Nasopharyngeal Cancer Causes, Risk Factors, and Prevention

Risk Factors

A risk factor is anything that affects a person’s chance of getting a disease such as cancer. Learn more about the risk factors for nasopharyngeal cancer.

- What Are the Risk Factors for Nasopharyngeal Cancer?
- Do We Know What Causes Nasopharyngeal Cancer?

Prevention

There is no way to prevent all nasopharyngeal cancers. But there are things you can do that might lower your risk. Learn more.

- Can Nasopharyngeal Cancer Be Prevented?

What Are the Risk Factors for Nasopharyngeal Cancer?

A risk factor is anything that affects a person’s chance of getting a disease such as cancer. Different cancers have different risk factors. Some risk factors, like smoking, can be changed. Others, like a person’s age or family history, can’t be changed.

But risk factors don’t tell us everything. Having a risk factor, or even several risk factors, does not mean that you will get the disease. And many people who get the disease may have few or no known risk factors.

Scientists have found several risk factors that make a person more likely to develop
nasopharyngeal cancer (NPC). These include:

- Gender
- Ethnicity and where you live
- A certain kind of diet
- Infection with the Epstein-Barr virus
- Genetic factors
- Family history

Smoking, alcohol, and some workplace exposures may also increase the risk of this cancer.

These risk factors are discussed in more detail below

**Gender**

NPC is found about twice as often in males as it is in females.

**Race/ethnicity and where you live**

NPC is most common in southern China (including Hong Kong), Singapore, Vietnam, Malaysia, and the Philippines. It is also fairly common in Northwest Canada and Greenland.

People of south China have a lower risk of NPC if they move to another area that has lower rates of NPC (like the US or Japan), but their risk is still higher than for people who are native to areas with lower risk. Over time, their risk seems to go down. The risk also goes down in new generations. Although whites born in the United States have a low risk of NPC, whites born in China have a higher risk.

In the United States, NPC is most common in Asian and Pacific Islanders (particularly Chinese Americans), followed by American Indian and Alaskan natives, African Americans, whites, and Hispanics/Latinos.

**Diet**

People who live in parts of Asia, northern Africa, and the Arctic region where NPC is common, typically eat diets very high in salt-cured fish and meat. Indeed, the rate of this cancer is dropping in southeast China as people begin eating a more Westernized diet.
In contrast, some studies have suggested that diets high in fruits and vegetables may lower the risk of NPC.

**Epstein-Barr virus infection**

Almost all NPC cells contain parts of the Epstein-Barr virus (EBV), and most people with NPC have evidence of infection by this virus in their blood. Infection with EBV is very common throughout the world, often occurring in childhood. In the United States, where infection with this virus tends to occur in slightly older children, it often causes infectious mononucleosis (“mono”), usually in teens.

The link between EBV infection and NPC is complex and not yet completely understood. EBV infection alone is not enough to cause NPC, since infection with this virus is very common and this cancer is rare. Other factors, such as a person’s genes, may affect how the body deals with EBV, which in turn may affect how EBV contributes to the development of NPC.

**Genetic factors**

A person’s genes may affect their risk for NPC. For example, just as people have different blood types, they also have different tissue types. Studies have found that people with certain inherited tissue types have an increased risk of developing NPC. Tissue types affect immune responses, so this may be related to how a person's body reacts to EBV infection.

**Family history**

Family members of people with NPC are more likely to get this cancer. It is not known if this is because of inherited genes, shared environmental factors (such as the same diet or living quarters), or some combination of these.

**Other possible risk factors**

**Tobacco and alcohol use:** Most (but not all) studies have found that smoking may contribute to the development of NPC, especially the keratinizing type. Some studies have linked heavy drinking to this type of cancer. More research is needed to define these links, but they seem to be much weaker than the link between tobacco and alcohol use and most other types of cancers that start in the throat.
Workplace exposures: Some studies have suggested that workplace exposure to formaldehyde or wood dust may increase the risk of NPC. Still, not all studies have shown this and this link isn’t clear.

- References

See all references for Nasopharyngeal Cancer

Do We Know What Causes Nasopharyngeal Cancer?

The exact cause of most cases of nasopharyngeal cancer (NPC) is not known. But scientists have found that the disease is linked with certain diets, infections, and inherited characteristics, which are described in the section called What Are the Risk Factors for Nasopharyngeal Cancer? Research is being done to learn more about these causes.

In recent years, scientists have studied how the Epstein-Barr virus (EBV) may cause cells in the nasopharynx to become cancerous, but much still remains to be learned. In developed countries, most people infected with EBV develop only infectious mononucleosis (mono), and their immune system is able to recognize and destroy the virus. These people recover without any long-term problems. But in some cases, pieces of viral DNA mix with the DNA of cells in the nasopharynx.

DNA is the chemical in each of our cells that makes up our genes, the instructions for how our cells function. We usually look like our parents because they are the source of our DNA. But DNA affects more than how we look. Some genes contain instructions for controlling when cells grow and divide into new cells. Viruses such as EBV also contain DNA. When a cell is infected with the virus, the viral DNA may mix with the normal human DNA. EBV DNA may instruct the cells of the nasopharynx to divide and grow in an abnormal way.

But EBV infection only rarely results in NPC, so other factors probably play a role in
whether or not it causes cancer. Eating a diet high in salt-cured fish and meat seems to increase the ability of EBV to cause NPC. Studies show that foods preserved in this way may produce chemicals that can damage DNA. The damaged DNA alters a cell’s ability to control its growth and replication.

Some studies suggest that inheriting certain tissue types may contribute to a person’s risk of developing NPC. Because the tissue type plays a role in the function of the immune system, some scientists suspect that an abnormal immune reaction to EBV infection may be involved. The details of how certain tissue types might increase NPC risk are still being worked out.

- References

See all references for Nasopharyngeal Cancer

Can Nasopharyngeal Cancer Be Prevented?

Most people in the United States who develop nasopharyngeal cancer (NPC) have no avoidable risk factors, so their cancers could not have been prevented. The possible links with tobacco and heavy alcohol use are not clear, so it’s not known if avoiding these can lower a person’s risk of NPC. However, both tobacco and alcohol use have clearly been linked to a number of other cancers, as well as other health problems, so avoiding them can have many health benefits.

Because certain dietary factors have been linked with NPC risk, reducing or eliminating some types of food may lower the number of cases in parts of the world where NPC is common, such as southern China, northern Africa, and the Arctic region. Descendants of Southeast Asians who immigrated to the United States and eat a typical American diet, for example, have a lower risk of developing NPC. But these dietary factors are not thought to account for all cases of NPC in most other parts of the world. Other factors, such as genetics, are likely to play a part as well.