

# Fluoridation in Wellington

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# Outline of Talk

1. Swallowing Fluoride does not reduce dental decay
2. Dose – dental fluorosis, thyroid
3. Fluoride lowers IQ

## Swallowing fluoride does not reduce dental decay

Theory has changed - The major benefits of fluoride are **TOPICAL** not **SYSTEMIC**. (CDC, 1999, 2001). In other words fluoride works on the **outside surface** of the tooth not from inside the body

## Swallowing fluoride does not reduce dental decay

"The primary benefit of fluoride is post-eruptive and topical"

Geoffrey Seymour, Dean of Otago Dental School said to the Dunedin City Council in 2008

## Swallowing fluoride does not reduce dental decay

“These findings suggest that achieving a caries-free status may have relatively little to do with fluoride intake, while fluorosis is clearly more dependent on fluoride intake.” (Warren et al., 2009)

## Swallowing fluoride does not reduce dental decay

“Similarly, Professor Connett’s highlighting of the conclusion from Warren et al 2009 that there was no relationship between fluoride **ingested** and tooth decay levels is unsurprising. It is generally accepted that the principal caries protective effect from fluoride is **topical**” Robin Whyman NFIS

## Swallowing fluoride does not reduce dental decay

“The understanding of how fluoride now works is that the vast and predominant effect is a topical one.”  
Says Dr Robin Whyman.

Bay Buzz, Hawke's Bay 9<sup>th</sup> May 2013

## Swallowing fluoride does not reduce dental decay

“the Ministry of Health no longer promotes fluoride tablets as a population health measure”

Robyn Haisemen-Welsh Taranaki Daily News  
October 2011



# Swallowing fluoride does not reduce dental decay

## Our Oral Health, 2010

“93% of people brush their teeth at least one a day with a fluoride toothpaste.”

## Arvid Carlsson – Nobel prize winner for Medicine 2000



You have the  
teeth there,  
why swallow  
the stuff?

## Swallowing fluoride does not reduce dental decay

“... When we drink or cook with fluoridated water it is in contact with the tooth and that is the first defence against decay.” Kanagaratnum Herald on Sunday 31<sup>st</sup> March 2013

# Swallowing fluoride does not reduce dental decay

Fluoridated Water 0.8ppm

Fluoridated Adult toothpaste 1000ppm

Child Strength fluoridated toothpaste  
400ppm

## Fluoridation is Disrespectful

“My response depends on what the community thinks and whether there is sufficient evidence to show that if fluoridation is removed from water that the general population are **committed to looking after their teeth** (particularly those in low incomes areas where you see problems with dental health).

# Baby bottle tooth decay



## Dose vrs Concentration in Water

“This raises the concept that the 'dose makes the poison'. ..... Exposure to fluoride at high **doses** is no different. Exposure to **higher levels of fluoride in drinking water** ... is unquestionably associated with a number of negative health effects.” Greg Simmons Medical Officer of Health, Taranaki District Health Board 2011

## Dose vrs Concentration in Water

- Dose is mg/kg/day
- Concentration in water is measured in parts per million
- The two are very different



## Dose vrs Concentration in Water

- Parts per million (ppm) equates to milligrams per litre
- E.g. 1ppm = 1mg per litre
- Porirua water contains 0.8ppm = 0.8mg per litre

## What dose are people getting?

Porirua water contains 0.8mg per litre

New born baby consumes 600ml per day

Total mg =  $0.8 \times 0.6$  ltrs = 0.48 mg a day

Weigh 3.5kg

Dosage =  $0.48/3.5/1$  = **0.137** Mg/kg/day

## What dose are people getting?

Porirua water contains 0.8mg per litre

6 mth old consumes 1 ltr per day

Total mg =  $0.8 \times 1 \text{ ltrs} = 0.8 \text{ mg}$

Weighs 8kg

Dosage =  $0.8/8/1 = \mathbf{0.1} \text{ Mg/kg/day}$

## Is the dose safe?

Hong et al Community of Dentistry and Oral Epidemiology 2006.

Established that fluoride intake needed to be less than 0.05 mg/kg/day for fluorosis not to occur

## Is the dose safe?

Dose for:

- New born = 0.137 mg/kg/day
- 6 mth old = 0.1 mg/kg/day
- Fluorosis not to occur < 0.05 mg/kg/day

## Dose causes dental fluorosis

- 30% of children in fluoridated areas have dental fluorosis
- 15% in non-fluoridated areas.

The only way a child gets dental fluorosis is if they have too much fluoride while their teeth are developing

There is no argument about that.

## Does it matter?

- Moh claim that dental fluorosis is only cosmetic
- But dental fluorosis is actually the first outward sign of fluoride poisoning.
- A bio-marker of over-exposure.

## Does it matter?

Just like,

- A thin blue line on the gum is the first outward sign of lead poisoning
- Who would say “don’t worry about it, no one sees your gums”?



## Dose that effects thyroid

NRC - effects on thyroid function were associated with fluoride exposures of **0.05-0.13 mg/kg/day** when iodine intake was adequate and **0.01-0.03 mg/kg/day** when iodine intake was inadequate.

## Dose effects thyroid

- New born = 0.137 mg/kg/day
- 6 mth old = 0.1 mg/kg/day
- Effect on thyroid **0.05-0.13** mg/kg/day

## Dose effects thyroid

“The thyroid changes do worry me. ....we’ve gone with the status quo regarding fluoride for many years— for too long, really—and now we need to take a fresh look”.

John Doull – pro-fluoride Chairman of the NRC

## Serious risk to childrens' brains

Harvard researchers published a Meta analysis of 27 IQ-fluoride studies in the prestigious Environmental Health Perspectives journal July 2012

## Serious risk to childrens' brains

...was associated with a 0.45 reduction in the “standardized mean difference” (SMD) in intelligence..... a reduction of 0.45 SMD is “approximately equivalent to seven IQ points for commonly used IQ scores.”

## Serious risk to childrens' brains

Seven studies found reduced IQs among children drinking water with fluoride levels between 2.1 mg/l and 4 mg/l

Four studies found effects at levels between 1.8 mg/l and 2.0 mg/l

One study (sponsored by UNICEF) found reduced IQ at just **0.88 mg/l**

## Serious risk to childrens' brains

“ the mean IQ score of children without dental fluorosis was significantly higher than those children who had dental fluorosis. The mean IQ scores did not vary with the severity of dental fluorosis as classified by Dean's fluorosis index.”

Indian Journal of Preventative Dentistry 2011

## Serious risk to childrens' brains

“Fluoride seems to fit in with lead, mercury, and other poisons that cause chemical brain drain. The effect of each toxicant may seem small, but the combined damage on a population scale can be serious, especially because the brain power of the next generation is crucial to all of us.”

Phillipe Grandjean co-author Harvard study



## In Closing

It doesn't work

It's dangerous

It's disrespectful

It's time to review fluoridation

# Fluoridation belongs to the last century

**“Fluoridation  
goes against  
all modern  
principles of  
pharmacology.  
It’s obsolete.”**



*Dr. Arvid Carlsson  
Nobel Laureate in Medicine*



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