Green Tea, Fluoride & the Thyroid

August 1999

OPEN LETTER TO: Susan Cameron-Block
Host - Current Health Issues

http://www.bruha.com/pfpc/html/green_tea___.html

Dear Susan,

I am writing this letter with the intent to inform on various issues associated with the use of fluorides, especially as it relates to green and black teas, and to voice our concern about the continued promotion of green tea as a drink"beneficial to one's health" on your radio show "Current Health Issues".

Tea is very high in fluoride content. Fluoride in tea is much higher than the Maximum Contaminant Level (MCL) set for fluoride in drinking water.

Tea leaves accumulate more fluoride (from pollution of soil and air) than any other edible plant (1,2,3). Fluoride content in tea has risen dramatically over the last 20 years, as has tea consumption (4).

While in 1976 a Belgian analysis showed content of between 50 and 125 ppm fluoride in 15 varieties of tea (3), a Polish study in 1995 found fluoride content of up to 340 ppm in 16 varieties of black tea (5). A major Canadian study published in 1995 reports average fluoride content in tea to be 4.57 mg/l in the 1980's (6).

A website by a pro-fluoridation infant medical group lists a cup of black tea to contain 7.8 mgs of fluoride (7), which is roughly the same amount as if one were to drink 7.8 litres of water in an area fluoridated at 1ppm. It is well known that fluoride in tea gets absorbed by the body similarly as the fluoride in drinking water (1,8).

Some British and African studies from the 1990's showed a daily fluoride intake of between 5.8 mgs and 9 mgs a day from tea alone (9,10,11).

In order to understand a dose/concentration relationship properly, one needs to realize that the level of fluoride at 1 part-per-million (ppm) = 1 mg/l was set in the 40's when TOTAL intake was considered to be only about 1 mg/day in areas with fluoridated water. It was thought that the fluoridation of water supplies at 1 ppm (1 mg/l) would duplicate this intake, assuming that people would drink 4 glasses of water a day. However, average current total intake of fluorides is approaching the 8mg/day range, according to the last official data available from the US PHS (1991) and other publications (12).

TOTAL intake from ALL sources is the amount to be considered for any adverse health effect evaluation (13,14,15).

The fact that fluorides accumulate in the body is the reason why a MCL *(Maximum Contaminant Level*) for fluoride content in water needs to be set by the US Environment Protection Agency (EPA) - by law under the US Surgeon General. This is to be done specifically to avoid a condition known as Crippling Skeletal Fluorosis (CSF).

The MCL is set so as to only avoid the third and crippling stage of this disease. It is set at 4ppm => 4mg/liter, assuming that people will retain half of this amount (2mg), and therefore be at a "safe" level. The EPA scientists, whose job and legal duty it is to set the MCL, declared that this level was

set fraudulently by outside forces, and that 90% of the data showing the mutagenic properties of fluoride were omitted (16).

Virtually every company selling green tea advertises it's high fluoride content as "beneficial" in preventing cavities, promulgating the misleading and false data supplied for the last 50 years by the ADA/CDA and other dental health trade organizations, as well as various public health agencies. There are NO double-blind studies anywhere proving the efficacy of fluoride as a caries preventative (17). There ARE double-blind studies proving adverse health effects, at the level of 1ppm (1mg/l) in water.(18) There are no studies documenting safety at any intake level.

Thyroid Medication

Drinking a cup of tea with fluoride content as mentioned above (7.8mg) would mean a fluoride intake much higher(!) than amounts which were actually given as medication to treat hyperthyroidism (-> over-functioning thyroid) for numerous decades - in several countries - specifically to reduce thyroid activity! [(2 -10 mg NaF/day => 0.9mg - 4.5mg F-)] (19,20,21,22)

In the 1930's May reported having _successfully_ treated 1,158 hyperthyroid patients within 6 years with either sodium fluoride or fluorothyrosine, given per mouth. Among products later released on the market were Pardinon and Tyrosin (23, 24). Checking an older Merck Index will verify this information (25). Gorlizer von Mundy treated patients for more than 30 years in baths containing HF (30ccHF in 200 l water). Later fluorides were deemed not "reliable enough" to be recommended as an antithyroid (26).

RE: CANCER AND GREEN TEA

While there can be no doubt as to the beneficial effects of individual antioxidants found in green tea, the same cannot be said about green tea as a beverage. Existing studies tend to concentrate on active ingredients of green tea, such as epigallocatechin gallate (EGCG), a compound that belongs to a family of antioxidants known as polyphenols. EGCG and other polyphenols are constituents of tea - especially of green tea.

However, no studies exist investigating the effects of fluorides on these anti-oxidants. Existing studies involving other antioxidants and fluoride compounds give evidence that fluorides can adversely affect the action of antioxidants(27). Thus, while isolated antioxidants may slow down the development of some forms of cancer in experimental studies, their effect may be annihilated in their complex natural environment (as a sum of the action of all the substances present).

Several reviews of available data seem undecided in their conclusions as to the inhibition of carcinogenesis in experimental animals by tea or tea compounds. Data reviewed by Blot et al. (28) suggest "at most a modest benefit, since there is considerable international variation in tea consumption but generally small differences in cancer rates...More relevant case-control and cohort studies show mixed results."

Other epidemiological and human studies have also shown varying results. In a review by Bushman (29) thirty-one human studies and four reviews were examined. Among five studies reporting on colon cancer, three found an inverse association and one reported a positive association.

For rectal cancer, only one of four studies reported an inverse association; increased risks were seen in two of the studies. An inverse association was suggested for urinary bladder cancer in two of two studies.

While lung cancer studies have shown an inverse effect with Okinawan tea, a tentatively increased risk was shown in another study, clearly indicating that more research into this matter is needed. In a recent study on Finnish men, published in 1998 by Terryl Hartman and others, again a positive correlation between colon cancer and tea intake was found. Colon
cancer occurrence increased with higher intake (30).

Many available green tea/cancer studies last only a few months, and do not take into account the cumulative effects of fluoride, which is a known cancer promoter, and has the ability to transform healthy cells into cancerous ones (1,17,35,36). For any conclusive evidence to be obtained this must be considered, for long time fluoride ingestion has been shown to _cause_ cancer, especially osteosarcomas and uterine cancer (31,32).

Dean Burk, for many decades Chief Chemist at the National Cancer Institute, testified at congressional hearings in 1981 stating that over 40,000 cancer deaths in that year were attributable to fluoridation (33). He has said that no chemical causes as much cancer, and faster, than fluorides (34).

Public health officials are quick to say that this data is not verified, which is entirely untrue, for international research as well as congressional hearings and court proceedings HAVE verified this information (1,2,16,17,31,32,33,34,35,36,37,38).

Dental fluorosis (mottled teeth) is the first visible sign of fluoride poisoning.

Studies conducted on tea consumption in Tibetan children by Cao et al. found both dental (51.2%) and skeletal (32.83%) fluorosis, mainly as a result rom drinking brick tea, also known as milk tea (39). More studies by Cao and others reported similar results (40,41) as did a study from Chile showing dental fluorosis risks in 22.1% of the children consuming tea as a main beverage (42). Many similar studies on tea as well as other beverages have been published in the journals of the American Dental Association (ADA) or American Medical Association (AMA) themselves.

Studies on hydrofluoric-acid workers from an electronics company documented that, among the influences of fluorine-containing foodstuff on fluoride content in the biological fluids, the effect of black tea and/or green tea intake was "particularly remarkable". Measuring the urine and serum levels of fluorine ion, in the case of the non-hydrofluoric-acid workers, the concentration increased to about double of the control value. Similarly in a diet test on volunteers, the concentration increased about six times (43).

There are several other factors to consider regarding fluoride content in tea. One is the amount of fluoride leeching over time. Chinese teas continue to release F- throughout the first hour of infusion, whereas release of F- from Ceylon/Indian teas is essentially completed after 5 minutes (44).

The first study to investigate fluoride content in decaffeinated teas found an even higher fluoride content in those teas as compared to their caffeinated counterparts (45). It is thought that this is due to the high fluoride content in the water involved in the de-caffeination process, which then would also make coffee similarly decaffeinated high in fluoride content.

In addition, the caffeine in tea has a great augmentative effect on the bio-availability of fluoride. In 1990 researchers at the University of Texas even theorized that "the rise in incidence of dental fluorosis in North America is mainly due to the replacement of water intake by caffeine-containing beverages among the young population" (46). In 1990 German researchers wrote that "continuous intake of black tea rich in fluorides leads to distinct increase of fluoride content of temporary teeth. This is to consider analogous a caries prophylaxis.” (47)

Considering this, and tea market statistics which report that, "on any given day, nearly 127 million people -- half of all Americans -- are drinking tea", and that tea is available in 80% of US households (4), one must seriously ask why anyone in their right mind would want to add to the already existing load by adding fluorides to the public water supply.

Fluoride and Aluminum in Tea

To make matters much worse for human health, fluorides in teas are found together with aluminum. The combination of aluminum and fluorides in tea is of urgent concern, due to the

increased damage done by fluorides when in the presence of aluminum, especially neurological and renal damage)(17).

A study by Wei and others reported a high correlation (r = 0.81) found between the released F and Al in all tested Chinese, Indian and herbal teas (48).

Nabrzyski and Gajewska (49) report: "..In the 16 samples of commercially available brands of black teas, the levels of aluminum and fluoride ranged from 445 to 1552 ppm (mean = 897 +/- 264 ppm) and from 30 to 340 ppm (mean 141 +/- 85 ppm), respectively. In six herbal teas, the mean levels of aluminum and fluoride were lower, and amounted to 218.9 +/- 150.7 ppm and 6.0 +/- 6.9 ppm, respectively..."

That the aluminum present is indeed resorbed in the simultaneous presence of fluoride is shown in a study by Drs. Klaus R. Koch and Colleagues at the University of Cape Town. They examined the urinary excretion of aluminum (which is an indicator of its resorption) in healthy male volunteers after drinking equal volumes (1.2 litres) of tea, coffee or tap water on separate days.

In every case the amount of aluminum excreted over the 12-hour period increased on the day when tea was taken. Their results indicate that tea consumption must be considered in any assessment of the total dietary intake of aluminum in human beings (50).

A most important study from 1998 conducted at the Nanchang University in China showed that in older rats fed green tea water extract or green tea leaves, the cerebrum calcium contents were significantly decreased and aluminum contents increased. Zinc contents in the cerebrum were also gradually decreased with the increase of tea leaves dose and tea concentration (51). The cerebrum is the portion of the brain (frontal lobes) where thought and higher function reside (52).

The fluoride/aluminum association is of particular importance as it relates to Alzheimer's Disease. Aluminum by itself is not readily absorbed by the body. However, in the presence of fluoride ions, the fluoride ions combine with the aluminum to form aluminum fluoride, which is absorbed by the body. In the body, the aluminum eventually combines with oxygen to form aluminum oxide or alumina (53). Alumina is the compound of aluminum that is found in the brains of Alzheimer's disease.

In the brain, protein binds to the alumina, and "that is the key to the plaques and tangles which are the hallmarks of this terrible disease" (54). In a study by Dr. Robert Isaacson at the State University of New York, aluminum fluoride was added to the rats diet. This, contrary to normal expectations, passed through the brain barrier and gave the rats short term memory, smell sensory loss, unsteady gait, and loss of structures of the neo-cortex and hippocampus, all symptoms of Alzheimer's (53,54,55,56). A Varner and Jensen study conducted with Isaacson confirmed this in 1998 (57).

Free fluorine ions and traces of aluminum form a complex, fluoroaluminate, which stimulates cellular G proteins. Such a complex can form in food, drinking water, in the organism after fluoride ingestion or absorption, or after administration of a vaccine. Susa (58,59) reports that "fluoroaluminate crosses the cell membrane and directly binds to the membrane-associated inactive Ga protein subunits. Within the Ga subunit, fluoroaluminate occupies the position next to GDP.

The resulting Ga-GDP-AlF4- complex assumes an active state conformation, which resembles that of Ga-GTP complex. Under physiological conditions, Ga-GTP complex is formed upon activation of seven transmembrane receptors that couple to heterotrimeric G proteins...Both fluoroaluminate-activated and receptor-activated Ga subunits are capable of transmitting intracellular signals that lead to cellular responses."

There are hundreds of G protein-coupled receptors (60). The thyroid stimulating hormone (TSH) receptor is also coupled to the G protein. The TSH receptor is densely expressed in the thyroid

gland and mediates the production and secretion of thyroid hormones. (61) To presume that the fluoroaluminate will not interfere here is simply naive.

There have been hundreds of scientific studies using aluminum/fluoride complexes in the last ten years. A review of the literature by Strunecká and Patocka reveals that aluminofluoride complexes influence all cells and tissues of the human body with "powerful pharmacological efficacy."(62,63)

[This MEDLINE search will return approx. 100 fluoroaluminate-related items:
http://www.ncbi.nlm.nih.gov/htbin-post/Entrez/query?db=m&form=6&uid=9917518&dopt=m&dispmax=20

Neurological Effects of Fluoride

Other numerous studies in the late 1990's have been published documenting the effects of fluoride on the neurological system (65,66,67,68,69).

They are briefly addressed here in an excerpt from a paper published by the National Treasury Employees Union (NTEU) Local 280, formerly National Federation of Federal Employees Local 2050, representing the approximately 1500 scientists, lawyers, engineers and other professional employees at EPA Headquarters in Washington, D.C.:

"Why EPA'S Headquarters Union of Scientists Opposes Fluoridation" Issued May 1, 1999 (17):

"In 1995, Mullenix and co-workers showed that rats given fluoride in drinking water at levels that give rise to plasma fluoride concentrations in the range seen in humans suffer neurotoxic effects that vary according to when the rats were given the fluoride - as adult animals, as young animals, or through the placenta before birth.

Those exposed before birth were born hyperactive and remained so throughout their lives. Those exposed as young or adult animals displayed depressed activity. Then in 1998, Guan and co-workers gave doses similar to those used by the Mullenix research group to try to understand the mechanism(s) underlying the effects seen by the Mullenix group. Guan's group found that several key chemicals in the brain - those that form the membrane of brain cells - were substantially depleted in rats given fluoride, as compared to those who did not get fluoride.

Another 1998 publication by Varner, Jensen and others reported on the brain- and kidney damaging effects in rats that were given fluoride in drinking water at the same level deemed "optimal" by pro-fluoridation groups, namely 1 part per million (1ppm). Even more pronounced damage was seen in animals that got the fluoride in conjunction with aluminum. These results are especially disturbing because of the low dose level of fluoride that shows the toxic effect in rats - rats are more resistant to fluoride than humans.

This latter statement is based on Mullenix's finding that it takes substantially more fluoride in the drinking water of rats than of humans to reach the same fluoride level in plasma. It is the level in plasma that determines how much fluoride is 'seen' by particular tissues in the body. So when rats get 1 ppm in drinking water, their brains and kidneys are exposed to much less fluoride than humans getting 1 ppm, yet they are experiencing toxic effects. Thus we are compelled to consider the likelihood that humans are experiencing damage to their brains and kidneys at the 'optimal' level of 1 ppm."

("Optimum intake" = 1mg/day)

Toothpaste also contains a significant quantity of Al, more so, when packed in Al tubes (70). That children frequently ingest too much toothpaste is well established and the reason why since April 1997 a poison warning is to be placed on all fluoride-containing toothpastes in the US. It is an absolute disgrace that this is not the same in Canada, especially when the US FDA has issued

several Import Alerts and customs detention orders, documenting fluoride amounts double that of permissable content originating in Canada! (71)

Thyroid Hormones

Thyroid hormones are extremely important in the regulation of metabolic processes and brain development. Every cell in the body depends upon thyroid hormones for regulation of their metabolism.

Many of the symptoms documented in the vast literature on the subject of chronic or low-grade fluoride poisoning can be directly related to thyroid functions and disorders. One of the most prominent features of preskeletal fluorosis is the extraordinary general fatigue experienced by most sufferers, a marked weakness usually linked to low activity of the thyroid gland (2).

This has been reported since the classic 1930's Roholm study on cryolite workers exposed to fluorides, a study which still serves as the basis for occupational fluoride exposure regulations (73). At the time of Roholm's work the specialized field of "endocrinology" was yet to be recognized as a reputable discipline. Thyroid diseases were poorly understood. From 1940 to 1970, the application of radioiodine improved this understanding immeasurably.

Fragu (74) writes:"The main transformations brought about by this tool were the knowledge of radioiodine uptake mechanisms, basis of its therapeutic effect, complete identification of thyroid hormonosynthesis, serum transport of thyroid hormones and thyroid imaging. More recently immunological and molecular paradigms changed the understanding of thyroid diseases."

It is only in the last two decades during which endocrinology has progressed so rapidly, that now over 150 symptoms and associations can be identified in hypothyroidism. Almost all correlate with known symptoms of fluoride poisoning.(74) Most of the double-blind test results of fluoride poisoning found in Moolenburgh's study on water containing 1ppm of fluoride - which led to the ban of fluoridation in Holland - are now recognized symptoms of hypothyroidism (75).

The effects of fluoride on the thyroid gland have been studied so extensively, that it baffles the mind how experts on thyroid disease from Harvard or the University of Toronto can claim that fluorides do not affect thyroid gland function, especially when it has been used as medication to do just that! (76)

This stance just defies all knowledge properly gained in the last 70 years of related research. One cannot find any mention of fluorides in ANY current "official" thyroid disease related literature. And this at fluoride intake levels and at dental fluorosis rates as high as they are!

Already in 1940 authors Robert H. Wilson and Floyd DeEds from the United States Department of Agriculture (discussing the role of fluorine in pesticide sprays), wrote:

"Should a spray residue tolerance limit for fluorine be set to protect the normal, the hyperthyroid, or the hypothyroid individual? ... should the tolerance limit take into consideration that in certain areas the public is already exposed to a fluorine intake in the drinking water?"(77)

We have posted over 100 studies documenting the adverse effects of fluoride on the thyroid gland from the last 70 years or so in the Virtual Library on Fluoride Research (78)at:
http://www.bruha.com/fluoride/html/thyroid_studies.ht m

Thyroid, SIDS and Down Syndrome

A toxicologist in the United Kingdom recently found that perinatal deaths in a fluoridated area was 15% higher than in neighboring non-fluoridated areas. The fluoridated area had a higher socio-economic status and would have been expected to have less perinatal deaths.

The fluoridated area also had a 30% higher rate of Down's Syndrome (79a). Down's Syndrome is a disease associated with thyroid pathology (79b). Chile banned fluoridation because of research by the world-reknowned researcher Dr. Albert Schatz, which showed a link to infant deaths due to fluoridation (80). Already in the 1950s, Ionel Rapaport published studies showing links between Down's Syndrome and natural fluoridation (81).

[In this context an article should be noted which appeared in the October1995 issue of the "Monitor", a publication by the American Psychological Association, which reported of the similarity in neurological signs in Down's Syndrome and Alzheimer's disease.

The link between the two dates back to the 1940s when George Jervis, who later became the first director of New York State Institute for Basic Research in Developmental Disabilities, conducted autopsies on people with Down's syndrome and found they had the same neuropathology as people with Alzheimer's disease. People with Down's syndrome tend to age faster than the general population and suffer a wide range of accompanying health problems--many of which mimic or mask the presence of Alzheimer's disease(82).]

Thyroid and Learning Disorders

Learning disorders such as Attention Deficit Hyperactivity Disorder (ADHD) did not knowingly exist before the fluoridation of public water supplies began.

In the 1950's ADHD spread rapidly among school children and gained much exposure in the medical science and health literature. In 1963 the US PHS listed dozens of symptoms associated with hyperactivity and officially changed the name to "minimal brain dysfunction".

By the the 1970's some leading authorities noted that this disorder appeared to lie at the root of nearly every type of childhood behaviour problem, and had become the most commonly diagnosed illness among childhood counsellors (83,84).

In 1987 the American Medical Association acknowledged that minimal brain damage had become the leading disability reported by elementary schools, and "one of the most common referral problems to psychiatry outpatients clinics" (85).

Many studies on thyroid hormones have shown that attention deficit and/or hyperactivity disorders in children are linked to changes in the levels of thyroid hormone in the blood, and that irritability and aggressive behaviour are linked to thyroid hormone levels and hypothyroidism (86,87,88,89,90,91, 92,93,94,95,96,97).

Behaviour disorders have been associated with thyroid function for over 100 years.

In 1997 Aronson and Dodman wrote, "the hypothyroid human patient has been reported to show a wider range of behavioral symptoms. Particularly in the early stages of the disease reduced cognitive function and concentration together with impaired short-term memory may be confused with attention deficit-hyperactivity disorder, and in one study 66% of patients diagnosed with ADBD were found to be hypothyroid. Supplementing their thyroid levels was largely curative. Visual and auditory hallucinations may result from altered perception and have been misdiagnosed as schizophrenia or psychosis. Other behavioral symptoms have included fear - ranging from mild anxiety to frank paranoia, mood swings and aggression."(98)

Many psychoactive drugs including Prozac, Paxil and Luvox (Littleton) are fluorinated medications. Rohypnol, the infamous date-rape drug, is fluorinated Valium, which is about 20-30 times more potent than Valium alone. In essence, these drugs effect enzyme functions in certain areas of the brain to achieve the desired effect (99).

Thyroid hormone disorders may induce almost any psychiatric symptom or syndrome, including rage.

Peter Whybrow (100), of the University of Pennsylvania, writes:

"An intimate association between disturbances of thyroid hormone homeostasis and behavior has been recognized for a long time already: Hyper- and hypothyroidism can induce disturbances of mood and intellectual function (in severe cases even psychosis can be mimicked). Reciprocally many psychiatric disturbances, such as major depression and manic depressive disease have associated with them disturbances of peripheral thyroid hormone metabolism."

Whybrow reports on the successful treatment of psychiatric disorder by supplementing T4 and T3, both of which are reduced in plasma of rats after two months of fluoride administration of 0.1 - 1mg/day (101).

Recent Chinese studies show that the influence of a high fluoride environment on intelligence can occur early in development such as during the stages of embryonic life or infancy when differentiation and growth are more rapid. Ultramicroscopic study of embryonic brain tissue obtained from termination of pregnancy operations in endemic fluorosis areas showed "differentiation of brain nerve cells were poor, and brain development was delayed."(102,103)

Highly alarming studies and reviews in the last few years have documented the high accumulation of fluorides in the fetus in countries all over the world (104,105,106,107).

Fluoride tends to fransfer freely and immediately through the placenta, as has been shown in numerous publications (108,109).

It is important to note that mother's milk passes on neglible amounts of fluoride in very high fluoride-intake areas, as if "nature" meant to protect the infant (110).

Thyroid Florine Iodine Anatagonism

Additionally, a most important factor to consider is the role of fluoride in iodine deficiency disorders (IDD). The antagonistic relationship between fluoride and iodine, being at opposite ends in the halogen group, has been observed in many studies ever since Wagner von Jauregg began a mass iodine-supplementation program in Austrian areas endemic with goiter (enlargement of the thyroid gland) in the 1920's (112). The late George Waldbott (2) wrote that when the total iodine pool in the body is low, fluoride interferes with the function of the thyroid gland and thereby produces a fluoride-iodine antagonism, a view shared and documented by numerous others (113,114).

However, it has become clear within the last decade that fluoride excess, combined with iodine excess also exert "severe damage to the human body" (115, 116). In the study by Yang et al.(116) on children's intelligence in high iodine and fluorine regions, the percentage of low-intelligence children was 16.7% at dental fluorosis rates of 72.9%. This is comparable to fluorosis rates we see in North America, some of which are up to 80% (117).

A study published this year on endemic goiter occurrences in the absence of iodine deficiency again showed higher goiter rates in high-fluoride areas in South Africa (118).

Could it be that the world-wide "iodine deficiency" is actually fluoride excess? By comparing IDD data supplied by the WHO (119) with fluorosis data found on MEDLINE an answer may be found. You may judge for yourself:

COUNTRY	IDD/GOITRE	FLUOROSIS
India	Very High/ Endemic	Very High/ Endemic
Nigeria	High	High
Belgium	Moderately Low	Moderately Low
France	Low (3.9%)	Low (3%)

China	Very High/ Endemic	Very High/ Endemic
Mexico	Very High (>60% San Luis Patosi)	Very High (>60% San Luis Patosi)
Brazil	High (>30%)	High (>30%)
Italy	High (Mean 39%)	High (45% in fl. areas)
Tanzania	Very High (>60%)	Very High (>60%)
Sudan	High	High

While it is well known that goiter and hypothyroidism occur more often in mountainous areas, the same has now been shown for dental fluorosis (120,121).

[Note:While checking for IDD/Goiter data for the US, we discovered that a national survey has never been conducted. The only Canadian data available dates back 30 years, and mentions earlier goiter occurences in the Great Lakes area. [Brantford (Great Lakes) was the first Canadian city to be fluoridated.)]

Meanwhile, "iodine deficiency" is now recognized as the most common cause of preventable brain damage and mental disability in the world today. It affects the brain development of the fetus. All thyroid disorders, including hypothyroidism, can develop already in the fetus.

Regarding the findings by Dr. Phyllis Mullenix (65), and her observation that those exposed to fluorides before birth were born hyperactive and remained so throughout their lives, it fits very neatly with existing research on hypothyroidism:

"Hypothyroidism that is present from birth is referred to as congenital hypothyroidism (CH). In North America, CH occurs in about 1 in 4000 live-born babies. The majority (over 90%) of affected babies in North America have a permanent, life-long type of CH".(122)

Another thyroid/fluoride connection can be seen in Jennifer Luke's data (123) which has shown that fluoride accumulates in the pineal gland and inhibits its production of melatonin. Luke showed in test animals that this inhibition causes an earlier onset of sexual maturity, an effect already reported in humans as well in 1956, as part of the Kingston/Newburgh study. In fluoridated Newburgh, young girls experienced earlier onset of menstruation than girls in non-fluoridated Kingston (124).

The early onset of sexual puberty is a well established symptom of thyroid hormone dysfunction. Usually patients with low thyroid hormones also have deficient secretion of growth hormone, and may have deficient secretion of the gonadotropins, called LH and FSH, which stimulate puberty and reproduction, and ACTH, which is necessary for cortisol and hydrocortisone secretion by the adrenal gland (125).

[In the above context it should be noted, that aluminum fluoride also mimicks the inhibitory action of melatonin (126).]

Another symptom of an underactive thyroid condition (or iodine deficiency?) - severe growth disturbances - was observed in 1935 by DeEds and Thomas in children in areas where the water contained F- at 1-2 ppm (127).

Osteoporosis, Arthritis, and Other Bone Disorders

Left undetected and untreated, thyroid disorder can elevate cholesterol levels, cause long-term organ complications and may lead to irregular menstrual cycles, infertility and worsening osteoporosis (128,129,130).

Fluorides accumulate in your body. For this reason, as mentioned before, a MCL (Maximum

Contaminant Level) must be set for fluoride in the drinking water to avoid Crippling Skeletal Fluorosis (CSF).

The US PHS wrote in 1991 that "fluoride increases the stability of the crystal lattice in bone, but makes bone more brittle... the total quantity of fluoride ingested is the single most important factor in determining the clinical course of skeletal fluorosis; the severity of symptoms correlates directly with the level and duration of exposure."(131)

On page 6 of the same report it states:"Fluoride in the drinking water may increase the risk of elderly men and women breaking bones"..pages 56-57:

"The weight of evidence from these experiments suggests that fluoride added to water can increase the risk of hip fracture in both elderly women and men...If this effect is confirmed, it would mean that hip fracture in the elderly would replace dental fluorosis as the most sensitive endpoint of fluoride exposure".

Since then several more studies have been published, all showing greater incidence of hip fractures among the elderly in fluoridated areas (132,133,134). The elderly are also the population suffering greatest from hypothyroidism.

To understand the implications of fluoride in bone disorders:

If you drink 1 cup of green/black tea a day, with F- content of 5mg, you can expect Chronic Skeletal Fluorosis to appear as follows (135):

Person weighing 100 lbs.	Time Frame	Symptoms
Phase 1	within 5 years	sporadic pain; stiffness in joints; osteosclerosis of pelvis and vertebral column
Phase 2	after 10 years	chronic joint pain; arthritic symptoms; slight calcification of ligaments; increased osteoclerosis/cancellous bones; with/without osteoporosis of long bones)
Phase 3 (crippling fluorosis)	after 23 years	limitation of joint movement; calcification of ligaments/neck, vert. Column; crippling deformities/spine major joints; muscle wasting;neurological defects/compression of spinal chord

Comparing intake levels as high as they are (12) with statistical data, it must become clear that this is already happening to a significant portion of the population.

CONCLUSION:

As argued by Dean Burk and the attorneys who established the connection between cancer deaths and fluoridation, there is a premise in logic which states that the most obvious cause of an event must be taken as face value while one searches for alternative possibilities.

Because it can be documented that fluorides were given as medication for hyperthyroid patients it should be considered the OBVIOUS cause for hypothyroidism and other thyroid-hormone function-related disorders, including ADHD, arthritis, osteoporosis, etc., especially at intake levels as high as they are.

Fluoride poisoning can be observed in large groups of the population, in the form of hypothyroidism. In 1995 one publication (see 127) on hypothyroidism reported that 41 percent of women had fatigue for no obvious reason in the past year. Of these women, 57 percent said they experience fatigue three or more times a week. More than half of women (51 percent) had experienced three or more symptoms commonly associated with hypothyroidism over the past

year.

Other symptoms/associations of hypothyroidism include loss of libido, carpal tunnel syndrome, arthritis, lupus, fibromyalgia, memory loss, etc. [For a more complete list, please see (74)]

Dental fluorosis is the first visible indicator that severe thyroid hormone dysfunction has occurred and is occurring. It is NOT a mere cosmetic effect as the dental profession would like us to believe. The evidence is staggering.

We must take immediate action to protect our children's mental and physical health from the ever-increasing fluoride intake. Water fluoridation must be halted, all foods must be labelled for F-content, and emissions by industry must be strictly regulated.

Overall fluoride intake must be radically reduced.

PLEASE advise responsibly regarding green tea.

Andreas Schuld
Parents of Fluoride Poisoned Children (PFPC)
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