




# High levels of nitrate in drinking water can affect everyone.


 Nitrate may cause birth defects.  
This can affect women who are or may become pregnant.

 Nitrate can cause blue baby syndrome.  
This can affect infants less than 6 months old.



Levels of nitrate-nitrogen over **10 mg/L** can be harmful.

 Nitrate may cause thyroid disease.  
This can affect everyone.

 Nitrate may increase the risk for certain kinds of cancer.  
This can affect everyone.



# Protect yourself and your family by testing your well every year for nitrate and finding a safe source of water if levels are high.

## **Blue Baby Syndrome** (or methemoglobinemia)



Nitrate can affect how our blood carries oxygen. Nitrate can turn hemoglobin (the protein in blood that carries oxygen) into methemoglobin. High levels can turn skin to a bluish or gray color and cause more serious health effects like weakness, excess heart rate, fatigue, and dizziness. Nitrate can affect babies more seriously because their bodies interact with nitrate differently.

When nitrate levels are high, water should not be given to babies less than 6 months old or used to make infant formula.

## **Birth Defects**



High levels of nitrate in drinking water may cause neural tube defects (a type of birth defect). The neural tube turns into the brain and spine in an unborn baby. Neural tube defects can occur very early in pregnancy.

When nitrate levels are high, women who are or may become pregnant should immediately stop using the water for drinking and preparing foods that use a lot of water.

## **Thyroid Disease**



High levels of nitrate in drinking water may increase the risk of thyroid disease. Nitrate can affect how the thyroid functions by blocking the uptake of iodine. The thyroid needs iodine to make hormones. Low levels of thyroid hormone levels can cause fatigue, weight gain, dry skin, hair loss, and goiters (enlarged thyroid).

When nitrate levels are high, everyone should avoid long-term use of the water for drinking and preparing foods that use a lot of water.

## **Cancer**



High levels of nitrate in drinking water may increase the risk of colon cancer. Nitrate may enhance the cancer potential of other compounds or may turn into cancer-causing chemicals like the body. Nitrate in drinking water has not been shown to increase the risk of other kinds of cancer.

When nitrate levels are high, everyone should avoid long-term use of the water for drinking and preparing foods that use a lot of water.

## **We are still learning about the health effects of nitrate.**

Some studies have suggested that nitrate may be associated with miscarriages, diabetes, acute respiratory tract infections in children, and macular degeneration. However, additional information is needed to determine the relationship between nitrate and these effects.