fluoride (F) developed an increase in chromosomal abnormalities in bone marrow and testis cells. We have also carried out studies on animals receiving levels of fluoride similar to those used in the Mohamed and Chandler study. In addition, we have examined the chromosomes of animals bred and raised on no-fluoride and high fluoride water. In these studies, the incidence of chromosomal abnormality showed no changes that could be related to fluoride intake. Further, we examined fluoride for mutagenic activity in bacteria (Ames method), and no mutagenic activity was observed. Thus we have not found any evidence to support the report of Mohamed and Chandler that fluoride intake increased the incidence of chromosome aberration in mice.

Specifically, we have examined the possible effect of fluoride intake on chromosome damage in four different experiments, including mice raised for several generations on 50 ppm F drinking water and mice kept for 6 weeks on water with F concentrations of 0, 1, 5, 10, 50, or 100 ppm. There was no evidence of increased frequency of chromosome aberration in bone marrow or testis cells related to either life-long or short-term fluoride intake. Examination of sister chromatid exchange in adult mice on no-fluoride water compared with those on 50 ppm F water for their entire life span showed no differences. Fluoride was not found to be mutagenic in a widely used bacterial mutagenesis assay over a range of 0.1 to 2000 micrograms F per plate.

We conclude that fluoride does not alter chromosome structure and is not mutagenic according to the results of either our double-blind animal tests or the recognized system of bacterial mutagenesis assay.