

New front burner fluoridation issues are common. In Oregon 2005 it was Salmon Runs. Fluoridation's effect on natural rivers such as the Columbia is too small to have any conceivable impact on Salmon. Since 2003 it is Chinese epidemiological IQ reports.

Here is the paper at the heart of the furor, a metanalysis of mostly Chinese papers on IQ and fluoride exposures.

Note the author's choice of words "high fluoride."

Fluoridated water and neurodevelopment has been previously studied. Here 1986 New Zealand research shows no ill effect.

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Developmental Fluoride Neurotoxicity: A Systematic Review and Meta-Analysis

Anna L. Choi,¹ Guifan Sun,² Ying Zhang,¹ **high fluoride exposure**
¹Department of Environmental Health, Har

Conclusions: The results support the possibility of an adverse effect of high fluoride exposure on children's neurodevelopment. Future research should include detailed individual-level information on prenatal exposure, neurobehavioral performance, and covariates for adjustment.

"no association between exposure to fluoridated water and a large range of measures of child health and behaviour"

PubMed.gov
US National Library of Medicine
National Institutes of Health

N.Z. Med. J. 1986 Jun 11;99(803):416-8.

Exposure to fluoridated public water supplies and child health and behaviour.

Shannon FT, Fergusson DM, Horwood LJ.

Abstract
The relationship between duration of exposure to fluoridated public water supplies and measures of child health and behaviour was studied for a birth cohort of Christchurch children. This study showed **no association between exposure to fluoridated water and a large range of measures of child health and behaviour** taken during the period from birth to seven years, even when the possible effects of family social background were taken into account statistically.

The Wichita Eagle quotes the authors that fluoridation voters should not consider their study.

The Wichita Eagle Kansas.com 26°F
45°/22°
Complete Forecast

By Dion Lefler
The Wichita Eagle Published Tuesday, Sep. 11, 2012, at 7:55 p.m.

Harvard scientists: Data on fluoride, IQ not applicable in U.S.


Harvard University scientists say that Wichita voters shouldn't depend on a research study they compiled to decide whether to put fluoride in the city's drinking water to fight tooth decay.

While the studies the Harvard team reviewed did indicate that very high levels of fluoride could be linked to lower IQs among schoolchildren, the data is not particularly applicable here because it came from foreign sources where fluoride levels are multiple times higher than they are in American tap water.

Photos 

And for good reason!!

Meta-analyses of highest quality research, randomized controlled trials, are often mistaken. This analysis combined epidemiological environmental descriptive studies - very low quality information in the author's own judgment.

 **The NEW ENGLAND JOURNAL of MEDICINE**

SPECIAL ARTICLE

Discrepancies between Meta-Analyses and Subsequent Large Randomized, Controlled Trials

Jacques LeLorier, M.D., Ph.D., Geneviève Grégoire, M.D., Abdeltif Benhaddad, M.D., Julie Lapierre, M.D., and François Derdarian, M.Sc.
N Engl J Med 1997; 337:536-542 | August 21, 1997 | DOI: 10.1056/NEJM199708213370806

CONCLUSIONS
The outcomes of the 12 large randomized, controlled trials that we studied were **not predicted accurately 35 percent** of the time by the meta-analyses published previously on the same topics.

35% in error

And the authors very clearly state that these papers have serious deficiencies.

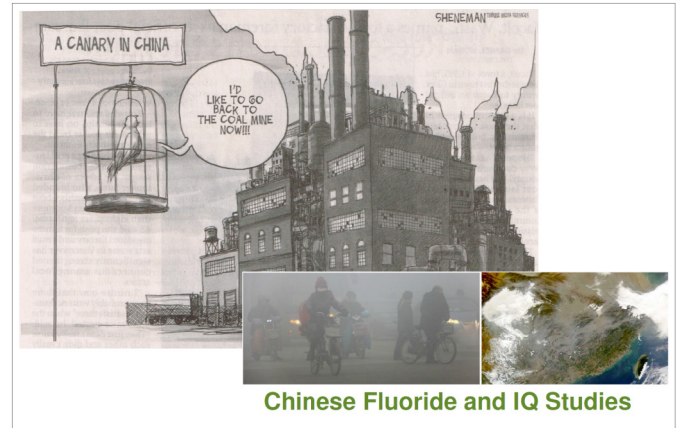
Developmental Fluoride Neurotoxicity: A Systematic Review and Meta-Analysis

Anna L. Choi,¹ Guifan Sun,² Ying Zhang,³ and Philippe Grandjean^{1,4}

¹Department of Environmental Health, Harvard School of Public Health, Boston, Massachusetts,

"... each of the articles reviewed had deficiencies, in some cases rather serious ones, that limit the conclusions that can be drawn."

China is a polluted place.. Pollution, visible both on the ground and from space is good reason these studies should not set US public health policy.



Chinese Fluoride and IQ Studies

These studies weren't necessarily even about drinking water. Well studied pollution events show exposures exponentially higher than .7 ppm water.



Chinese Fluoride and IQ Studies

20% studied environmental pollution, not drinking water

Known issues were specifically recognized in a few of the papers and not properly ruled out in most.



Chinese Fluoride and IQ Studies

20% studied environmental pollution, not drinking water

15% were complicated by iodine and arsenic effects

The reference comparison of "low fluoride" most often was that of fluoridation's concentration. . . .those papers straightforwardly demonstrate fluoridation's safety.



Chinese Fluoride and IQ Studies

20% studied environmental pollution, not drinking water

15% were complicated by iodine and arsenic effects

80% had the "low fluoride" reference level the same as fluoridation

Almost none were subject to the Western peer review process



Chinese Fluoride and IQ Studies

20% studied environmental pollution, not drinking water

15% were complicated by iodine and arsenic effects

80% had the "low fluoride" reference level the same as fluoridation

Only one of the papers was from a peer reviewed western journal

And many can be found only on advocacy web pages or not available at all for general analysis and criticism

Cofounders, which make IQ research difficult, were poorly considered. Other environmental pollutants are of particular concern.

Four of the 26 studies didn't specify the high and low fluoride concentrations that were measured. Of the 22 remaining studies, four based the fluoride exposures entirely on coal residues or other non-water measurements.

This leaves only 18 studies that reported the fluoride exposures and based them on water samples and perhaps most amazingly, the reference group (low fluoride) with higher IQ's drank water with an average of 0.78 ppm, just a bit more than the current 0.70 ppm optimal target.

A very important study comparing low, optimal and high water fluoride to bone fracture rates. Fluoridation causes the best skeletal health with as many fractures at low and high water levels.

The only Chinese Study to compare low, optimal and high fluoride drinking water to IQ found similarly

The author said: "it was discovered that both high and low fluoride had an effect on child intelligence." Both high and low fluoride may disrupt intellectual development.

Poor quality information would never be used to change best clinical practice for individual patients. It is unreasonable to propose that ecologic comparisons from a terribly polluted country composed of studies with these many flaws should set USA public health policy.

At JA, Ma SZ, Liu AR, Fu Y, Wang CF. Effect of high level of fluoride on children's intelligence. *Chin J Control Endemic Dis*. 1992;7(2):13-14. [in Chinese].

Bi W, Zhang X, Liu YX. Analysis on the levels of drinking water's quality in Jaxan Railway. *Bulletin from 2005-2009*. *Proc Med Trib*. 2010;16(6):483-485. [in Chinese].

Chen YX, Han F, Zhou Z, Zhang H, Jiao X, Zhang S, et al. Research on the intellectual development of children in high fluoride area. *Chin J Control Endemic Dis*. 2003;7(3):19-20. Available: <http://www.cnki.net/ArticleDetail.aspx?fileid=1> [accessed 20 August 2012].

Ding Y, Guo Y, Guo H, Han F, Wang H, Wang H, X, et al. The relationship between low levels of urine fluoride and children's intelligence. *Journal of Health Science*. 2007;16(1):1-4. Available: [http://www.cup.edu.cn/journal/HealthSci/2007/16\(1\)/001-004.htm](http://www.cup.edu.cn/journal/HealthSci/2007/16(1)/001-004.htm) [accessed 20 August 2012].

Guo Y, Wang X, Cheng C, Wu W, Tang L, Wang Q, et al. A preliminary exploration of IQ of 7-13 year old children in a fluoride area with contamination from heating coal. *Chin J Endocrinol*. 2003;12(10):109. Available: <http://www.cnki.net/ArticleDetail.aspx?fileid=1> [accessed 20 August 2012].

Higgins JP, Thompson SG. Quantifying heterogeneity in a meta-analysis. *Stat Med*. 2002;21:1539-1558. [PubMed].

Hong F, Guo Y, Yang D, Wang H. A study of fluoride effects on children's intelligence development under different environments. *Chin J Public Health*. 2001;15:56-57. Available: <http://www.chinajournal.com.cn/> [accessed 20 August 2012].

Li FH, Chen X, Huang H, Xu YP. Intelligence report of children with endemic fluorosis caused by fluoride from coal burning. *J Environ Health*. 2002;26(2):136-140. [in Chinese].

Li XR, Han GQ, Yu B, Yuan CS, Liu Y, Zhang L, et al. Investigation and analysis of children's intelligence and dental fluorosis in high fluoride area. *J Med Post Grad*. 2010;26(5):236-237. [in Chinese].

Li XN, Zhu H, Guo HX. Effect of fluoride exposure on intelligence in children. *Fluoride*. 1998;21(4):189-192.

Li Y, Jang N, Chen D, Liu L, Wang Z. The effects of endemic fluoride poisoning on the intellectual development of children in Liaoning, China. *Public Health*. 2003;117(4):375-378. Available: <http://www.fluoridejournal.com/> [accessed 20 August 2012].

Li Y, Li X, Wu S. Effect of excessive fluoride intake on mental work capacity of children and a preliminary study of its mechanism. *Chin J Control Endemic Dis*. 1992;6(2):116-119. Available: <http://www.cnki.net/ArticleDetail.aspx?fileid=1> [accessed 20 August 2012].

Liu PF, An HZ, Zhu HC, Liu J, Zhang YJ, Maniatis, et al. High fluoride and low iodine environment and intellectual position in Xuying. *Endem Dis Bull*. 1991;6(2):45-47. [in Chinese].



Chinese Fluoride and IQ Studies

- 20% studied environmental pollution, not drinking water
- 15% were complicated by iodine and arsenic effects
- 80% had the "low fluoride" reference level the same as fluoridation
- Only one of the papers was from a peer reviewed western journal

Cofounders were considered in only two studies

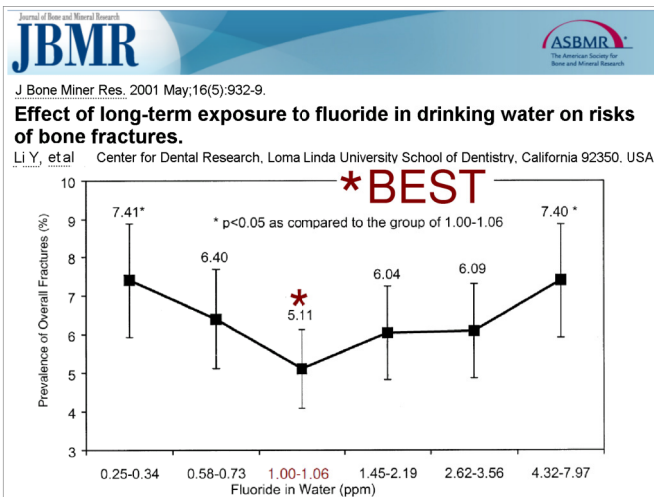
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Developmental Fluoride Neurotoxicity: A Systematic Review

Average "low" Chinese fluoride = 0.78 ppm

Optimal Fluoride Target in US = 0.7 ppm

neurodevelopment. Future research should include detailed individual-level information on prenatal exposure, neurobehavioral performance, and covariates for adjustment.



Chinese Journal of Control of Endemic Diseases

Qin LS, Cui SY. (1990). The influence of drinking water fluoride on pupils IQ, as measured by Rui Wen's standards. *Chinese J of the Control of Endemic Diseases* 5:203-204(0)

"By testing of the intellectual ability of 447 elementary school students ranging in age from 9 to 10 1/2, it was discovered that both high and low fluoride had an effect on child intelligence. Fluoride levels greater than 2.0 mg/L or less than 0.2 mg/L can disrupt intellectual development."

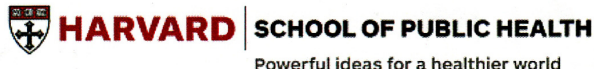
Fluoride below 0.2 ppm → Lowered IQ

USA Target - 0.7 ppm → Best IQ

Fluoride above 2.0 ppm → Lowered IQ

Because fluoridation opponents were incorrectly labeling the Choi and Grandjean paper “the Harvard Study” and because the meta-analysis has no importance to the scientific evaluation of fluoridation's safety, Boston based oral public health authority Dr. Myron Allukian, a graduate of the Harvard School of Public Health, requested Harvard formally consider the matter.

The deans of the Harvard Medical School, Dental School and School of Public Health (in which Grandjean hold an adjunct position) clearly stated they believe fluoridation to be safe, beneficial and practical. This is the official Harvard position.



March 22, 2013

Dr. Myron Allukian, Jr.
Immediate Past President, American Association for Community Dental Programs
Associate Clinical Professor, Harvard School of Dental Medicine
Via email: myalluk@aol.com

Dear Dr. Allukian:

As Deans of Harvard Medical School, Harvard School of Dental Medicine and the Harvard School of Public Health, we continue to support community water fluoridation as an effective and safe public health measure for people of all ages.

Numerous reputable studies over the years have consistently demonstrated that community water fluoridation is safe, effective, and practical. Fluoridation has made an enormous impact on improving the oral health of the American people.

Our country is fortunate to have over 204 million Americans living in fluoridated communities and having access to the health and economic benefits of this vital public health measure.

Sincerely,

Jeffrey S. Flier, MD
Dean of the Faculty of Medicine
Caroline Shields Walker Professor of Medicine
Harvard Medical School

R. Bruce Donoff, DMD, MD
Dean and Walter C. Guralnick Distinguished Professor of Oral and Maxillofacial Surgery
Harvard School of Dental Medicine

Julio Frenk, MD, MPH, PhD
Dean of the Faculty, Harvard School of Public Health
T & G Angelopoulos Professor of Public Health and International Development,
Harvard School of Public Health and Harvard Kennedy School

Well funded committees of experts have many times reviewed all of the science related to fluoridation and health concerns. Other than the Qin study, which found optimal fluoride associated with better IQ, none have identified any fluoridation effect on the developing brain.

Systematic Evidence Based Reviews

An independent review from an English Health District found no relevance to the meta-analysis and the decision for fluoridation.

Grandjean, the senior author of the meta-analysis published a paper with a Harvard pediatrician on environmental toxins and brain development in The Lancet Neurology. Fluoride is a very minor element; its only literature reference is Grandjean's prior paper. This paper thus adds nothing to what has been discussed above. It contains nothing new.

In an interview for The Atlantic pediatrician co-author Phillip Landrigan made clear the difference between beneficial low dose fluoride typical of the US and the high doses in China which might be harmful.

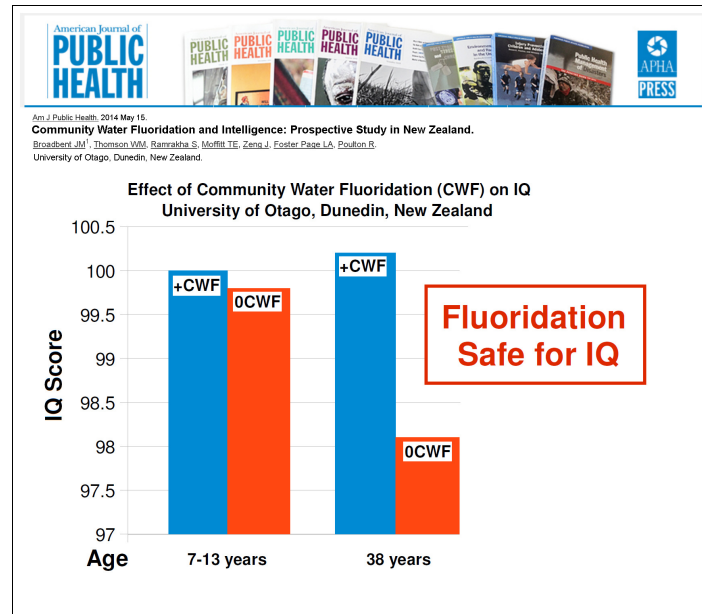
The unsupported claim that fluoridation might be a cause of IQ deficits among children, proved critically important to the City Councilors in Hamilton, New Zealand.

The nearby University of Otago then published an analysis of the ongoing Dunedin Multidisciplinary Health and Development Study. These data included IQ testing and water fluoridation status for over 1000 people followed for 38 years. By comparison only seven of the Chinese studies had sample sizes over 500.

The Otago researchers well controlled for factors other than fluoridation, such as parents' socioeconomic background and breast feeding. New Zealand has none of the general environmental pollution common in China. .

No loss of IQ because of fluoridation was found.

The authors concluded that the “associations between very high fluoride exposure and low IQ reported in previous studies may have been affected by confounding, particularly by urban or rural status.”



By:

Charles C. Haynie, M.D.; FACS
Hood River, OR 97031