

Low Oxygen Causes Infections which Cause Cancer

Low or blocked oxidation is normally followed by fermentation of sugar in cells, which then leads to the primary condition upon which cancer, infectious and inflammatory processes feed. Viruses are "anaerobic" creatures, which thrive in the absence of oxygen. Yeast, mold and fungus love anaerobic environments. Most strains of harmful bacteria (and cancer cells) are anaerobic and are not comfortable in the presence of higher oxygen levels. Doctors find cancer cells easier to kill when oxygen levels are increased.

There are [many reasons for low oxygen/high acidity](#) in the general population and nothing is more telling than the deterioration of nutrition because of modern agricultural practices. It is simply impossible to maintain a healthy alkalinity with enough oxygen delivery to the cells when a person is nutritional compromised, which clearly most people are today.

Otto Warburg said, "**If our internal environment was changed from an acidic oxygen deprived environment to an alkaline environment full of oxygen, viruses, bacteria and fungus cannot live.**" This is completely ignored by western medicine, but oncologists understand quite well that these infections can lead to cancer.

"I believe that, conservatively, [15 to 20 percent of all cancer is caused by infections, however, the number could be larger—maybe double,](#)" says Dr. Andrew J. Dannenberg, director of the Cancer Center at New York-Presbyterian Hospital. He said this during a speech at the American Association for Cancer Research's (AACR) Sixth Annual International Conference Frontiers in Cancer Prevention Research in 2007.

- Liver cancer caused by chronic hepatitis B and C.
- Human papillomavirus (HPV), linked to cervical, throat and oral cancer (oropharyngeal carcinoma).
- A form of gastric cancer, called adenocarcinoma, and a form of lymphoma, called MALT lymphoma, that have been linked to Helicobacter pylori bacteria.
- Bladder cancer caused by chronic infection with Schistosoma parasites.
- How inflammation caused by infections may lead to a variety of cancers.

Dr. Henry R. Erle, Family Professor of Medicine at Weill Cornell Medical College in New York City said, "Unfortunately, the public, as well as many health-care workers, are unaware of the significance of chronic infection as a potentially preventable cause of cancer."

Viruses are the usual infectious agents that cause cancer but Mycobacterium, some other bacteria and parasites also have this effect. Helicobacter pylori-induced gastric carcinoma. A virus that can cause cancer is called an oncovirus.

Officially it is thought that [one in every six cancers worldwide is caused by an infection](#) that is preventable or treatable, according to new estimates published in the journal Lancet Oncology. The research indicates infections are attributable for approximately 2 million new cancer cases every year. "Infections with certain viruses, bacteria, and parasites are one of the biggest and preventable causes of cancer worldwide," lead authors Catherine de Martel and Martyn Plummer from the International Agency for Research on Cancer (IARC), France.

You have the power to open the door for a better health and understanding of your body!

Cancers caused by infections generally have a higher mortality rate than other cancers, according to researchers. Of the 7.5 million deaths from cancer worldwide in 2008, approximately 1.5 million were due to infections.

[Infections are pH Sensitive](#)

Certain viruses (including the rhinoviruses and coronaviruses that are most often responsible for the common cold and influenza viruses that produce flu) infect host cells by fusion with cellular membranes at low pH. Thus, they are classified as "[pH-dependent viruses](#)." Fusion of viral and cellular membranes is pH dependent. The main finding of one study is that a strain of poliovirus type 1 [requires low pH for injection of its genome into the cytosol](#).

It has been suggested that the [hepatitis C virus](#) (HCV) infects host cells through a pH-dependent internalization mechanism. This HCVpp-mediated fusion was dependent on low pH, with a threshold of 6.3 and an optimum at about 5.5.[\[1\]](#)

Scientific investigation indicates that low pH is indeed required for the entry of poliovirus. The ability of cells to alter poliovirus in the presence of monensin was strongly increased at low pH. The main finding of one study is that a strain of poliovirus type 1 [requires low pH for injection of its genome into the cytosol](#).

Coronavirus infectivity is exquisitely sensitive to pH. For example, the MHV-A59 strain of coronavirus is quite stable at pH 6.0 (acidic) but becomes rapidly and irreversibly inactivated by brief treatment at pH 8.0 (alkaline). Human coronavirus strain 229E is maximally infective at pH 6.0. Infection of cells by murine coronavirus A59 at pH 6.0 (acidic) rather than pH 7.0 (neutral) yields a tenfold increase in the infectivity of the virus.

Inflammation Causes Cancer

Chronic inflammation may be a causative factor in a variety of cancers. In general, the longer the inflammation persists, the higher the risk of cancer. At the basement of life inflammation is inseparable from lower pH, lower oxygen and CO₂ levels and low cell energy. With inflammation we have hordes of viral, bacterial and fungal sharks ready to start biting on tissues. We have acid conditions created anytime we get into low oxygen so actually the best way of moving the body towards a more alkaline condition is to increase oxygen and CO₂ levels simultaneously.

A MIT study[2] offers a comprehensive look at chemical and genetic changes that occur as [inflammation progresses to cancer](#). One of the biggest risk factors for liver, colon or stomach cancer is **chronic inflammation of those organs caused by viral or bacterial infections**.

"Inflammation is a critical component of tumour progression. Many cancers arise from sites of infection, chronic irritation and inflammation. It is now becoming clear that the tumour microenvironment, which is largely orchestrated by inflammatory cells, is an indispensable participant in the neoplastic process, fostering proliferation, survival and migration."[\[3\]](#)

"All types of inflammation can cause cancer. Lung cancer can be caused by chronic smoke-induced inflammation. Esophageal cancer can be caused by acid reflux-induced inflammation. Stomach cancer can be caused by H. pylori (the bacterium that causes ulcers)-induced inflammation. Bladder cancer can be caused by urinary tract infection-induced inflammation. Liver cancer can be caused by hepatitis B or C-induced inflammation. Lymphoma can be caused by Epstein Barr (the virus that causes mononucleosis) -induced inflammation. Cervical cancer can be caused by Human papillomavirus (the virus that causes genital warts)-induced inflammation. Kidney cancer can be caused by kidney stone-induced inflammation. And colon cancer can be caused by irritable bowel syndrome-induced inflammation. Whether the inflammation is caused by an infection (such as hepatitis), a mechanical irritant (such as kidney stones), or a chemical irritant (such as stomach acid), the result is the same. [Chronic, low-grade inflammation greatly increases your risk of developing cancer.](#)"[\[4\]](#)

For common diseases like chronic obstructive lung disease (COPD) and sleep apnea, the body's oxygen supply is limited. These diseases are associated with persistent inflammatory conditions, and increased risk of infections; both indicative of an impaired immune system.

Be Careful How We Think about and Treat Cancer

Do we treat infections with vaccines, antibiotics, antivirals; or do we employ more oxygen as a primary treatment? Most doctors today ignore the work of Warburg, including his important work that tells us that it is the increased amounts of carcinogens, toxicity and pollution that cause cells to be unable to uptake oxygen efficiently. Toxic substances are mostly acid as are most pharmaceutical drugs, which mean they depress oxygen.

It does not matter if the malfunctioning mitochondria are being poisoned from heavy metals, chemicals, pharmaceutical mitochondrial poisons, deprived of oxygen, gummed up from polyunsaturated fatty acids (PUFAs) or poisoned with radiation, all of which cause oxidative stress. The result is the same. Cell fermentation takes over and cells become cancerous.

Hypoxia, inflammation and infection

Improved tissue oxygenation combined with antimicrobials has achieved greater efficacy in pathogen clearance (Knighton et al., 1986). During infection and disease, O₂ demand can

increase because of various factors including increased metabolism of infiltrated immune cells and microbial proliferation, resulting in a hypoxic environment (Lewis et al., 1999). Hypoxia has a pleiotropic role in tissue inflammation and infection and may exacerbate or attenuate disease.

Areas of inadequate O₂ tension in the lung of [cystic fibrosis](#) patients support colonization of *Pseudomonas* bacteria to establish infection and effectively block host immune responses ([Callaghan and McClean, 2012](#)).

Eukaryotic organisms, including *Leishmania* parasites, express a heme containing [globin](#) protein that functions as a natural O₂ sensor to detect hypoxia and adapt accordingly to prevent cell death ([Sen Santara et al., 2013](#)). These and other protozoan, bacterial, and viral infections are modulated by hypoxia, either directly or through the activation of other antimicrobial responses such as [defensins](#).

Sugar

Sugar turns the body into a suitable breeding ground for viruses, bacteria, fungi and cancer. Sugar plays a [major role in the nation's obesity crisis](#) and everyone knows obesity increases the incidence of cancer. Even under pristine conditions when our cells use glucose to make energy we create a cascade of free radicals that cause oxidative stress. The more sugar we consume to greater our oxidative stress and inflammation.

White sugar, as well as other [white foods](#), create [magnesium deficiencies](#), which creates [chronic inflammation in the body](#), depresses immune system strength, prevents the cells from detoxifying—[all sliding the body eventually to cancer](#).

References

[1] Hepatitis C virus glycoproteins mediate low pH-dependent membrane fusion with liposomes; [Lavillette D](#) et al; [J Biol Chem](#). 2006 Feb 17;281(7):3909-17. Epub 2005 Dec 15; <http://www.ncbi.nlm.nih.gov/pubmed/16356932>

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[4] Cancer and Inflammation. *Nature*. 2002 Dec 19; 420(6917): 860–867.