Marin Community Advocates

237 Mt. View Ave., Mill Valley, CA 94941

April 17, 2009

Carcinogen Identification Committee
Office of Environmental Health Hazard Assessment
Proposition 65 Implementation
P. O. Box 4010
1001 Eye Street, 19th Floor
Sacramento, CA 95812

Re: Health Hazards of Fluoridation of Public Water Supplies

Attached is a copy of a report on Fluoride Toxicity presented at the Orthomolecular Health-Medicine 2007 Annual Meeting. Please realize the toxicity of Fluoride and help to get it removed from public water supplies.

I cannot drink tap water because of the fluoride. Those of us with thyroid problems have no choice but to remove it from our diets. We have repeatedly asked the Marin Municipal Water District to remove fluoride and their response is always: "We are State mandated to fluoridate our water. You'll have to deal with the folks in Sacramento if you want that mandate changed."

Consequently, we urge you to do what you can to enable local districts to provide healthy, fluoride free, water.

Thank you for your consideration.

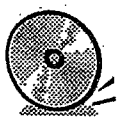
Del Goetz, President
Marin Community Advocates

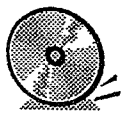
Attachment: Report of Fluoride Toxicity

OHM 2007 - Society For Orthomolecular Health-Medicine

13th Annual Meeting - San Francisco, California

Theme: Depression and Detoxification





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ETK, EGOT; Vitamin-Enzymes in Depression
Tapan Audhya, PhD

No. 2 **Nutrients & Herbs for Depression - *Hyla Cass, MD***

No. 3 **Neurotransmitter Profile & Depression - *Denise Mark, MD***

No. 4 **The Effect of Phospholipids & Essential Fatty Acids on Mood Disorders - *Parris Kidd, PhD***

No. 5 **Panel Discussion - *Drs. Kunin, Audhya, Cass, Mark, and Kidd***

No. 6 **Dendritic Cells & Immune Toxicity - *Russell Jaffe, MD, PhD***

No. 7 **Breakthrough Treatments for Addiction - *Richard Gracer, MD***

No. 8 **Biomarkers of Neurotoxic Damage - *Aristo Vojdani, PhD***

No. 9 **Non-Toxic Plants for Prevention of Celiac Disease - *David Sands, PhD***

No. 10 **Genetic Basis of Megavitamin Therapies - *Bruce Ames, PhD***

No. 11 **Panel Discussion - *Drs. Jaffe, Gracer, Vojdani, Sands, and Ames***

No. 12 **Orthomolecular Treatment for Addiction Alcoholism, & Depression - *Julia Ross, M***

No. 13 **DNA Testing to Guide Detox Therapy - *Patrick Hanaway, MD***

No. 14 **The Detox Diet-Alkalinize for Health - *Elson Haas, MD***

No. 15 **Fluoride Toxicity & its Prevention - *David Kennedy, DDS***

No. 16 **Panel Discussion - *Drs. Ross, Hanaway, Haas, and Kennedy***

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PREVENTION OF FLUORIDE TOXICITY AND IT'S EFFECT ON THYROID HORMONES, HIP FRACTURES & OSTEOSARCOMA

David Kennedy, DDS

Disclosure: Dr. Kennedy has no significant financial interest in any of the products or manufacturers mentioned.

PREVENTION OF FLUORIDE TOXICITY AND IT'S EFFECT ON THYROID HORMONES, HIP FRACTURES & OSTEOSARCOMA

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Check out the title of his book

Fluoride is considered a pesticide in all countries except USA

Sounds like a strong gen...

Fluoride inhibits all enzymes!

Calcium, Vit C, ...

...

KEEPERS-OF-THE-WELL.ORG

NRC PREPUBLICATION REPORT ON FLUORIDE
nap.edu/catalog/11571.html#toc

Fluorine is the most negatively charged element on Earth

- It is the most aggressive seeker of another electron
- It is prized by industry for
  - Disrupting molecular bonds
  - Establishing new molecular bonds
  - Inhibiting enzymes
  - Corrosive properties

DAVIDKENNEDY-DDS@COX.NET

WWW.NOFLUORIDE.COM
WWW.SAVE TEETH.ORG

DDT for lunch

DDT for lunch

Congressional Investigation

Responses from:

- Food and Drug Administration
- Environmental Protection Agency
- National Sanitation Foundation

Environmental Protection Agency (EPA) 1999, response to questions posed by subcommittee of the House Committee on Science

- In collecting data for a fact sheet, EPA was not able to identify any chronic studies for the two chemicals used in 90% of U.S. fluoridation programs.

Letter, April 2, 1998, from EPA Director, Office of Science and Technology

- "In the U.S., there are no Federal safety standards which are applicable to drinking water additives, including those intended for use in fluoridating water."

EPA response to Congressional Investigation 1999

- EPA discontinued its advisory role over water chemical additives in 1988 in favor of voluntary industry self regulation.

The 1998 AWWA Standards Committee on Fluorides

- Listed are the 17 members of the "volunteer standards committee" which review and approve the fluoride standard.
- The Chair, Vice-Chair and Secretary are from the CDC, Lucier Chemical Industries, and Kaiser Aluminum & Chem. Corp., respectively.
- Cargill Fertilizer Inc. and Chemtech are producer members.

Toxic waste becomes 'product' for two bits

- According to federal regulations, if a fluoridation substance is given away, it is classified as **hazardous waste**. If it is sold for transportation costs for a token fee, it is a **product**.

Content specifications of hydrofluosilicic acid as referenced by retailer Lucier Chemical Industry, Ltd., 1990

- A typical batch of commercial grade fluoridation product is 24% hydrofluosilicic acid and 76% waste water which contains varying amounts of heavy metals.

NSF, Int. response to Congressional Investigation 2000

- Manufacturers are required to submit for each product, when available, a list of published and unpublished toxicological studies relevant to the treatment chemical and the chemicals and impurities present in the treatment chemical.

NSF, Int. response to Congressional Investigation 2000

- There have not been any studies on hydrofluosilicic acid or silicofluorides submitted to NSF {even} under claimed Confidential Business Information protection.

Letter, Nov. 2000, from US EPA National Risk Mgmt. Research Laboratory

- National Health and Environmental Effects Research Laboratory was unable to find any information on the chronic effects of silicofluorides on health and behavior.

Letter, Nov. 2000, from US EPA National Risk Mgmt. Research Laboratory

- In January of 2001, EPA's Office of Research and Development (ORD) identified several fluoride chemistry-related needs and is now exploring options to initiate research in the identified areas.

Request for Assistance (RFA) - Measurement of Fluorosilicates in Drinking Water, April 25, 2002

- The U.S. EPA National Risk Management Research Laboratory is now soliciting competent researchers to investigate the reactions that take place when fluorosilicates are added to drinking water supplies.

FDA response to Congressional Investigation 2000

- "Fluoride, when used in the diagnosis, cure, mitigation, treatment, or prevention of disease in man or animal, is a drug that is subject to FDA regulation."

FDA response to Congressional Investigation 2000

- "No New Drug Applications have been approved or rejected for fluoride drugs meant for ingestion."

Letter, June 1993, from John V. Kelly, Assemblyman, State of New Jersey

- The FDA has confirmed that there are no studies demonstrating either the safety or effectiveness of fluoride supplements for children, therefore, he requests the FDA to remove the products from the market immediately.

Environmental Protection Agency (EPA) 2000, response to questions posed by subcommittee of the House Committee on Science

- Subsets of the population that are unusually sensitive to the toxic effects of fluoride are identified as well as demographic data for each of the identified populations.

Opflow Magazine/American Water Works Association, Oct. 2000, Treatment Chemicals Contribute to Arsenic Levels

- About 90 percent of the arsenic that would be contributed by treatment chemicals is attributable to fluoride addition.

Dartmouth news release, Aug. 1999: Silicofluorides are associated with increased lead levels

- Analyzing a survey of over 280,000 Massachusetts children, investigators found a significant association between water fluoridated with silicofluorides and children suffering from blood lead poisoning.

NeuroToxicology 21(6):2000:, Abstract: Silicofluorides are associated with increased lead levels

- Analyzing a survey of over 151,000 New York children, investigators found a significant association between water fluoridated with silicofluorides and children suffering from blood lead poisoning.

Chemical and Engineering News abstract of 1998 Brain Research study

- Test animals treated with the same concentration of fluoride used in fluoridated tap water suffered neural injury and increased deposits of B-amyloid protein in the brain, similar to those seen in humans with Alzheimer's disease.

Title 42 The Public Health and Welfare section 300g-1

- "(11) No national primary drinking water regulation may require the addition of any substance for preventive health care purposes unrelated to contamination of drinking water."

Congressional Hearing
on Arsenic, Radon, and Fluoride

Before the Senate
Subcommittee on Wildlife,
Fisheries, and Drinking Water
June 29, 2000

Congressional Hearing
on Arsenic, Radon, and Fluoride

Union of EPA professionals,
Headquarters, Washington, D.C.

Calls for moratorium on all water fluoridation

http://www.nteu280.org/

Environmental Assessment for Proposed Water Fluoridation for Fort Detrick, MD

Headquarters for US Army
Medical and Materiel Command

Environmental Assessment for Proposed Water Fluoridation for Fort Detrick, MD

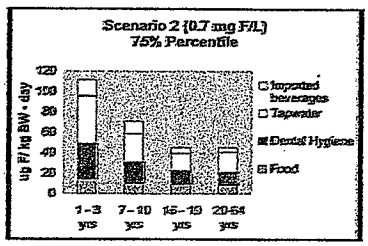
Pacific Western Technologies, Ltd
8610 N. New Braunfels, Suite 600
San Antonio, TX 78217-6359

www.keepers-of-the-well.org/
due_diligence.html

Environmental Assessment for Proposed Water Fluoridation for Fort Detrick, MD

". . . (C)alculations for fluoride intake by age group 7-9- shows 40 percent of this age group exceeding the RfD. The problem would be even more acute for age group 1-3."

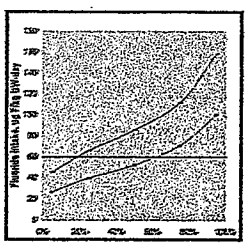
Environmental Assessment for Proposed Water Fluoridation for Fort Detrick, MD



Environmental Assessment for Proposed Water Fluoridation for Fort Detrick, MD

Scenario 2
0.7 mg F/L

Population subgroup



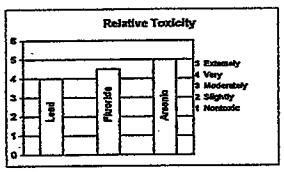
Effective Advocacy
3 day Workshops

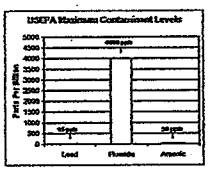
Jeff Green
Citizens for Due Diligence

(800) 728-3833 greenjeff@cox.net

Keepers-of-the-Well.org

"Fluoride is more poisonous than lead and slightly less poisonous than arsenic"





Clinical Toxicology of Commercial Products 1984

National Research Council NAS March 2006

- Findings
- 1) Enamel Fluorosis is an adverse health effect
- 2) Fluoride causes bone pathology beyond skeletal fluorosis
- a) Hip Fracture
- b) Possible Osteosarcoma
- 3) Evidence endocrine Impairment

NRC Panel unanimously found that the current

- Scientifically derived point of safety for lifetime consumption (MCLG), and
- Remediation point or maximum level for enforced compliance (MCL) for fluoride

Are NOT protective of human health

Major areas of focus in the NRC report

- Thyroid gland
  - Thyroid follicular cells
- Calcium metabolism
  - Parathyroid gland
  - Thyroid parafollicular cells (C cells)
- Pineal gland
- Glucose metabolism
  - Pancreas (Islets of Langerhans)

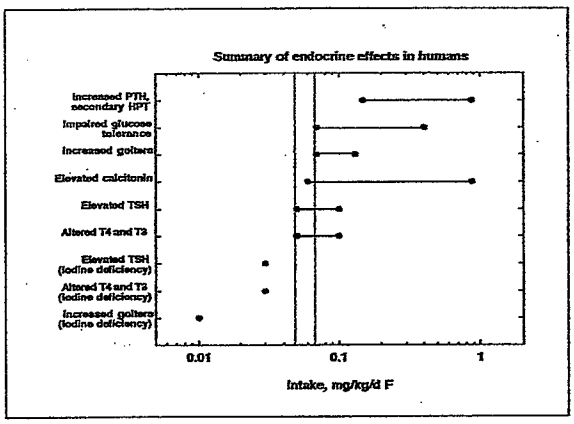
Fluoride & Thyroid

German doctors have used sodium fluoride as a means to reduce thyroid activity in patients with hyperthyroidism.

The doses used by Galletti and Joyet (1958) - 2.3-4.5 mg of fluoride per day - are currently exceeded by people living in 1 ppm communities.

Definitions

- Endocrine system
  - Cellular communication carried out by the classical endocrine glands and their hormones
- Endocrine glands
  - Communicate with other cells via internal ("endocrine") secretion of a chemical signal into the bloodstream
- Hormone
  - A chemical signal secreted into the bloodstream by an endocrine gland
  - Elicits a typical physiological response in other cells (target cells)



Normal thyroid function

- Thyroid hormones
  - T4 (thyroxine)
  - T3 (triiodothyronine)
- Modulates a variety of physiological processes
  - Including normal growth and development
  - Essential for normal development of nervous system
  - Dependent on adequate iodine intake

Fluoride effects on thyroid function: Animal studies

- Decreased thyroid function (esp. decreased T4 and T3 concentrations)
  - Seen with fluoride doses of 3-6 mg/kg/d with sufficient dietary iodine (0.4-0.6 mg/kg/d in one study)
  - More severe effects seen at similar fluoride doses when dietary iodine was not sufficient
  - Effects seen at lower fluoride doses (0.06-1 mg/kg/d) when dietary iodine was not sufficient
- TSH not measured in most animal studies

Fluoride effects on thyroid function: Human studies

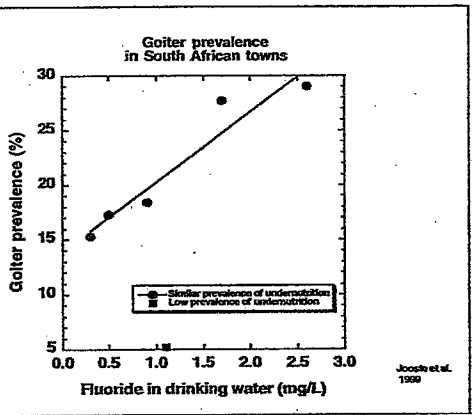
- Relieved hyperthyroidism in some patients
  - 0.03-0.14 mg/kg/d
- Goiter prevalence of at least 20%
  - 0.07-0.13 mg/kg/d (adequate iodine)
  - ≥ 0.01 mg/kg/d (iodine deficiency)
- Altered concentrations of T4 and T3
  - 0.05-0.1 mg/kg/d (adequate iodine)
  - 0.03 mg/kg/d (iodine deficiency)
- Elevated concentrations of TSH
  - 0.05-0.1 mg/kg/d (adequate iodine)
  - 0.03 mg/kg/d (iodine deficiency)

Fluoridation Concentrations Thyroid Impairment

	Adequate Iodine	Inadequate Iodine
Pounds	F mg/day	F mg/day
8.8	.2	.04
22	.5	.1
44	1	.2
154	3.5	.7

Fluoride Intake
Goiter Prevalence ≥ 20%

	Adequate	Inadequate
	Iodine	Iodine
Pounds	F mg/day	F mg/day
8.8	.28	.04
22	0.7	.1
44	1.4	.2
154	4.9	.7



Thyroid effects of fluoride: Possible mechanisms

- Decreased production of thyroid hormone
- Effects on thyroid transport in blood
- Effects on peripheral conversion of T4 to T3 and on normal deiodination
  - inhibition of deiodinases

Thyroid effects of fluoride: Possible implications

- Possible increase in symptomatic individuals?
- Increased risks associated with subclinical (asymptomatic) thyroid disease
  - Cardiac disease
  - Increased cholesterol concentrations
  - Increased incidence of depression
  - Diminished response to standard psychiatric treatment
  - Cognitive dysfunction
  - For pregnant women, decreased IQ of offspring

Fluoride Intake
Insulin Glucose Tolerance

Pounds	F mg/day
8.8	0.28
22	0.7
44	1.4
154	4.9

Calcium Metabolism

- Parathyroid gland
  - Parathyroid hormone
    - Increases calcium concentrations in the blood
    - Stimulates bone resorption
- Thyroid parafollicular cells (C cells)
  - Calcitonin
    - Lowers calcium concentrations in the blood
    - Inhibits bone resorption

Fluoride effects on parathyroid function: Animal studies

- Normal PTH response to dietary calcium deficiency was inhibited in one study
  - 5.4 mg/kg/d
- Some studies reported hypocalcemia but did not measure PTH
  - 5-10 mg/kg/d
- Several studies showed increased PTH activity
  - 0.5-10 mg/kg/d

Fluoride effects on parathyroid function: Animal studies (continued)

- Probable hypocalcemic response to fluoride, followed by increased PTH secretion in response to the hypocalcemia
- Changes in expression of genes associated with calcium uptake
- Effects dependent on calcium status

Fluoride effects on parathyroid function: Human studies

- Elevated PTH concentrations in at least some individuals
  - 0.4-0.6 mg/kg/d, occasionally as low as 0.15-0.34 mg/kg/d
- Elevated PTH or clinical secondary hyperparathyroidism in skeletal fluorosis patients, usually with adequate dietary calcium
  - Teotia and Teotia 1973; Teotia et al. 1978; Srivastava et al. 1989; Gupta et al. 2001
- Hypocalcemia in 23% of children with high fluoride intake vs. 2-13% in comparable populations with low fluoride intake
  - Petitfor et al. 1989

Fluoride effects on parathyroid function: Human studies (continued)

- Hypocalcemia in some studies (continued)
- Hypocalcemia in some individuals treated with fluoride for osteoporosis
- Elevated PTH in some individuals
- Variable response—at least two distinct sets of responses
- Inhibition of intestinal calcium absorption
  - Not explainable in terms of calcium fluoride complexes (reduced solubility)
  - Fluoride exposure appears to increase the calcium requirement

Effects of fluoride on calcium metabolism: Possible mechanisms

- Indirect action
  - Net increase in bone formation
  - Net decrease in calcium absorption from GI tract
  - Overall increase in body's calcium requirement
  - If dietary calcium is inadequate, the response is an increase in PTH
- Possible direct effects
  - Stimulation or inhibition of the parathyroid gland
- Specific changes in gene transcription
  - For proteins associated with calcium uptake (Tiwari et al. 2004)

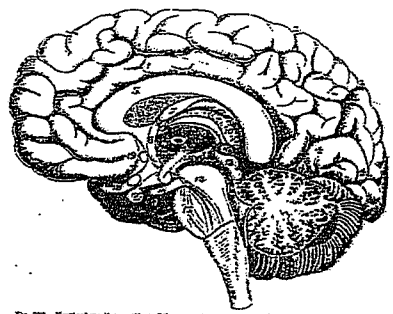
Fluoride effects on calcium metabolism: Possible implications

- Secondary hyperparathyroidism (elevated PTH)
  - General response to any cause of hypocalcemia or vitamin D deficiency
  - The body's attempt to maintain calcium homeostasis
  - Clinical significance not clear for secondary hyperparathyroidism due to fluoride exposure
  - In general, secondary hyperparathyroidism may contribute to a number of degenerative diseases

Fluoride effects on calcium metabolism: Possible implications (continued)

- Calcium deficiency
  - May be induced or exacerbated by fluoride exposure
  - Calcium deficiency may contribute to other adverse health effects
    - Increased heavy metal toxicity
    - Development of nutritional (calcium-deficiency) rickets in children

Pineal Gland



Pineal Gland

TRYPTOPHAN

↓ Enzyme 1

↓ Enzyme 2

SEROTONIN

↓ Enzyme 3

↓ Enzyme 4

MELATONIN

Normal pineal function

- Melatonin production
- Pineal peptides
- Calcifying tissue
  - Can accumulate fluoride
- Associations with
  - Status of the reproductive system
  - Regulation of circadian rhythms and sleep
  - Calcium and phosphorus metabolism, parathyroid activity, bone growth, development of postmenopausal osteoporosis
  - Oncostatic or anticarcinogenic effects
  - Antioxidant actions
  - Effects on central nervous system, psychiatric disease, sudden infant death syndrome

Fluoride effects on pineal function: Animal study (Luke 1997)

- Decreased melatonin production in prepubescent gerbils
  - Normal higher rate of melatonin production (relative to body weight) in sexually immature gerbils did not occur
- Earlier sexual maturation in females
- Altered circadian rhythm of melatonin production

Fluoride effects on pineal function: Human studies

- No direct studies
- Two studies of average age at menarche in girls
  - Lower average age at menarche
    - 12 years vs. 12 years, 5 months
    - Fluoride exposure had not been lifelong
    - Schlesinger et al. 1956
  - Postmenarcheal girls present at younger ages
    - No difference in median menarcheal age
    - Farkas et al. 1983

Fluoride effects on pineal function: Possible mechanisms and implications

- Decreased melatonin production
- Contribute to a variety of effects in humans
  - Depending on age, sex, etc.
- NRC Panel: Not enough information so far
- Political manipulation of intent of review

Glucose metabolism

- Normal situation
  - Insulin promotes uptake of glucose from the bloodstream
  - Glucagon acts to increase glucose in the bloodstream
  - Pancreatic islets
    - Alpha cells produce glucagon
    - Beta cells produce insulin

Effects of fluoride on glucose metabolism: Diabetic animals

- Fluoride intake higher than in normal animals, due to increased water consumption
- Plasma and bone fluoride concentrations higher in diabetic animals due to increased fluoride intake
- Probable greater retention of fluoride in diabetic animals (reduced renal clearance)
- General severity of diabetes worse in fluoride-treated animals

Effects of fluoride on glucose metabolism: Normal animals

- Some studies report increased blood glucose, decreased insulin, impaired glucose tolerance
- Other studies report no differences in blood glucose concentrations, but other endpoints not reported
- Effects seen at plasma fluoride concentrations ≥ 0.1 mg/L

Effects of fluoride on glucose metabolism: Human studies

- Impaired glucose tolerance in adults with endemic fluorosis (Trivedi et al. 1993)
  - Fasting serum glucose concentrations related to serum fluoride concentrations
  - Impaired glucose tolerance reversed after 6 months with reduced fluoride intake
- Osteoporosis patients treated with fluoride (Jackson et al. 1994)
  - 3 of 25 individuals had fasting blood glucose values outside the normal range
  - vs. 1 of 38 untreated individuals
- Studies of "healthy" adults showed no differences between groups

Effects of fluoride on glucose metabolism: Possible mechanisms

- Impaired glucose metabolism at plasma or serum fluoride concentrations ≥ 0.1 mg/L in animals and humans
- Inhibition of insulin secretion
  - Possible inhibition of prohormone convertases (enzyme that converts proinsulin to insulin prior to secretion of the insulin)

Effects of fluoride on glucose metabolism: Possible implications

- Diabetic individuals may have higher fluoride intake and retention than normal individuals
  - Increased water intake
  - Decreased renal clearance
- Fluoride exposure may contribute to impaired glucose tolerance or increased blood glucose in some individuals

Endocrine effects of fluoride exposure: Summary of effects

- Elevated TSH with altered concentrations of T3 and T4
- Increased calcitonin activity
- Increased PTH activity
- Secondary hyperparathyroidism
- Impaired glucose tolerance
- Possible effects on timing of sexual maturity

Endocrine effects of fluoride exposure: Potential significance

- Significant segment of US population is affected by disorders of thyroid function
- Significant segment of the US population has diabetes mellitus
- Iodine deficiency and calcium deficiency are increasing in the US
- Fluoride exposure ranges necessary for endocrine effects are already reached by people in the US

Hip Fractures in the Elderly

- According to the CDC, 50 percent of the elderly who fracture their hip never regain an independent existence.
  - www.cdc.gov/ncipc/factsheets/falls.htm
- According to the Osteoporosis Centre in Australia, 12 to 40% of the elderly who fracture a hip die within a year of the operation.
  - www.osteoporosis-centre.org/oc_hip.htm

Hip fractures in the elderly most frequently occur in the femoral neck.

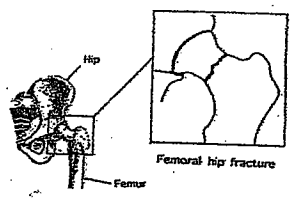


Figure 2. Diagram of the hip joint with the femoral neck magnified.

"The strength of the femoral neck is due mainly to its shell of cortical bone. Computer analyses indicate 90%-95% of the strength of this region is from cortical rather than trabecular bone." *(Gordon & Corbin 1992)*

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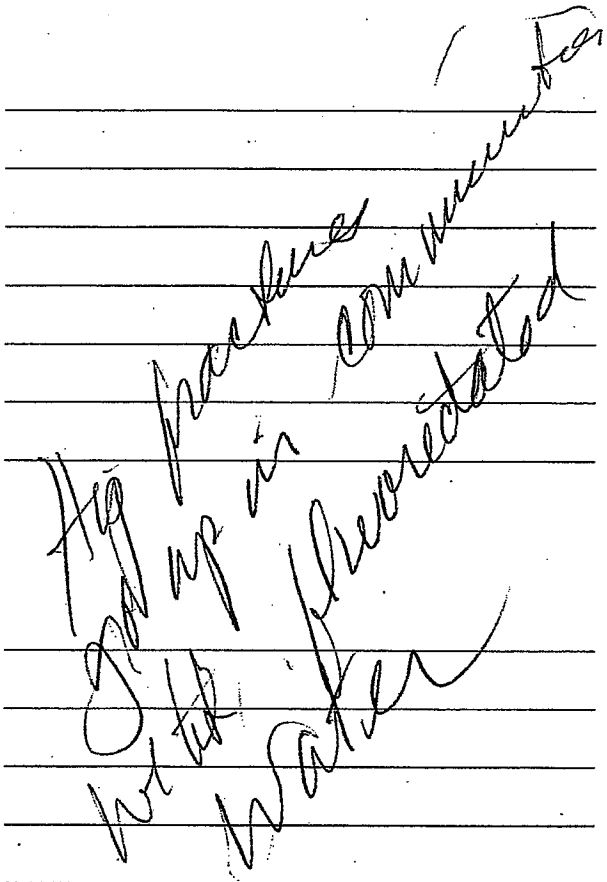
NRC PREPUBLICATION REPORT
ON FLUORIDE
nap.edu/catalog/11571.html#toc

and published study Cancer Causes Control, 2006

"Remarkably robust" association between fluoride and bone cancer in young males during growth spurts

increase in the incidence of osteosarcomas in young males in fluoridated communities over young males in non-fluoridated communities

Peak incidence is between 6 and 8 years of age



Harvard cover-up

- Professor Chester Douglas received $1.3 million in grants to review association of Cancer and fluoridation
- Douglass reported to NIH that Bassin's study confirmed that there is no association

Douglass was aware of his misrepresentation

- Douglass was Bassin's thesis reviewer, and it was data from his study that hid the results by examining all ages and sexes
- Douglas is paid as editor of the Colgate Oral Care Report

Harvard covers up fraud

- Harvard refused to produce copies of the thesis for which Bassin earned her Ph.D
- Environmental Working Group challenged Harvard to review Douglass' actions
- Harvard, without addressing specific claims, states that Douglass made no intentional misrepresentations

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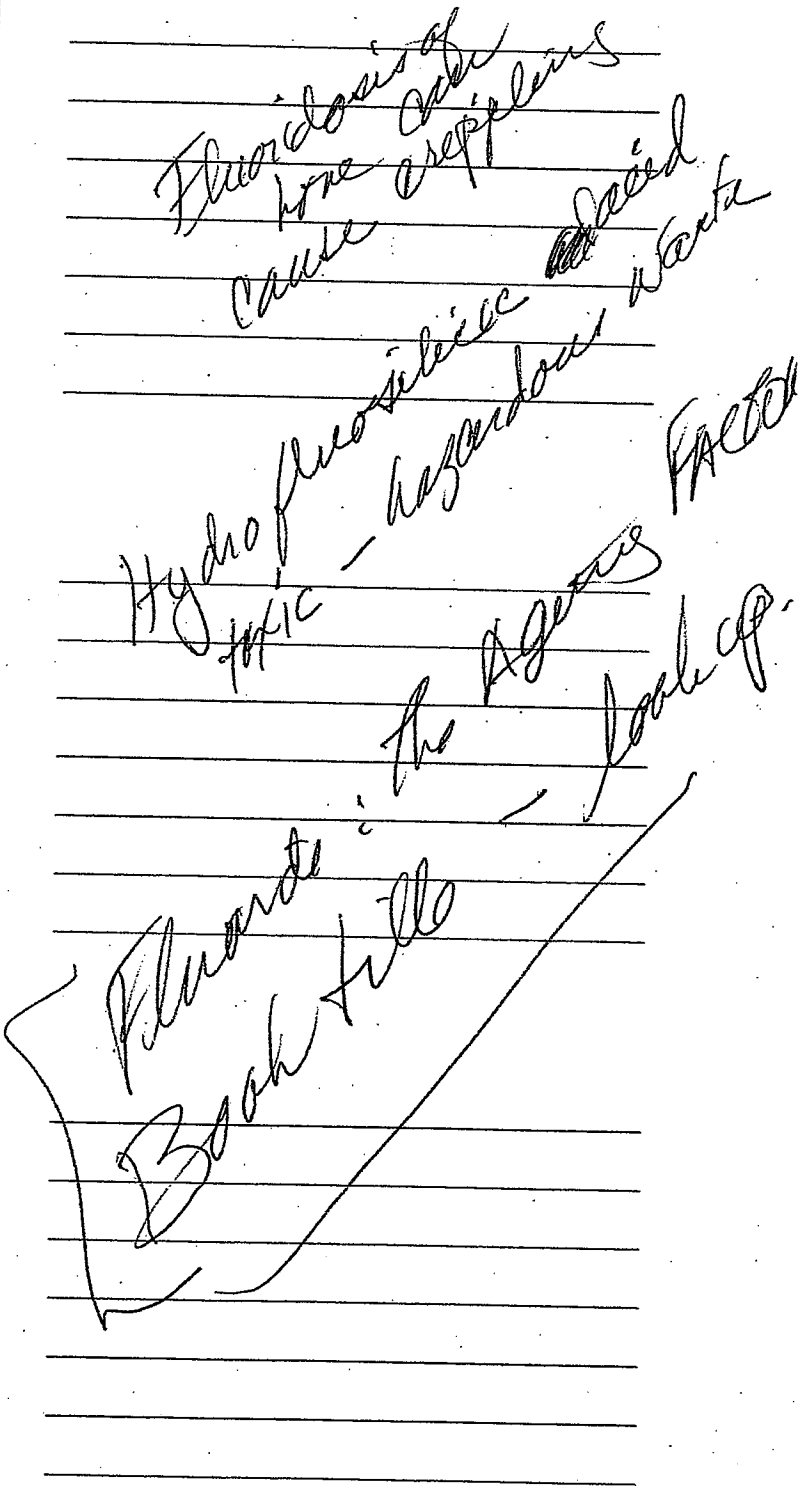
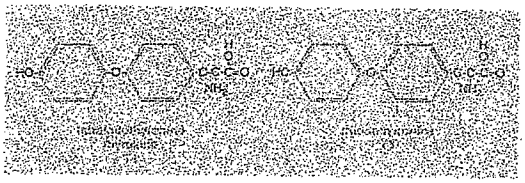
ON FLUORIDE
nap.edu/catalog/11571.html#toc

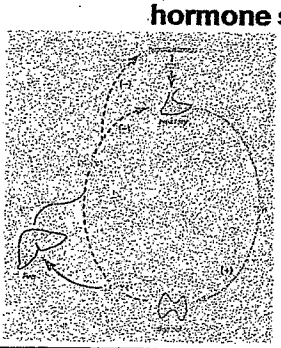


Thyroid hormones



- T4 is the major secretory product of the thyroid
- T3 is the active form of thyroid hormone
  - Binds to the thyroid hormone receptor
- T3 is produced from T4 by the deiodinases
  - Type I (liver, kidney, thyroid)
  - Type II (nonhepatic tissues, including brain and pituitary)

Feedback regulation of thyroid hormone secretion



- Positive stimulation of thyroid hormone secretion by CNS (TRH) and anterior pituitary (TSH)
- Negative feedback inhibition of TSH secretion by T3 and T4
- TSH level usually indicative of the status of thyroid function

Parathyroid function