

The Environmental Links



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Permanent dark hair dyes: one of the most suspected causes of cancer.

For years the traditional analysis of the causes of cancer has played down or ignored environmental factors. This is convenient, since it means we do not have to make troublesome changes to the way we live, eat and run our society.

The reality is very different, with a growing understanding that cancer is tragically connected to environmental pollution.

Some of the known environmental causes of cancer are shown in the chart opposite, drawn from a detailed survey of scientific studies done for the Collaborative on Health and the Environment in 2005. For every reference (pesticides linked to brain cancer, solvents linked to cancer of the kidney), there is a peer-reviewed study of humans that reflects careful scientific work.

It is wrong to assert that “1% to 5% of cancers are caused by pollution,” as epidemiologists Doll and Peto did in 1981 and the Harvard Center for Cancer Prevention did in 1996. Cancer is a complex disease that involves at least six different

For most people, cancer comes not from preprogrammed genes, but from conditions and exposures that are encountered throughout their life.

— Devra Lee Davis

alterations before it succeeds in overwhelming the body’s defenses and producing cancerous cells. At any one of these stages, multiple factors are involved, any or all of which may need external carcinogens to promote the cancer.

We need to remember that it took almost 50 years for society to accept that smoking caused lung cancer and to bring in anti-smoking rules. The evidence was clear in 1950, when several different studies in England and America were published showing that lung cancer patients smoked, while those without the disease did so rarely.

In 1958 a Harley Street physician objected to the Medical Research Council’s link between smoking and cancer as “a staggering and most unscientific claim ... They will be blaming mother’s milk next.”¹ The tobacco industry paid a number of highly respected scientists in America, England and elsewhere to confuse us, delaying for five decades the measures needed to discourage and prevent smoking. During that time, 5 million people died prematurely in North America from smoking.²

Today we are seeing the same resistance to environmental pollution and radiation as contributing causes of cancer. We cannot afford to wait another 50 years.

It is not necessary to propose a hierarchy, or play one component off against another. Preventing carcinogenic exposures wherever possible should be the goal, and comprehensive cancer prevention programs should aim to reduce exposures from all avoidable sources, including environmental and occupational sources.

- Breast Cancer Environmental Risk Factors: www.envirocancer.cornell.edu
- CHE Toxicant and Disease Database: <http://database.healthandenvironment.org>
- Collaborative on Health and the Environment: www.healthandenvironment.org
- *Environmental and Occupational Causes of Cancer*: www.sustainableproduction.org/pres.shtml

Cancer of the:	Pollutants that are known to be contributing factors: ³
Bladder	Arsenic in drinking water, chlorination by-products, solvents (e.g., among dry-cleaning workers), hair dyes, petrochemicals, coal tars, metalworking fluids, ionizing radiation
Bone	Ionizing radiation from X-rays, CT scans, nuclear exposure, medical experiments
Brain & nervous system	Solvents, paints, inks, ionizing radiation, low-frequency non-ionizing EMF radiation, pesticides, maternal consumption of cured meats during pregnancy (N-nitroso)
Breast	Ionizing radiation; endocrine disruptors that mimic the actions of estrogens, found in many pesticides, fuels, plastics, detergents and prescription drugs, the drug diethylstilbestrol (DES), solvents (e.g., among electronics, metals, furniture, printing, chemical, textiles and clothing industries workers), pesticides, benzene, and more
Cervix	Solvents (e.g., dry cleaners)
Colon	Limited and inconsistent evidence: ionizing radiation, chlorination by-products
Esophagus	Solvents (e.g., dry cleaners and dye-house workers), metalworking fluids and oils
Kidney	Solvents (e.g., trichloroethylene TCE), pesticides, metals
Larynx	Metalworking fluids, asbestos, wood dust, reactive chemicals
Leukemia	Solvents, benzene, reactive chemicals, ionizing radiation (e.g., diagnostic X-rays during pregnancy), pesticides (including while pregnant)
Liver	Metals (especially arsenic), solvents, ionizing radiation, reactive chemicals, PCBs
Lymph (Hodgkin's & Non-Hodgkin's)	Solvents, pesticides, hair dyes
Lung	Tobacco smoke, environmental (second-hand) tobacco smoke, outdoor air pollution, indoor air pollution, petrochemical by-products, metalworking fluid, natural fibers (silica, wood dust, asbestos, mineral fibers), radon
Mesothelioma	Asbestos
Multiple myeloma	Solvents, ionizing radiation, pesticides, occupational exposure to hair dyes
Nasal & Pharynx	Solvents, reactive chemicals, metalworking fluids, ionizing radiation
Ovary	Pesticides, ionizing radiation, talc powder, products used by hairdressers and beauticians
Pancreas	Solvents, metals (cadmium, nickel), reactive chemicals, pesticides, metalworking fluids, mineral oils
Prostate	Pesticides, endocrine disrupting chemicals such as Bisphenol-A, metallic dusts, metalworking fluids, polyaromatic hydrocarbons (PAH), fuel combustion products, aromatic amines (from cooked red meat), metals
Rectum	Solvents, chlorination by-products, metalworking fluids, mineral oils
Soft Tissue	Metals, reactive chemicals, ionizing radiation, pesticides
Skin	Ionizing radiation (UV radiation), metals, metalworking fluids, mineral oils, creosotes, coal tars
Stomach	Metals (e.g., lead), ionizing radiation, pesticides, metalworking fluids, mineral oils, asbestos
Testes	Endocrine disrupting chemicals, PCBs, especially in the womb, work in agriculture, tanning, mechanical painting, mining, plastics and metalworking industries
Thyroid	Ionizing radiation (nuclear fallout, medical X-rays, workers at nuclear facilities)

Dr. Richard Clapp, et al., *Environmental and Occupational Causes of Cancer*