

# PINEAL GLAND

"Fluoride is likely to cause decreased melatonin production and to have other effects on normal pineal function, which in turn could contribute to a variety of effects in humans." (National Research Council 2006).



SELECT A TOPIC IN HEALTH EFFECTS: Pineal Gland

SHARE WITH: f t

## PINEAL GLAND

In the 1990s, a British scientist, Jennifer Luke, discovered that fluoride accumulates to strikingly high levels in the pineal gland. (Luke 2001). The pineal gland is located between the two hemispheres of the brain and is responsible for the synthesis and secretion of the hormone melatonin. Melatonin maintains the body's circadian rhythm (sleep-wake cycle), regulates the onset of puberty in females, and helps protect the body from cell damage caused by free radicals.

While it is not yet known if fluoride accumulation affects pineal gland function, preliminary animal experiments found that fluoride reduced melatonin levels and shortened the time to puberty. (Luke, 1997). Based on this and other evidence, the National Research Council has stated that "fluoride is likely to cause decreased melatonin production and to have other effects on normal pineal function, which in turn could contribute to a variety of effects in humans" (NRC, 2006, p. 256).

### The Pineal Gland Has Highest Levels of Fluoride in Body

As a calcifying tissue that is exposed to a high volume of blood flow, the pineal gland is a major target for fluoride accumulation in humans. In fact, the calcified parts of the pineal gland (hydroxyapatite crystals) contain the highest fluoride concentrations in the human body (up to 21,000 ppm F), higher than either bone or teeth. (Luke 1997; 2001). Although the soft tissue of the pineal does not accumulate fluoride to the same extent as the calcified part, it does contain higher levels of fluoride than found than in other types of soft tissue in the body — with concentrations (~300 ppm F) that are known in other contexts to inhibit enzymes. While the impacts of these fluoride concentrations in the pineal are not yet fully understood, studies have found that calcified deposits in the pineal are associated with decreased numbers of functioning pinealocytes and reduced melatonin production (Kunz et al., 1999) as well as impairments in the sleep-wake cycle. (Mahlberg 2009).

### Fluoride and Earlier Puberty in Girls

In the United States, children are reaching the age of puberty at earlier ages than in the past — a trend that carries health consequences, including a heightened risk for breast cancer. Some evidence indicates that fluoride, via its effect on the pineal, could be a contributing cause to this trend. In animal studies, for example, fluoride exposure has been found to cause a decrease in the amount of circulating melatonin and lead to an accelerated sexual maturation in females. (Luke 1997). Similar findings have been reported in two epidemiological studies of human populations drinking fluoridated water. In the first published fluoridation safety experiment in Newburgh, New York, the authors found that girls living in a fluoridated community reached puberty five months earlier than girls living in a non-fluoridated community. (Schlesinger 1956) Later, in 1983, Farkas reported that postmenarcheal girls were "present at younger ages in the higher fluoride town than in the low-fluoride town, although the reported median ages were the same."

### REFERENCES:

- Farkas G, et al. (1983). The fluoride content of drinking water and menarcheal age. Acta Univ Szegeed Acta Biol. 29(1-4):159-168.
- Kunz D, et al. (1999). A new concept for melatonin deficit: on pineal calcification and melatonin excretion. Neuropsychopharmacology 21(6):765-72.
- Luke J. (2001). Fluoride deposition in the aged human pineal gland. Caries Res. 35(2):125-128.
- Luke J. (1997). The Effect of Fluoride on the Physiology of the Pineal Gland. Ph.D. Thesis. University of Surrey, Guildford.
- Mahlberg R, et al. (2009). Degree of pineal calcification (DOC) is associated with polysomnographic sleep measures in primary insomnia patients. Sleep Med. 10(4):439-45.
- National Research Council. (2006). Fluoride in Drinking Water: A Scientific Review of EPA's Standards. National Academies Press, Washington D.C.
- Schlesinger ER, et al. (1956). Newburgh-Kingston caries fluoride study. XIII. Pediatric findings after ten years. J Am Dent Assoc. 52(3):296-306.

Print PDF

### RELATED VIDEOS:



Crippling Waters



Professional Perspectives on Water Fluoridation



Don't Swallow Your Toothpaste

DONATE YOU CAN HELP!

### FAN NEWSLETTER

Sign up for our free newsletter for updates on the latest fluoride developments.

First Name\*  
Last Name\*  
Email\*  
State/Province  
Country

### QUICK FACTS

97% OF WESTERN EUROPE HAS REJECTED WATER FLUORIDATION

MANY CHILDREN NOW EXCEED RECOMMENDED DAILY FLUORIDE INTAKE FROM TOOTHPASTE ALONE.

FLUORIDE IS NOT A NUTRIENT.

64 STUDIES HAVE LINKED FLUORIDE WITH REDUCED IQ IN CHILDREN.

CURIOUS HOW YOU CAN SUPPORT OUR EFFORTS?

RELATED ARTICLES:

**Fluoride & Oxidative Stress: Yet More Evidence**

As with Dr. Guan's team at the Karolinska Institute, Chirho's team found that fluoride increased the level of oxidative stress in brains of the fluoride-treated animals.

**Puberty Before Age 10: A New 'Normal'?**

Was the age of puberty really dropping? Parents said yes. Leading pediatric endocrinologists said no. The stalemate lasted a dozen years.

RELATED STUDIES:

**Luke (1997): The Effect of Fluoride on the Physiology of the Pineal Gland (Excerpts)**

"The results suggest that fluoride is associated with low circulating levels of melatonin and this leads to an accelerated sexual maturation in female gerbils. The results strengthen the hypothesis that the pineal has a role in pubertal development."

**Luke (2001): Fluoride Deposition in the Aged Human Pineal Gland**

This study has added new knowledge on the fate and distribution of fluoride in the body. It has shown for the first time that fluoride readily accumulates in the human pineal gland although there was considerable inter-individual variation

RELATED MISCELLANEOUS CONTENT:

**Fluoride & the Pineal Gland: Study Published in Caries Research**

The wheels of science grind very slowly. Finally, the first half of the work that was the subject of Jennifer Luke's Ph.D. thesis, presentation in Bellingham, Washington (ISFR conference) in 1998 and a videotaped interview I had with her, has been published in Caries Research. In my view this work is

**Melatonin & Breast Cancer**

I have just received a fascinating piece of snail mail from June Allen, who with her husband Dr. Phillip Allen, runs a group called Enviro-Health Concerns. She has pulled out some quotes which point to a possible connection between melatonin levels and breast cancer, and ties this back to the

 NEW VISITORS

 TAKE ACTION

 RESEARCHERS

Issues

FAN.tv

News

F.A.Q.

About FAN



[JOIN US](#) [DONATE](#)

© Fluoride Action Network 2024. All Rights Reserved.