

## HIGHLIGHTS

- Fluorine is an element that is missing an electron and binds to elements such as Lithium, Beryllium and Aluminum
- Fluorides are naturally found in food, soil and both fresh and salt water
- We are exposed to fluoride through food, water, drinks, toothpaste, supplements, cigarette smoke, industrial emissions and pharmaceuticals
- Drinking water fluoride in municipal drinking water systems is sourced from industrial chemical waste
- Fluoride accumulates in the pineal gland and hardens it
- Changes in pineal gland size and structure are linked with poor health

# FLUORIDE

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## WHAT IS FLUORIDE?

According to the Safe Drinking Water Foundation “Fluoride is a chemical ion composed of fluorine and another element. Fluorine is an element that is missing an electron, so it will naturally bond with an element that has an extra electron. Elements like Lithium, Beryllium and Aluminum all bond to fluorine to make different fluoride compounds. Fluorides are naturally found in food, soil, and both fresh and salt water.” We are exposed to fluoride through food, water, beverages, toothpaste, fluoride supplements, cigarette smoke, industrial emissions and pharmaceuticals. In Canada, approximately 30 municipalities have banned fluoride.

## WHERE DOES DRINKING WATER FLUORIDE COME FROM?

Different manufacturing sectors use large amounts of fluoride including brickworks, glass and enamel makers and superphosphate fertilizer manufacturers. Toxic hydrogen fluoride gas is a by-product of fertilizer production. Instead of polluting the air with this gas, fertilizer manufacturing operations use abatement scrubbers that convert the vapor into fluorosilicic acid (FSA) which is still dangerous but easier to contain. Breathing FSA fumes can cause severe lung damage or death and cause burning and excruciating pain when it comes into contact with skin. In the U.S.A, FSA is transported from fertilizer factories to drinking water distribution systems and drip fed into the public’s drinking water supply. Essentially, the fluoride that we get in our drinking water is an industrial waste product.

## THE PINEAL GLAND

This gland is found in the center of the brain. The alteration of the pineal gland can be related with disease. For example, obese people have smaller pineal glands as compared to leaner people. Pineal gland volume is reduced in patients with primary insomnia. Rene Descartes, who was a French philosopher, mathematician and scientist, regarded the pineal gland as the seat of the soul and a place in which all thoughts are formed. The pineal gland is an endocrine gland and is the source of melatonin which regulates our sleep cycle. Moreover, the pineal gland synthesizes neurosteroids from cholesterol. Considering that the pineal gland plays such an important role in our bodies, we should carefully consider the possible damage done by fluoride in modifying the elemental composition of the pineal gland.

## FLUORIDE DEPOSITION IN THE PINEAL GLAND

Fluoride has been shown to accumulate in the pineal gland. In old age, it is possible that the pineal gland can accumulate fluoride at such a high rate that the ratio of fluoride in the pineal gland is higher than that of calcium in bone.

- Fluorosis is a condition characterized by discoloration and pitting of teeth and pathological bone changes
- Fluoride may kill brain cells
- Fluoride may lower IQ in children
- There might be a relationship between developing diabetes and fluoride exposure
- There are many ways we can avoid fluoride exposure

## BRAIN CELL DEATH

Fluorosis is a severe threat to human health. The condition is characterized by excessive fluoride that causes discoloration and pitting of teeth and pathological bone changes. Excessive fluoride intake can be dangerous. In a study where rats were exposed to high levels of fluoride, their brains cells began to die. Fluoride can induce dysfunction of the central nervous system. Symptoms of excessive fluoride can include lethargy, insomnia, deterioration of learning and memory.

## DEVELOPMENTAL FLUORIDE NEUROTOXICITY

It is a known fact that acute fluoride poisoning causes neurotoxicity in adults. In a systematic review, children living in high fluoride areas had significantly lower IQ scores than those who lived in low fluoride areas. It is likely that fluoride exposure harms the developing brain.

## FLUORIDE EXPOSURE IMPAIRS GLUCOSE TOLERANCE

Fluoride is an oxidizing agent and a well-known reversible enzymatic inhibitor. An enzyme inhibitor is a substance that interferes with enzyme activity. In a study, a dose dependent relationship was observed when B cells were exposed to fluoride. B cells secreted less insulin in the presence of fluoride. The results from this study may provide some evidence in the support of a relationship between diabetes and fluoride exposure.

## HOW CAN WE AVOID FLUORIDE EXPOSURE?

There are different ways we can avoid fluoride. Water distillation and reverse osmosis water purification processes will remove fluoride from water. We can use activated charcoal to brush our teeth rather than using regular toothpaste or we can use fluoride free toothpaste. Another good idea is to stop smoking cigarettes and avoid second hand smoke. It is a good idea to live far away from sources of industrial pollution so that we can avoid fluoride pollution.

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