

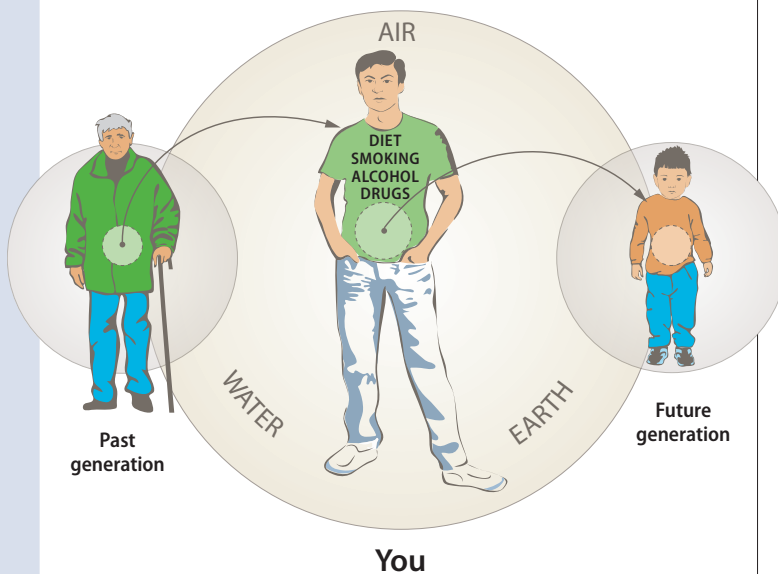


# Environment, Heredity and Cancer



## Environmental risks

Research shows that exposure to the sun and certain chemicals, gases or radiation can cause cancer. You can be exposed to these environmental risks through air, water, earth or food. Toxins get into our bodies by breathing, eating, drinking, or through the skin.



## What causes cancer?

Scientists study cancer at many levels—in cells, in animals and in people—to figure out how we get cancer.

Studying people who do (or don't) get cancer is helpful because it can show us what factors cause this disease. Human health is affected by many factors, including where we live, how we live and who we are related to.

We know that the body has ways of repairing itself and protecting itself from damage. Only when these defences fail, we become sick.

By studying people with cancer living in many different places but who are exposed to similar risks, science is beginning to find links between our environment and cancer.

## Can you inherit cancer?

In rare cases, you can inherit genes that increase your cancer risk. For example, this is true for some types of breast cancer caused by mutations in the BRCA1 and BRCA2 genes.

More commonly, because of their genetic makeup, some people are more likely to develop cancer when exposed to damaging environmental or lifestyle factors, such as tobacco or chemicals. Reducing your exposure to these risk factors can help prevent cancer.

## Your lifestyle choices can affect your children and grandchildren

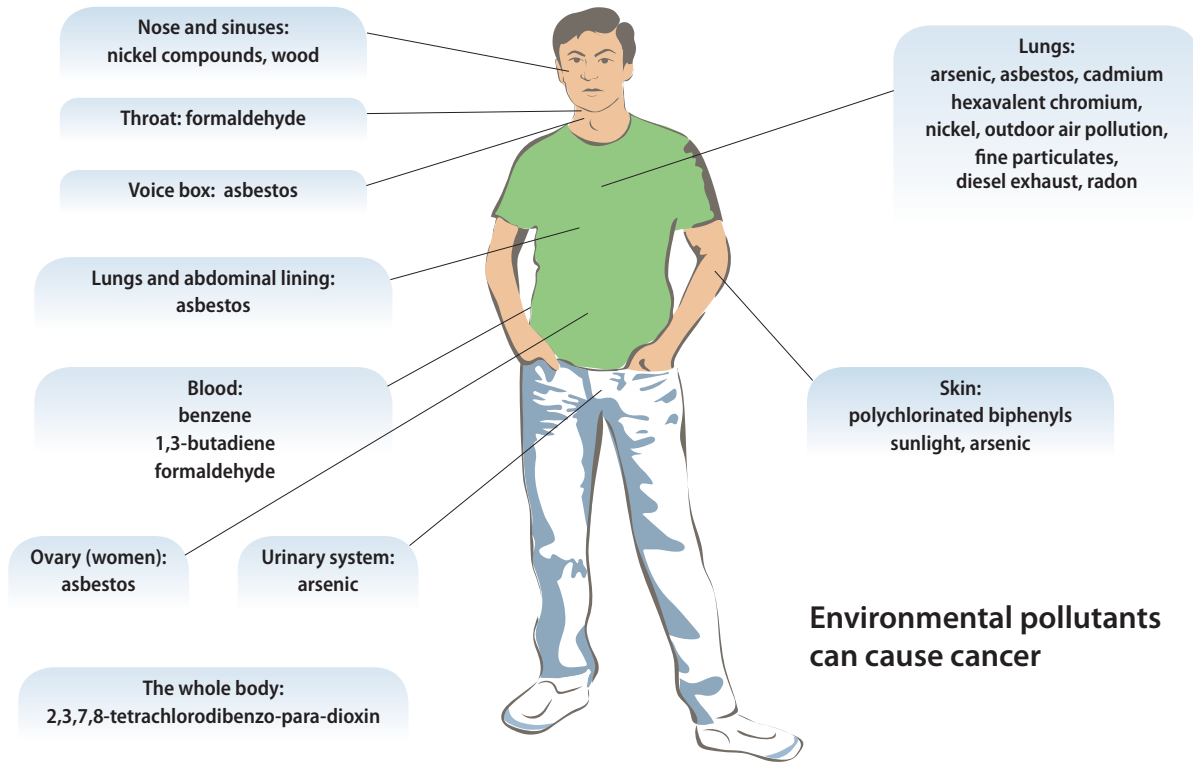
The cells in your body contain instructions on how you look, everything required to make your body work and how to grow new cells. These instructions (or DNA) are passed on to your children.

Some parts of your DNA (such as your eye colour) can't be changed. Other parts (called epigenomes) are actually switches that can be turned "on" or "off" to fine-tune how your body works.

Medical researchers now believe that exposure to toxins (such as chemicals, tobacco or alcohol) or lifestyle risk factors (such as being obese) can change the settings of these switches, create wrong instructions for your body and increase your risk of getting cancer.

They have also discovered that you can pass on these wrong instructions to younger generations. This means that lifestyle choices and environmental risks can affect both your health *and* the health of anyone who inherits your DNA—such as your children and grandchildren.

Choosing good nutrition and a healthy lifestyle can protect your DNA, counteract inherited risk factors and help reduce your risk of cancer.



**Environmental pollutants can cause cancer**

## How to reduce your environmental risk of cancer

The key to preventing cancer or other diseases caused by environmental pollutants is to reduce or eliminate exposure.

**On the job:** Reduce or eliminate your exposure to environmental hazards. Make sure you ask about and follow the Workplace Hazardous Materials Information System (WHMIS) information provided. Toxins can be invisible, odourless and deadly. For example, exposure to asbestos in brake pads (particularly in older cars) or pipe insulation can cause a lethal form of cancer called mesothelioma many years later. Ask for and use protective equipment.

**In the home:** Do not use (or reuse) materials in the home that contain asbestos (for example in insulation), arsenic (for example, in older pressure-treated wood) or creosote (for example, railway ties).



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Indoor air quality can present some significant challenges for Inuit families, particularly when homes are poorly insulated and poorly ventilated. Pollutants such as second-hand smoke and mould can affect the respiratory system and overall health.

Be aware that radon gas can leak into the home. Radon is a natural radioactive gas released from uranium in soil, rock and water. You can ask locally for information about testing for this gas.

**Hunting:** Be aware of limits on the amount of wild fish you eat from local lakes and rivers, and that may contain mercury or other pollutants. See [Ontario's Guide to Eating Ontario Fish](#) for details on the safety of lakes and rivers near you.

**In your community:** Ask your local government about local environmental risks. Water and soil tests may be required to identify contaminants. For example, Mirex, a flame retardant and pesticide, contaminates Lake Ontario and the St. Lawrence River.

Find out more about the cancer risk factors in individual info cards: [cancercareontario.ca/FNIMresources](http://cancercareontario.ca/FNIMresources)

