

# Fluoride: Worse than We Thought

By [Andreas Schuld](#)

In 1999 the US Center for Disease Control (CDC) released a glowing report on the fluoridation of public water supplies, citing the procedure as one of the century's great public health successes.<sup>1</sup>

Ironically, the same report hints that the alleged benefit from fluorides may not be due to ingestion: "Fluoride's caries-preventive properties initially were attributed to changes in enamel during tooth development because of the association between fluoride and cosmetic changes in enamel and a belief that fluoride incorporated into enamel during tooth development would result in a more acid-resistant mineral."

The CDC report then acknowledges new studies which indicate that the effects are "topical" rather than "systemic." "However, laboratory and epidemiologic research suggests that fluoride prevents dental caries predominately after eruption of the tooth into the mouth, and its actions primarily are topical for both adults and children."

The obvious question is this: How can the CDC consider the addition of fluoride to public water supplies to be a public health success while admitting at the same time that fluoride's benefits are not "systemic," in other words, are not obtained from drinking it?

The truth, now becoming increasingly evident, is that fluoridation and the proclaimed benefit of fluoride as a way of preventing dental decay is perhaps the greatest "scientific" fraud ever perpetrated upon an unsuspecting public.

Even worse, the relentless promotion of fluoride as a "dental benefit" is responsible for the huge neglect in proper assessment of its toxicity, an issue that has become a major concern for many nations. As there is no substance as biochemically active in the human organism as fluoride, excessive total intake of fluoride compounds might well be contributing to many diseases currently afflicting mankind, particularly those involving thyroid dysfunction. In the United States, most citizens are kept entirely ignorant of any adverse effect that might occur from exposure to fluorides. Dental fluorosis, the first visible sign that fluoride poisoning has occurred, is declared a mere "cosmetic effect" by the dental profession, although the "biochemical events which result in dental fluorosis are still unknown."<sup>2,3,4</sup> The quantity of fluoride needed to prevent caries but avoid dental fluorosis is also unknown.<sup>5</sup>

## WHAT IS FLUORIDE?

Fluoride is any combination of elements containing the fluoride ion. In its elemental form, fluorine is a pale yellow, highly toxic and corrosive gas. In nature, fluorine is found combined with minerals as fluorides. It is the most chemically active nonmetallic element of all the elements and also has the most reactive electro-negative ion. Because of this extreme reactivity, fluorine is never found in nature as an uncombined element.

Fluorine is a member of group VIIa of the periodic table. It readily displaces other halogens—such as chlorine, bromine and iodine—from their mineral salts. With hydrogen it forms hydrogen fluoride gas which, in a water solution, becomes hydrofluoric acid.

There was no US commercial production of fluorine before World War II. A requirement for fluorine in the processing of uranium ores, needed for the atomic bomb, prompted its manufacture.<sup>6</sup>

Fluorine compounds or fluorides are listed by the US Agency for Toxic Substances and Disease Registry (ATSDR) as among the top 20 of 275 substances that pose the most significant threat to human health.<sup>7</sup> In Australia, the National Pollutant Inventory (NPI) recently considered 400 substances for inclusion on the NPI reporting list. A risk ranking was given based on health and environmental hazard identification and human and environmental exposure to the substance. Some substances were grouped together at the same rank to give a total of 208 ranks. Fluoride compounds were ranked 27th out of the 208 ranks.<sup>8</sup>

Fluorides, hydrogen fluoride and fluorine have been found in at least 130, 19, and 28 sites, respectively, of 1,334 National Priorities List sites identified by the Environmental Protection Agency (EPA).<sup>9</sup> Consequently, under the provisions of the Superfund Act (CRECLA, 1986), a compilation of information about fluorides, hydrogen fluoride and fluorine and their effects on health was required. This publication appeared in 1993.<sup>9</sup>

Fluorides are cumulative toxins. The fact that fluorides accumulate in the body is the reason that US law requires the Surgeon General to set a Maximum Contaminant Level (MCL) for fluoride content in public water supplies as determined by the EPA. This requirement is specifically aimed at avoiding a condition known as Crippling Skeletal Fluorosis (CSF), a disease thought to progress through three stages. The MCL, designed to prevent only the third and crippling stage of this disease, is set at 4ppm or 4mg per liter. It is assumed that people will retain half of this amount (2mg), and therefore 4mg per liter is deemed "safe." Yet a daily dose of 2-8mg is known to cause the third crippling stage of CSF.<sup>10,11</sup>

In 1998 EPA scientists, whose job and legal duty it is to set the Maximum Contaminant Level, declared that this 4ppm level was set fraudulently by outside forces in a decision that omitted 90 percent of the data showing the mutagenic properties of fluoride.<sup>12</sup>

The *Clinical Toxicology of Commercial Products, 5th Edition* (1984) gives lead a toxicity rating of 3 to 4 (3 = moderately toxic, 4 = very toxic) and the EPA has set 0.015 ppm as the MCL for lead in drinking water—with a goal of 0.0ppm. The toxicity rating for fluoride is 4, yet the MCL for fluoride is currently set at 4.0ppm, over 250 times the permissible level for lead.

## WATER FLUORIDATION

In 1939 a dentist named H. Trendley Dean, working for the U.S. Public Health Service, examined water from 345 communities in Texas. Dean determined that high concentrations of fluoride in the water in these areas corresponded to a high incidence of mottled teeth. This explained why dentists in the area found mottled teeth in so many of their patients. Dean also claimed that there was a lower incidence of dental cavities in communities having about 1 ppm fluoride in the water supply. Among the native residents of these areas about 10 percent developed the very mildest forms of mottled enamel ("dental fluorosis"), which Dean and others described as "beautiful white teeth."

Dean's report led to the initiation of artificial fluoridation of drinking water at 1 part-per-million (ppm) in order to supply the "optimal dose" of 1mg fluoride per day—assuming that drinking four glasses of water every day would duplicate Dean's "optimal" intake for most people. Now, according to the American Dental Association,

all people, rich or poor, could have "beautiful white teeth" and be free of caries at the same time. After all, the benefits of water fluoridation had been documented "beyond any doubt."<sup>13</sup>

When other scientists investigated Dean's data, they did not reach the same conclusions. In fact, Dean had engaged in "selective use of data," using findings from 21 cities that supported his case while completely disregarding data from 272 other locations that did not show a correlation.<sup>14</sup> In court cases Dean was forced to admit under oath that his data were invalid.<sup>15</sup> In 1957 he had to admit at AMA hearings that even waters containing a mere 0.1ppm (0.1 mg/l) could cause dental fluorosis, the first visible sign of fluoride overdose.<sup>16</sup> Moreover, there is not one single double-blind study to indicate that fluoridation is effective in reducing cavities.<sup>17</sup>

#### SO WHAT'S THE TRUTH ABOUT TOOTH DECAY?

The truth is that more and more evidence shows that fluorides and dental fluorosis are actually associated with *increased* tooth decay. The most comprehensive US review was carried out by the National Institute of Dental Research on 39,000 school children aged 5-17 years.<sup>18</sup> It showed no significant differences in terms of DMF (decayed, missing and filled teeth). What it did show was that high decay cities (66.5-87.5 percent) have 9.34 percent more decay in the children who drink fluoridated water. Furthermore, a 5.4 percent increase in students with decay was observed when 1 ppm fluoride was added to the water supply. Nine fluoridated cities with high decay had 10 percent more decay than nine equivalent non-fluoridated cities.

The world's largest study on dental caries, which looked at 400,000 students, revealed that decay increased 27 percent with a 1ppm fluoride increase in drinking water.<sup>19</sup> In Japan, fluoridation caused decay increases of 7 percent in 22,000 students,<sup>20</sup> while in the US a decay increase of 43 percent occurred in 29,000 students when 1ppm fluoride was added to drinking water.<sup>21</sup>

#### DENTAL FLUOROSIS: A "COSMETIC" DEFECT?

Dental fluorosis is a condition caused by an excessive intake of fluorides, characterized mainly by mottling of the enamel (which starts as "white spots"), although the bones and virtually every organ might also be affected due to fluoride's known anti-thyroid characteristics. Dental fluorosis can only occur during the stage of enamel formation and is therefore a sign that an overdose of fluoride has occurred in a child during that period.

Dental fluorosis has been described as a subsurface enamel hypomineralization, with porosity of the tooth positively correlated with the degree of fluorosis.<sup>22</sup> It is characterized by diffuse opacities and under-mineralized enamel. Although identical enamel defects occur in cases of thyroid dysfunction, the dental profession describes the defect as merely "cosmetic" when it is caused by exposure to fluoride.

What is now becoming apparent is that this "cosmetic" defect actually predisposes to tooth decay. In 1988 Duncan<sup>23</sup> stated that hypoplastic defects have a strong potential to become carious. In 1989, Silberman,<sup>24</sup> evaluating the same data on Head Start children, wrote that "preliminary data indicate that the presence of primary canine hypoplasia [enamel defects] may result in an increased potential for the tooth becoming carious." In 1996 Li<sup>25</sup> wrote that children with enamel hypoplasia demonstrated a significantly higher caries experience than those who did not have such defects and, further, that the "presence of enamel hypoplasia may be

a predisposing factor for initiation and progression of dental caries, and a predictor of high caries susceptibility in a community." In 1996 Ellwood & O'Mullane<sup>26</sup> stated that "developmental enamel defects may be useful markers of caries susceptibility, which should be considered in the risk-benefit assessment for use of fluoride."

Currently up to 80 percent of US children suffer from some degree of dental fluorosis, while in Canada the figure is up to 71 percent. A prevalence of 80.9 percent was reported in children 12-14 years old in Augusta, Georgia, the highest prevalence yet reported in an "optimally" fluoridated community in the United States. Moderate-to-severe fluorosis was found in 14 percent of the children.<sup>27</sup>

Before the push for fluoridation began, the dental profession recognized that fluorides were not beneficial but *detrimental* to dental health. In 1944, the *Journal of the American Dental Association* reported: "With 1.6 to 4 ppm fluoride in the water, 50 percent or more past age 24 have false teeth because of fluoride damage to their own."<sup>28</sup>

### THE WONDER NUTRIENT?

On countless internet sites, fluoride is proclaimed as the "wonder nutrient," the "deficiency" symptom being increased dental caries.<sup>29</sup> It boggles the mind that a cumulative toxin and toxic waste product can be described a "nutrient." Nevertheless, such claims are repeatedly made by pro-fluoridationists.<sup>30</sup>

On March 16, 1979, the FDA deleted paragraphs 105.3(c) and 105.85(d)(4) of Federal Register documents which had classified fluorine, among other substances, as "essential" or "probably essential." Since that time, nowhere in the Federal Regulations is fluoride classified as "essential" or "probably essential." These deletions were the immediate result of 1978 Court deliberations.<sup>31</sup> No essential function for fluoride has ever been proven in humans.<sup>32,33,34,35,36</sup>

### "NATURE THOUGHT OF IT FIRST"

A popular slogan employed by the ADA and other pro-fluoridation organizations is, "Nature thought of it first!" The slogan creates the impression that the fluoridation compounds used in water fluoridation are the same as those discovered many years ago in the water in some areas of the US.<sup>37</sup> The fluoride compound in "naturally" fluoridated waters is calcium fluoride. Sodium fluoride, a common fluoridation agent, dissolves easily in water, but calcium fluoride does not.<sup>9</sup>

Animal studies performed by Kick and others in 1935 revealed that sodium fluoride was much more toxic than calcium fluoride.<sup>38</sup> Even worse, toxicity was recorded for hydrofluorosilicic acid, the compound now used in over 90 percent of fluoridation programs, Hydrofluorosilicic acid is a *direct* byproduct of pollution scrubbers used in the phosphate fertilizer and aluminum industries. Our government adds it to water supplies even though it is also involved in getting rid of its own stockpile of fluoride compounds left over from years and years of stockpiling fluorides for use in the process of refining uranium for nuclear power and weapons.<sup>39</sup>

In the Kick study, less than 2 percent of calcium fluoride was absorbed and this was excreted quantitatively in the urine. But even calcium fluoride is not benign. As the animals given calcium fluoride also developed mottled teeth, it was clear that such compounds could produce changes on the teeth merely by passing through the body, and not by being "stored in a tooth" or anywhere else. No calcium fluoride was retained.

In 1946 Samuel Chase, one of the authors of the Kick study, became president of the International Association for Dental Research (IADR). This organization promoted the idea that only the fluoride ion in the various fluoridation compounds was of importance. Yet he well knew that sodium fluoride did not behave like calcium fluoride. Unlike calcium fluoride, sodium fluoride was retained in great amounts in the body and was very toxic. Rock phosphate and hydro-fluorosilicic acid experiments yielded the same information.

New areas with "natural" fluoride are appearing all over the world, as now all areas not "artificially" fluoridated are considered "natural." The problem is that this "natural" fluoride is the result of direct water and soil contamination from petrochemical land treatment, uncontrolled fertilizer use, pesticide applications, ground water contamination from industrial waste sites, rocket fuel "burial grounds," and so forth. Suddenly we have "natural" fluorides showing up in areas previously deemed "fluoride deficient"!

#### TOTAL INTAKE

It is well established that it is TOTAL fluoride intake from ALL sources which must be considered for any adverse health effect evaluation.<sup>40,41,42</sup> This includes intake by ingestion, inhalation and absorption through the skin. In 1971, the World Health Organization (WHO) stated: "In the assessment of the safety of a water supply with respect to the fluoride concentration, the total daily fluoride intake by the individual must be considered."<sup>41</sup> Exposure to airborne fluorides from many diverse manufacturing processes—pesticide applications, phosphate fertilizer production, aluminum smelting, uranium enrichment facilities, coal-burning and nuclear power plants, incinerators, glass etching, petroleum refining and vehicle emissions—can be considerable.

In addition, many people consume fluorine-based medications such as Prozac, which greatly adds to fluoride's anti-thyroid effects. ALL fluoride compounds—organic and inorganic—have been shown to exert anti-thyroid effects, often potentiating fluoride effects many fold.<sup>43</sup>

Household exposures to fluorides can occur with the use of Teflon pans, fluorine-based products, insecticides sprays and even residual airborne fluorides from fluoridated drinking water. Decision-makers at 3M Corporation recently announced a phase-out of Scotchgard products after discovering that the product's primary ingredient—a fluorinated compound called perfluorooctanyl sulfonate (PFOS)--was found in all tested blood bank examinations.<sup>44</sup> 3M's research showed that the substance had strong tendencies to persist and bioaccumulate in animal and human tissue.

In 1991 the US Public Health Service issued a report stating that the range in total daily fluoride intake from water, dental products, beverages and food items exceeded 6.5 milligrams daily.<sup>42</sup> Thus, the total intake from those sources alone already greatly exceeds the levels known to cause the third stage of skeletal fluorosis.

Besides fluoridated water and toothpaste, many foods contain high levels of fluoride compounds due to pesticide applications. One of the worse offenders is grapes.<sup>45</sup> Grape juice was found to contain more than 6.8 ppm fluoride. The EPA estimates total fluoride intake from pesticide residues on food and fluoridated drinking water alone to be 0.095 mg/kg/day, meaning a person weighing 70 kg takes in more than 6.65 mg per day.<sup>45b</sup> Soy infant formula is high in both fluoride and aluminum, far surpassing the "optimal" dose<sup>46,47</sup> and has been shown to be a risk factor in dental fluorosis.<sup>48</sup>

## TEA

In their drive to fluoridate the public water supplies, dental health officials continue to pretend that no other sources of fluoride exist. This notion becomes absurd when one looks at the fluoride content in tea. Tea is very high in fluoride because tea leaves accumulate more fluoride (from pollution of soil and air) than any other edible plant.<sup>49,50,51</sup> It is well established that fluoride in tea gets absorbed by the body in a manner similar to the fluoride in drinking water.<sup>49,52</sup>

Fluoride content in tea has risen dramatically over the last 20 years due to industry contamination. Recent analyses have revealed a fluoride content of 17.25 mg per teabag or cup in black tea, and a whopping 22 mg of soluble fluoride ions per teabag or cup in green tea. Aluminum content was also high—over 8 mg. Normal steeping time is five minutes. The longer a tea bag steeped, the more fluoride and aluminum were released. After ten minutes, the measurable amounts of fluoride and aluminum almost doubled.<sup>53</sup>

A website by a pro-fluoridation infant medical group states that a cup of black tea contains 7.8 mgs of fluoride<sup>54</sup> which is the equivalent amount of fluoride from 7.8 litres of water in an area fluoridated at 1ppm. Some British and African studies from the 1990s showed a daily fluoride intake of between 5.8 mgs and 9 mgs a day from tea alone.<sup>55, 56, 57</sup> Tea has been found to be a primary cause of dental fluorosis in many international studies.<sup>58-70</sup>

In Britain, over three-quarters of the population over the age of ten years consumes three cups of tea per day.<sup>71</sup> Yet the UK government and the British Dental Association are currently contemplating fluoridation of public water supplies! In Ireland, average tea consumption is four cups per day and the drinking water is heavily fluoridated.

Next to water, tea is the most widely consumed beverage in the world. Tea can be found in almost 80 percent of all US households and on any given day, nearly 127 million people—half of all Americans—drink tea.<sup>71</sup>

The high content of both aluminum and fluoride in tea is cause for great concern as aluminum greatly potentiates fluoride's effects on G protein activation,<sup>72</sup> the on/off switches involved in cell communication and of absolute necessity in thyroid hormone function and regulation.

## FLUORIDE AND THE THYROID

The recent re-discovery of hundreds of papers dealing with the use of fluorides in effective anti-thyroid medication poses many questions demanding answers.<sup>73,74</sup> The enamel defects observed in hypothyroidism are identical to "dental fluorosis." Endemic fluorosis areas have been shown to be the same as those affected with iodine deficiency, considered to be the world's single most important and preventable cause of mental retardation,<sup>75</sup> affecting 740 million people a year. Iodine deficiency causes brain disorders, cretinism, miscarriages and goiter, among many other diseases. Synthroid, the drug most commonly prescribed for hypothyroidism, became the top selling drug in the US in 1999, according to Scott-Levin's Source Prescription Audit, clearly indicating that hypothyroidism is a major health problem. Many more millions are thought to have undiagnosed thyroid problems.

## ENVIRONMENT

Every year hundreds and thousands of tons of fluorides are emitted by industry. Industrial emissions of fluoride compounds produce elevated concentrations in the

atmosphere. Hydrogen fluoride can exist as a particle, dissolving in clouds, fog, rain, dew, or snow. In clouds and moist air it will travel along the air currents until it is deposited as wet acid deposition (acid rain, acid fog, etc.) In waterways it readily mixes with water.

Sulfur hexafluoride (SF<sub>6</sub>), emitted by the electric power industry, is now among six greenhouse gases specifically targeted by the international community, through the Kyoto protocol, for emission reductions to control global warming. The others are carbon dioxide, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), methane and nitrous oxide (N<sub>2</sub>O).

SF<sub>6</sub> is about 23,900 times more destructive, pound for pound, than carbon dioxide over the course of 100 years. EPA estimates that some seven-million metric tons of carbon equivalent (MMTCE) escaped from electric power systems in 1996 alone. The concentration of SF<sub>6</sub> in the atmosphere has reportedly increased by two orders of magnitude since 1970. Atmospheric models have indicated that the lifetime of an SF<sub>6</sub> molecule in the atmosphere may be over 3000 years.<sup>76</sup>

The ever-increasing fluoride levels in food, water and air pose a great threat to human health and to the environment as evidenced by the endemic of fluorosis worldwide. It is of utmost urgency that public health officials cease promoting fluoride as beneficial to our health and address instead the issue of its toxicity.

### **About the Author**

Andreas Schuld is head of Parents of Fluoride Poisoned Children (PFPC), an organization of parents whose children have been poisoned by excessive fluoride intake. The group includes educators, artists, scientists, journalists and authors, lawyers, researchers and nutritionists. It is active in worldwide efforts to have the toxicity of fluoride properly assessed. For further information, visit their website at [www.bruha.com/fluoride](http://www.bruha.com/fluoride).

### **REFERENCES**

(All web addresses were visited before Fall, 2000)

1. CDC: "Achievements in Public Health, 1900-1999 - Fluoridation of Drinking Water to Prevent Dental Caries" MMWR 48(41);933-940 (1999), <http://www.cdc.gov/epo/mmwr/preview/mmwrhtml/mm4841a1.htm>
2. Gerlach RF, de Souza AP, Cury JA, Line SR - "Fluoride effect on the activity of enamel matrix proteinases in vitro" Eur J Oral Sci 108(1):48-53 (2000)
3. Limeback H - "Enamel formation and the effects of fluoride" Community Dent Oral Epidemiol 22(3):144-7
4. Wright JT, Chen SC, Hall KI, Yamauchi M, Bawden JW - "Protein characterization of fluorosed human enamel." Dent Res 75(12):1936-41 (1996)
5. Shulman JD, Lalumandier JA, Grabenstein JD - "The average daily dose of fluoride: a model based on fluid consumption" Pediatr Dent 17(1):13-8 (1995)
6. The Columbia Encyclopedia: Sixth Edition (2000), <http://www.bartleby.com/65/fl/fluorine.html>

7. Phosphoric Acid Waste Dialogue, Report on Phosphoric Wastes Dialogue Committee, Activities and Recommendations, September 1995; Southeast Negotiation Network, Prepared by Gregory Borne for EPA stakeholders review
8. Government of Australia, National Pollutant Inventory, [http://www.environment.gov.au/epg/npi/contextual\\_info/context/fluoride.html](http://www.environment.gov.au/epg/npi/contextual_info/context/fluoride.html)
9. ATSDR/USPHS - "Toxicological Profile for Fluorides, Hydrogen Fluoride and Fluorine (F)" CAS# 16984-48-8, 7664-39-3, 7782-41-4 (1993), <http://www.atsdr.cdc.gov/tfacts11.html>
10. Health Effects of Ingested Fluoride, Subcommittee on Health Effects of Ingested Fluoride, Committee on Toxicology, Board on Environmental Studies and Toxicology, Commission on Life Sciences, National Research Council, August 1993, p.59
11. World Health Organization - Fluorides and Human Health, p. 239 (1970)
12. Carton RJ, Hirzy JW - "Applying the NAEP code of ethics to the Environmental Protection Agency and the fluoride in drinking water standard" Proceedings of the 23rd Ann. Conf. of the National Association of Environmental Professionals. 20-24 June, 1998. GEN 51-61, <http://rvi.net/fluoride/naep.htm>
13. American Dental Association, <http://www.ada.org/consumer/fluoride/facts/benefits.html#2>
14. J.Colquhoun, Chief Dental Officer, NZ, International Symposium on Fluoridation, Porte Alegre, Brazil, September 1988
15. Proceedings, City of Orville Vs. Public Utilities Commission of the State of California, Orville, CA, October 20-21 (1955)
16. AMA Council Hearing, Chicago, August 7, 1957
17. NTEU - "Why EPA's Headquarters Union of Scientists Opposes Fluoridation," Prepared on behalf of the National Treasury Employees Union Chapter 280 by Chapter Senior Vice-President J. William Hirzy, Ph.D. , [http://www.bruha.com/fluoride/html/nteu\\_paper.htm](http://www.bruha.com/fluoride/html/nteu_paper.htm), <http://www.cadvision.com/fluoride/epa2.htm>
18. Yiamouyannis, J - "Water fluoridation and tooth decay: Results from the 1986-1987 national survey of U.S. school children" Fluoride 23:55-67 (1990). Data also analyzed by Gerard Judd, Ph.D., in: Judd G - "Good Teeth Birth To Death", Research Publications, Glendale Arizona (1997), EPA Research #2 (1994)
19. Teotia SPS, Teotia M - "Dental Caries: A Disorder of High Fluoride And Low Dietary Calcium Interactions (30 years of Personal Research), Fluoride, 1994 27:59-66 (1994)
20. Imai Y - "Study of the relationship between fluorine ions in drinking water and dental caries in Japan". Koku Eisei Gakkai Zasshi 22(2):144-96 (1972)
21. Steelink, Cornelius, PhD, U of AZ Chem Department, in: Chem and Eng News, Jan 27, 1992, p.2; Sci News March 5, 1994, p.159

22. Giambro NJ, Prostack K, Denbesten PK - "Characterization Of Fluorosed Human Enamel By Color Reflectance, Ultrastructure, And Elemental Composition" *Fluoride* 28:4, 216 (1995) also *Caries Research* 29 (4) 251-257 (1995)
23. Duncan WK, Silberman SL, Trubman A - "Labial hypoplasia of primary canines in black Head Start children" *ASDC J Dent Child* 55(6):423-6 (1988)
24. Silberman SL, Duncan WK, Trubman A, Meydrech EF - "Primary canine hypoplasia in Head Start children" *J Public Health Dent* 49(1):15-8 (1989)
25. Li Y, Navia JM, Bian JY - "Caries experience in deciduous dentition of rural Chinese children 3-5 years old in relation to the presence or absence of enamel hypoplasia" *Caries Res* 30(1):8-15 (1996)
26. Ellwood RP, O'Mullane D - "The association between developmental enamel defects and caries in populations with and without fluoride in their drinking water" *J Public Health Dent* 56(2):76-80(1996)
27. Health Effects of Ingested Fluoride, Subcommittee on Health Effects of Ingested Fluoride, Committee on Toxicology, Board on Environmental Studies and Toxicology, Commission on LifeSciences, National Research Council, August 1993 p 47-48
28. "The Effect of Fluorine On Dental Caries" *Journal American Dental Association* 31:1360 (1944)
29. Examples: <http://ificinfo.health.org/insight/septoct97/flouride.htm>;  
<http://www.wvda.org/nutrient/fluoride.html>
30. Barrett S, Rovin S (Eds) - "The Tooth Robbers: a Pro-Fluoridation Handbook" George F Stickley Co, Philadelphia pp 44-65 (1980)
31. Federal Register, 3/16/79, page 16006
32. Federal Register: December 28, 1995 (Volume 60, Number 249) Rules and Regulations , Page 67163-67175 DEPARTMENT OF HEALTH AND HUMAN SERVICES Food and Drug Administration, 21 CFR Part 101 Docket No. 90N-0134, RIN 0910-AA19
33. The Report of the Department of Health and Social Subjects, No. 41, Dietary Reference Values, Chapter 36 on fluoride (HMSO 1996). "No essential function for fluoride has been proven in humans."
34. "Is Fluoride an Essential Element?" *Fluorides*, Washington, DC: National Academy of Sciences, 66-68 (1971)
35. Richard Maurer and Harry Day, "The Non-Essentiality of Fluorine in Nutrition," *Journal of Nutrition*, 62: 61-57(1957)
36. "Applied Chemistry", Second Edition, by Prof. William R. Stine, Chapter 19 (see pp. 413 & 416) Allyn and Bacon, Inc, publishers. "Fluoride has not been shown to be required for normal growth or reproduction in animals or humans consuming an otherwise adequate diet, nor for any specific biological function or mechanism."
37. National Center for Fluoridation Policy & Research (NCFPR)  
<http://fluoride.oralhealth.org/>

38. Kick CH, Bethke RM, Edgington BH, Wilder OHM, Record PR, Wilder W, Hill TJ, Chase SW - "Fluorine in Animal Nutrition" Bulletin 558, US Agricultural Experiment Station, Wooster, Ohio (1935)

39. US MINERALS/COMMODITIES DATABASE

<http://minerals.usgs.gov/minerals/pubs/commodity/fluorspar/280396.txt>

40. "The problem of providing optimum fluoride intake for prevention of dental caries" - Food and Nutrition Board, Division of Biology and Agriculture, National Academy of Sciences, National Research Council, Pub.#294, (1953) "... a person drinking fluoridated water may be assumed to ingest only about 1 milligram per day from this source ... the development of mottled enamel is, however, a potential hazard of adding fluorides to food. The total daily intake of fluoride is the critical quantity."

41. World Health Organization, International Drinking Water Standards, 1971. "In the assessment of the safety of a water supply with respect to the fluoride concentration, the total daily fluoride intake by the individual must be considered. Apart from variations in climatic conditions, it is well known that in certain areas, fluoride containing foods form an important part of the diet. The facts should be borne in mind in deciding the concentration of fluoride to be permitted in drinking water."

42. Review of Fluoride Benefits and Risks, Department of Health and Human Services, p.45 (1991)

43. 200 papers to be posted at: <http://www.bruha.com/fluoride>

44. Washington Post - "3M to pare Scotchgard products," May 16, 2000  
<http://www.washingtonpost.com/wp-dyn/articles/A15648-2000May16.html>

45. (a) FLUORIDE IN FOOD <http://www.bruha.com/fluoride/html/f- in food.htm>; (b) Federal Register: August 7, 1997 (Volume 62, Number 152), Notices, Page 42546-42551

46. Silva M, Reynolds EC - "Fluoride content of infant formulae in Australia" Aust Dent J 41(1):37-42 (1996)

47. Dabeka RW, McKenzie AD - "Lead, cadmium, and fluoride levels in market milk and infant formulas in Canada." J Assoc Off Anal Chem 70(4):754-7 (1987)

48. Pendry DG, Katz RV, Morse DE - "Risk factors for enamel fluorosis in a fluoridated population" Am J Epidemiol 140(5):461-71(1994)

49. Meiers, P. - "Zur Toxizität von Fluorverbindungen, mit besonderer Berücksichtigung der Onkogenese", Verlag für Medizin Dr. Ewald Fischer, Heidelberg (1984)

50. Waldbott, GL; Burgstahler, AW; McKinney, HL - "Fluoridation: The Great Dilemma" Coronado Press (1978)

51. Srebniak-Friszman, S; Van der Miynsbrugge, F. - "Teneur en Fluor de quelques thés prœlevœs sur le Marchœ et de leurs Infusions" Arch Belg Med Soc Hyg Med Trav Med Leg 33:551-556 (1976)

52. Rüh K - "Resorbierbarkeit und Retention von in Mineralwässern und Erfrischungsgetränken enthaltenem Fluorid bei Mensch und Laboratoriumsratte" Diss. Würzburg (1968)

53. Analyses conducted by Parents of Fluoride Poisoned Children (PFPC) at Gov't - approved labs. Contact: pfpc@istar.ca

54. BabyCenter Editorial Team w/ Medical Advisory Board  
(<http://www.babycenter.com/refcap/674.html#3>)

55. Jenkins GN - "Fluoride intake and its safety among heavy tea drinkers in a British fluoridated city" Proc Finn Dent Soc 87(4):571-9 (1991) Department of Oral Biology, Dental School, Newcastle upon Tyne, United Kingdom.

56. Opinya GN, Bwibo N, Valderhaug J, Birkeland JM, Lokken P - "Intake of fluoride and excretion in mothers' milk in a high fluoride (9ppm) area in Kenya" Eur J Clin Nutr 45(1):37-41 (1991) Department of Dental Surgery, University of Nairobi, Kenya

57. Diouf A, Sy FO, Niane B, Ba D, Ciss M - "Dietary intake of fluorine through of tea prepared by the traditional method in Senegal" Dakar Med 39(2):227-30 (1994)

58. Cao J, Zhao Y, Liu J - "Brick tea consumption as the cause of dental fluorosis among children from Mongol, Kazak and Yugu populations in China" Food Chem Toxicol 35(8):827-33 (1997)

59. Cao J, Bai X, Zhao Y, Liu J, Zhou D, Fang S, Jia M, Wu J - "The relationship of fluorosis and brick tea drinking in Chinese Tibetans" Environ Health Perspect 1996 Dec;104(12):1340-3 (1996)

60. Sergio Gomez S, Weber A, Torres C - "Fluoride content of tea and amount ingested by children" Odontol Chil 37(2):251-5 (1989)

61. Cao J, Zhao Y, Liu JW - "Safety evaluation and fluorine concentration of Pu'er brick tea and Bianxiao brick tea" Food Chem Toxicol 36(12):1061-3(1998)

62. Wang LF, Huang JZ- "Outline of control practice of endemic fluorosis in China." Soc Sci Med 41(8):1191-5 (1995)

63. Olsson B - "Dental caries and fluorosis in Arussi province, Ethiopia" Community Dent Oral Epidemiol 6(6):338-43 (1978)

64. Diouf A, Sy FO, Niane B, Ba D, Ciss M - "Dietary intake of fluorine through use of tea prepared by the traditional method in Senegal" DakarMed 39(2):227-30 (1994)

65. Fraysse C, Bilbeissi MW, Mitre D, Kerebel B - "The role of tea consumption in dental fluorosis in Jordan" Bull Group Int Rech Sci Stomatol Odontol 32(1):39-46 (1989)

66. Fraysse C, Bilbeissi W, Benamghar L, Kerebel B- "Comparison of the dental health status of 8 to 14-year-old children in France and in Jordan, a country of endemic fluorosis." Bull Group Int Rech Sci Stomatol Odontol 32(3):169-75 (1989)

67. Villa AE, Guerrero S - "Caries experience and fluorosis prevalence in Chilean children from different socio-economic status." Community Dent Oral Epidemiol 24(3):225-7 (1996)

68. Chan J.T.; Yip, T.T.; Jeske, A.H. - "The role of caffeinated beverages in dental fluorosis" Med Hypotheses 33(1):21-2 (1990)
69. Mann J, Sgan-Cohen HD, Dakuar A, Gedalia I - "Tea drinking, caries prevalence, and fluorosis among northern Israeli Arab youth." Clin Prev Dent 7(6):23-6 (1985)
70. Schmidt, C.W.; Leuschke, W. - "Fluoride content of deciduous teeth after regular intake of black tea" Dtsch Stomatol 40(10):441 (1990)
71. Press Releases/Market Figures - Tea Council  
<http://www.stashtea.com/tt060595.htm>
72. Struneck $\beta$ , A; Patocka, J - "Alumino-fluoride complexes: new phosphate analogues for laboratory investigations and potential danger for living organisms" Charles University, Faculty of Sciences, Department of Physiology and Developmental Physiology, Prague/Department of Toxicology, Purkyn $\acute{y}$  Military Medical Academy, Hradec Kr $\acute{b}$ lov $\acute{e}$ , Czech Republic  
<http://www.cadvision.com/fluoride/brain3.htm>
73. History: Fluoride - Iodine Antagonism  
[http://bruha.com/pfpc/html/thyroid\\_history.html](http://bruha.com/pfpc/html/thyroid_history.html)
74. Fluorides - Anti-thyroid Medication  
[http://bruha.com/pfpc/html/thyroid\\_page.html](http://bruha.com/pfpc/html/thyroid_page.html)
75. WORLD HEALTH ORGANIZATION PRESS RELEASE, May 25,1999 Iodine Deficiency
76. Miller AE, Miller TM, Viggiano AA, Morris RA, Vazn Doren JM - "Negative Ion Chemistry of SF sub 4" Journal of Chemical Physics 102(22):8865-8873 (1995)
- 

### Symptoms of Fluoride Poisoning

- Black tarry stools
- Bloody vomit
- Faintness
- Nausea and vomiting
- Shallow breathing
- Stomach cramps or pain
- Tremors
- Unusual excitement
- Unusual increase in saliva
- Watery eyes
- Weakness
- Constipation
- Loss of appetite
- Pain and aching of bones
- Skin rash
- Sores in the mouth and on the lips
- Stiffness
- Weight loss
- White, brown or black discoloration of teeth

---

## Long term effects of fluoride

- Accelerated aging
- Immune system dysfunction
- Compromised collagen synthesis
- Cartilage problems
- Bony outgrowths in the spine
- Joint "lock-up"

---

## G PROTEINS

Signals or communications from one cell to another, and from the outside of the cell to the inside, are made possible by the action of special proteins called "G" proteins, which are found in all animal life, including yeasts. G proteins are so called because they bind to guanine nucleotides, a major component of DNA and RNA. G proteins mediate the actions of neurotransmitters, peptide hormones, odorants and light. In other words, G proteins make it possible for our nervous systems to function properly and, in particular, allow for night vision and the sense of smell. All thyroid function is mediated by G-protein activity. Both aluminum and fluoride interfere with the activation of G proteins. Thyrotropin, the thyroid-stimulating hormone (TSH), is considered the natural G-protein activator. Its action is mimicked by fluoride and vastly potentiated by the presence of aluminum. Pharmacologists estimate that up to 60 percent of all medicines used today exert their effects through G-protein signaling pathways. Vitamin A from cod liver oil has been used successfully to bypass blocked G-protein pathways due to vaccination damage. (See [Autism and Vaccinations.](#)) Myristic acid, a saturated fatty acid having 14 carbons, plays an important roll in G-protein function as these signaling proteins require myristic acid added to one end of the protein. (See [Kidney Fats.](#)) Thus, diets deficient in vitamin A and saturated fats can be expected to contribute to nervous disorders and vision problems.