Fluoride: damning new evidence

Researcher Doris Jones has unearthed startling new evidence demonstrating that fluoride interferes with enzyme systems, damaging many organ systems of the body.

The fluoride issue, a perennial hot potato, is heating up once again. In Britain, the government has recently announced its intention to fluoridate the eater of deprived inner city areas, supposedly to improve the dental health of children living there. Later, water fluoridation may be introduced nationwide. A White Paper outlining the government's plans is scheduled for this spring.

The government and the dental profession have convinced the public that fluoridated water offers nothing but benefits—that there is overwhelming evidence that it prevents tooth decay and contributes to the strength of bones. There is tacit admission in the pro-fluoride camp that fluoride can also cause harm, but only at high levels: more than 2 ppm in water may cause mottled teeth and over 8 ppm may lead to bone disorders and degenerative changes in the vital organs.

A few lone voices have countered the prevailing view, with published evidence that fluoride can have devastating effects, causing mottled teeth and osteoporosis at very low levels. While much has been written about the effects of too much fluoride on teeth and bones, little is known about the effects of fluoride on the rest of the body.

But new evidence has emerged demonstrating that it can have devastating effects in just about every organ in the body, and may even be partly responsible for behavioural problems like hyperactivity and many puzzling illnesses like ME.

Like mercury, fluoride isn't exactly an obvious choice for dental health as it is a poison-more poisonous than lead and only slightly less poisonous than arsenic (Clin Toxicol Commerc Prod, 1984; 11: 4, 112, 129, 138). It's been used as a pesticide, and it's a component in fungicides, rodenticides, anaesthetics and many drugs. The fluoride used in toothpaste, mouth rinses and dental gels is usually sodium fluoride, a waste product from the aluminium industry.

Fluoride added to our water supply is hydrofluorosilic acid or sometimes silicofluoride - waste products of fertiliser and glass industries.

The late US fluoride critic George L Waldbott discovered that, besides teeth and bones, fluoride can damage soft tissue.

According to his research, the small fluorine ion with a high-charge density can penetrate every cell of the body and combine with other ions (GL Waldbott et al, Fluoride: The Great Dilemma, Lawrence, Kansas: Coronado Press, 1978: 148-74). It interferes with the metabolism of calcium and phosphorus and the function of the parathyroid glands.

It has a strong affinity to calcium, but will also readily combine with magnesium and manganese ions and so can interfere with many enzyme systems that require these minerals. The interruption of these enzyme systems, in horn, may disturb carbohydrate metabolism, bone formation and muscle function. Indeed, every vital function in the body depends on enzymes; because fluoride easily reaches every organ, many diverse toxic symptoms can result.

Fluoride and enzymes
Enzyme systems react to fluoride in different ways; some are activated, others are inhibited. Lipase (essential for the digestion of fat) and phosphatases (needed to breakdown phosphates) are very sensitive to fluoride. In patients with skeletal fluorosis, succinate dehydrogenase activity is inhibited. In chronic fluoride poisoning, this diminished enzyme activity accounts for muscular weakness and even muscle wasting.

Human salivary acid phosphatase is diminished by half when exposed to 3.8 ppm of fluoride.

The blood enzyme cholinesterase is inhibited by 61 per cent on exposure to 0.95 ppm fluoride - an amount within recommended levels - adversely affecting functions of the nervous system (FA Smith, ed, Handbook of Experimental Pharmacology, Berlin: Springer Verlag, 1970: 48-97).

Alkaline phosphatase, an enzyme involved in bone growth and liver function, may also be affected by low-level fluoride intake.

According to scientists from the University of California at San Diego, fluoride switches off the enzyme cytochrome C oxidase, an oxygen-carrying respiratory enzyme; deficiencies of this vital enzyme have been linked to cancer, severe diseases and even cot death (J Biol Chem, 1984; 259: 12984-88).

It's also been shown by research at Kings College in London that fluoride forms very strong hydrogen bonds with amides, which are formed when amino acids join together to form a protein (J Am Chem Soc, 1981; 103: 24-8). This can cause chromosomal damage.

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If the protein is distorted, the body's immune system no longer recognises it, treats it as a foreign protein and will try to destroy it, which in turn triggers allergic skin or gastrointestinal reactions (J Yiamouyannis, Fluoride: The Aging Factor; Delaware, Ohio: Health Action Press, 1993: 94-9).

Stomach and bowel disorders are the main features of fluoride intolerance. Even small amounts of fluoride can form hydrofluoric acid in the stomach to produce gastric pains, nausea and vomiting. Young children are particularly at risk. Fluoride tablets can even cause gastric haemorrhages; in one instance, a 9-year-old boy sustained such damage that large parts of his stomach had to be removed (Fluoride, 1977; 10: 149-51).

**Links with thyroid disease**

The most readily identifiable feature of soft-tissue fluorosis is extraordinary general fatigue, which is frequently linked to thyroid deficiency. The thyroid gland requires iodine to produce the hormone thyroxine, which controls the rate of metabolism in the body. But when fluorine is present, iodine is displaced, which will cause a thyroid gland to stop working properly (K Roholm, Handbuch Experimenteller, Pharmakologie, Ergaenzungswerk, Vol 7, Berlin: Springer, 1938: 20).

The parathyroid gland, which regulates the distribution of calcium and phosphorus in the body, is extremely sensitive to excessive amounts of fluoride. Over 50 years ago, Indian doctors found a close relationship between, skeletal fluorosis and hyperparathyroidism (J Hyg; 1942; 42: 500-4).

Fluoride has even been shown to affect the pituitary gland, which controls growth rate by regulating the production of thyroid hormones (Seances Soc Biol Fil, 1930; 103: 981-2).
In animals, less than normal amounts of thyroid hormones are produced when animals are given water containing a fluoride content equivalent to that of water fluoridation (Bull Schweiz Akad Med Wiss, 1954; 10: 211-20).

Professor A K Susheela of the Fluoride and Fluorosis Research Foundation of India, a consultant to the Indian government, has published over 100 scientific papers on the hazards of fluoride. Using scanning electron-microscope photography, she has proved that when exposed to fluoride, red blood cells are killed prematurely, lowering haemoglobin and causing anaemia. She also showed that calcium levels diminish as fluoride levels in the body rise; the gastrointestinal tract mucosa is damaged, causing irritable bowel syndrome; and blood fluoride levels rise continuously with prolonged use of fluoridated toothpaste.

When people are bombarded with fluoride, in the form of fluoridated water, toothpaste and mouth rinses, muscles and elements of connective tissue, particularly collagen fibre and bone tissue, undergo degenerative changes, says Prof Susheela.

At the 1998 US Conference of the International Society for Fluoride Research in Bellingham, Washington, Dr Jennifer Luke from the University of Surrey, UK, presented evidence of the effects of fluoride on the pineal gland in gerbils. In both gerbils and humans this gland helps control the aging process and the production of melatonin, which regulates the sleep / wake cycle. Gerbils exposed to a high level of fluoride experienced a significant decrease in the production of melatonin and earlier genital maturation.

While animal studies may not always be applicable to humans, Dr Luke theorised that mass fluoridation may be behind the general decline in the age of puberty in the West (Fluoride, 1998; 31: 175).

In areas where water is fluoridated, evidence shows that dangerously high fluoride concentrations accumulate in many soft tissues and organs of the population, including the heart, kidney and bladder. The highest level ever recorded - 8400 ppm - was found in the aortas of people living in Grand Rapid, Michigan, where fluoride was first introduced in America.

The heart and blood vessels are affected by fluoride. Cardiac irregularities and low blood pressure have been noted in experimental poisoning using large doses (Publ Health Report, 1956; 71: 45967).

In 1950, five years after experimental introduction of fluoride into drinking water in Grand Rapids, the number of deaths from heart disease nearly doubled. Death rates due to cancer; diabetes and arteriosclerosis were all markedly increased compared to death rates for the rest of the state (The Grand Rapid Herald, July 28, 1955).

By recording the heart's activity, Japanese researcher Taka Mori showed a direct link between damage to the heart and dental fluorosis in children who drank water with a fluoride content of 0.5 to 6.2 ppm (R Ziegelbecker et al, Emu Verlags Gmbh, Austria: Lahnstein, 1995: 43).

Fluoride affects the brain and entire central nervous system. Neurological problems like headache, vertigo, spasticity in extremities, visual disturbances and unpaired mental acuity can all result. Tissue damage to anterior horn cells (cells in the forward-facing section of the spinal cord) has been found (Fluoride, 1975; 8: 61-85).
Official annual statistics revealed that among malnourished children in the Chilean town of Curico, fluoridated since 1953, death rates were 104 per cent higher than in comparable, non-fluoridated towns. The general mortality was higher in Curico by 113 per cent, compared with the average for the rest of the country (Emu Verlags: 47-8).

**Fluoride and ME**

Although few researchers have looked at the role of fluoride in the development of myalgic encephalomyelitis (ME), there are conspicuous similarities between key features of ME / chronic fatigue syndrome (CFS) and those seen in the very early stages of fluoride poisoning (Fluoride, 1998; 31: 13-20; see box, p 1).

Dr John McLaren Howard of Biolab in London offers a few important clues as to why this may be. He discovered that ME patients experience reduced movement of white blood cells when exposed to quite low levels of fluoride (InterAction 14, Autumn, 1994: 53-4). This effect on white blood cells might render patients less able to fight infections efficiently, or lead to an exacerbation of their health problems.

Fluoride also interferes with phagocytosis, as well as causing the release of superoxide free radicals in resting white blood cells. This means that fluoride slows down and weakens the very cells which serve as tile body's defence system. Bacteria, viruses, chemicals and tile body's own damaged or cancerous cells are then allowed to wreak havoc. Minor infections take longer to clear and can cause more serious illness (J Yiamouianis, The Aging Factor, Health Action Press, 1993: 32). This is precisely what appears to be happening in many cases of ME.

We do not know how many children or teenagers had topical dental treatment with high concentration fluoride, before succumbing to infections which led to ME / CFS. Tests done by the Japanese researchers at the Nippon Dental College, Tokyo on potential hazards of high doses of fluoride showed that levels as low as 57 ppm could induce genetic damage and irregular synthesis of DNA in mammalian cells. These tests were undertaken to assess the hazards of rub-on fluoride products used to prevent tooth decay, at concentrations of 9000 ppm (paper presented at a meeting of The Japanese Society for Cancer Research, August 23, 1982, cited in The Ecologist, 1986; 16: 249-52).

Varnishes containing 20,000 ppm fluoride, supposedly to strengthen teeth, may in future be applied.

My son had fluoride treatment to prevent tooth decay in the autumn of 1979, after which his health dramatically deteriorated, commencing with gastric problems, various minor infections and glandular fever, followed by atypical measles, more infections and eventually resulting in ME in 1980. In the end, the fluoride treatment didn't work in preventing tooth decay - he's needed 15 fillings over nine years.

The American pathologist Majid Ali of Columbia University, New York, explains that chronic fatigue results from an "accelerated oxidative molecular injury". Only a well-functioning enzyme system can protect us from such injury and maintain normal energy levels. In ME there is a high frequency of membrane deformities, due to increased oxidative stress on the cell membranes, which is why sufferers lack energy similar to what happens in fluoride poisoning (The Canary and Chronic Fatigue, New Jersey: Life Span Press, 1994).
Experienced researchers who have studied ME for decades maintain that, as with polio, it is brought on by damage to anterior horn cells caused by a gut virus, which explains why polio victims are paralysed or suffer from impaired motor function (B M Hyde et al, The Clinical and Scientific Basis of ME / CFS, Ottawa: Nightingale Research Foundation, 1992: 111-6). But fluoride has also been shown to damage anterior horn cells. Gastrointestinal disturbances, often referred to as IBS, are also known to play a significant part in ME, as they are in the chronic fluoride toxicity syndrome.

Severe sleep disturbances, or reversal of sleep rhythm, are a common feature in ME/ CFS (Clip: 285-91). Deposits of large quantities of fluoride in the pineal gland of animals have caused similar problems (J Luke, Bellingham Conference, 1998).

At this point, no one knows just how much these syndromes overlap, or to what extent fluoride facilitates the development of ME by various biological agents. The indications are that fluoride may act as a "facilitating cofactor" and exacerbate existing problems in such patients. Or it could be, as Dr H C Moolenburgh, Dutch author and fluoride critic suggests, that ME is one of the end stages of a general chemical poisoning, with fluoride one of the worse offenders.

Doris Jones

**EARLY SIGNS OF FLUORIDE POISONING**

Researchers examining 112 cases of fluorosis in Ontario, Ohio, Italy and British Columbia found the following collective symptoms (Fluoride, 1998; 31: 13-20), which tend to appear before the bones are affected: This can cause chromosomal damage.

**Musculo-skeletal**

Arthritis, especially in the cervical and lumbar spine, muscle pain, pins and needles, inability to control extremities.

**Gastro-intestinal**

Gastric pain, nausea, vomiting, bloating, diarrhoea, constipation, acute abdominal episodes, inflammation of the mouth.

**Neurological**

Migraine-like headaches, blurred vision with moving spots, convulsions, muscular fibrillation.

**Respiratory**

Nasal and conjunctival problems, emphysema, asthma, nose bleeds.

**Skin**

Dermatitis, inflammation around capillary blood vessels.

**Other symptoms**
Cough, excess mucus, breathing difficulties, mouth ulcers, bleeding gums, palpitations, vertigo, difficulty sleeping, excessive thirst, excessive urination, frequent episodes of lower urinary tract disease, oedema in hands and ankles, joint pains, stiffness, rheumatic pains, rash, marked mental deterioration-mainly memory loss and ability to concentrate-tinnitus, fatigue and extreme exhaustion. Many people became bedridden.

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Does fluoride prevent cavities? In a word - no.

Studies from America, Canada and New Zealand show no difference in the rates of tooth decay between fluoridated and non-fluoridated areas (Fluoride, 1990; 23:55-67). Indeed, some studies indicate that the average rates of tooth decay in children are lower in non- or low-fluoridated areas (J Can Dent Assoc, 1987; 53: 753-5; Am J Phys Anthropol., 1989; 78: 79-92).

In fluoridated areas, high percentages of the population suffer from dental fluorosis, where teeth are mottled from high deposits of fluoride. In Birmingham, where water has been fluoridated at 1 ppm since 1964, more than a third of children suffer from dental fluorosis (Health & Homoeopathy, Spring, 1998:24-5).

Effects on the teeth first manifest themselves as pitting and cavities on the surface of the tooth enamel due to demineralisation, at levels of fluoride as low as 0.5 mg/l or 0.5 ppm.

In India, the water supply in many areas contains high levels of natural fluoride. An estimated 62 million people, including 6 million children, are afflicted with endemic fluorosis. Concerted efforts are now being made to provide defluoridated water and to educate people on nutritional supplementation, to prevent fluorosis.

The German Association of Gas and Water Employees - the very people who were asked to put fluoride into water supplies - prepared a detailed report considering all available evidence. After analysing all data, supported by 485 references, the report rejected water fluoridation on eight counts.

It concluded, in essence, that water fluoridation is foreign to nature, unnecessary, unsatisfactory, illegal (according to two basic German laws), irresponsible, harmful to the environment, uncontrollable and inefficient (Dokumentation zur Frage der Trinkwasser-Fluoridierung, DVGW-Schriftenreihe, Wasser Nr 8, 1975).

**FLUORIDE, HYPERACTIVITY AND VIOLENCE**

Several studies have shown that exposure to fluoride can cause behavioural changes (Int Clin Psychopharmacol, 1994; 9: 79-82; Neurotoxicol and Teratol, 1995; 17: 169-77; Fluoride, 1916; 29: 187-8). At a 1998 conference on fluoride in Washington, Professor Roger Masters reported a link between the blood lead levels of 280,000 children in Massachusetts and the use of silicofluorides for water fluoridation: fluoride increases the toxic effects and absorption of lead. Both in Massachusetts and in Georgia, behaviours associated with lead toxicity, such as violent crime, are more frequent in communities using silicofluorides than in areas not using them. At the same conference, Dr Phyllis Mullinix, a neurotoxicologist at Boston Children's Hospital, Massachusetts, reported results of a study using two steroids to treat childhood leukaemia, one of which had a
fluorine alum in its structure. The steroid caused behaviour patterns typical of hyperactivity. A follow-up study showed a significant drug in average IQ scores, compared with children using the non-fluoride drug (Fluoride, 1998; 31: 175).

**Minimising your fluoride exposure**

Although you can't eliminate your exposure to fluoride entirely, you can minimise your risk of overdosing.

To help avoid fluoride toxicity:

- eat foods low in fluoride, like milk, eggs, red meats (not organs), produce with a protective rind (watermelon, lemon, banana, coconut), fruits packed in their own juices (pineapple) and those canned in non-fluoridated or low-fluoridated countries
- take adequate amounts of vitamins B6 and C
- supplement with calcium and magnesium salts to help decrease fluoride absorption from the stomach and assist in elimination
- maintain good general and dental health with varied vegetables (lightly cooked or raw), fresh fruits, pulses and little sugar
- for dental health, maintain adequate levels of calcium and phosphorus, as well as magnesium, strontium, molybdenum, vanadium and zinc (Fluoride: The Great Dilemma)
- if possible, avoid moving to areas that presently fluoridate water supplies, which in the UK include much of:
  - Birmingham,
  - Newcastle,
  - all of Warwickshire,
  - parts of Carlisle,
  - Coventry,
  - Doncaster,
  - Derbyshire,
  - Lincolnshire,
  - Wolverhampton
  - and isolated areas elsewhere
- avoid the following drugs, which contain fluoride:
  - Prozac (fluoxetine),
  - Rohypnol (flunitrazepam),
  - Diflucan (fluconazole)
  - Flixonase or Flixotide (fluticasone),
  - Stelazine (trifluoperazine),
  - Fluanxol or Depixol (flupenthixol) or
  - Floxapen (flucloxacillin)
contact your local water authority for analysis figures of your water's fluoride content, or the National Pure Water Association for more information: 12 Dennington Lane, Crigglestone, Wakefield, WF4 3ET (Tel: 01924 254433).

use fluoride-free toothpaste, like Tom's, Tea Tree, Sarakan, Kingfisher, Natural Propolis, Weleda, Aloedent and others, available from health food shops

install a water purification system that removes fluoride, by contacting:
Ecowater, Mill Road, Stokenchurch, High Wycombe, Bucks, HP14 3TP;
Fresh Water Filters Co Ltd, Carlton House, Aylmere Road, Leytonstone, London, E11 3AD; or Crouch Water Softener Services, 631 London Road, Westcliffe-on-Sea, Essex, SS0 9PE.

To test for fluoride poisoning:
contact Biolab Medical Unit, 9 Weymouth Street, London, WIN 3FF, for a test on fluoride sensitivity and white-cell depression; or
the British Fluoridation Exposure Group from PO Box 5484, Leicester, LE3 3WH, and Dr Peter Mansfield, Templegarth Trust, PO Box 6, Louth, Lincs, LN11 8XL, for a test measuring 24-hour urine output of fluoride.

before taking the test, avoid:
all fluoridated water (use distilled, other non-fluoridated or low-fluoride water),
fluoridated drinks (tea),
fluoride-rich food (ocean fish, gelatine, chicken skin),
fluoridated toothpaste and any other source of environmental fluoride, like cigarette smoke and industrial pollution

If symptoms are caused by fluoride, they should diminish markedly within days or weeks, and will arise again once re-exposed to source of fluoride (Professor AK Susheela, October, 1998)

If symptoms persist, consult a physician for possible alternative problems.

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