

Environment & Cancer

Butterflies of Hope

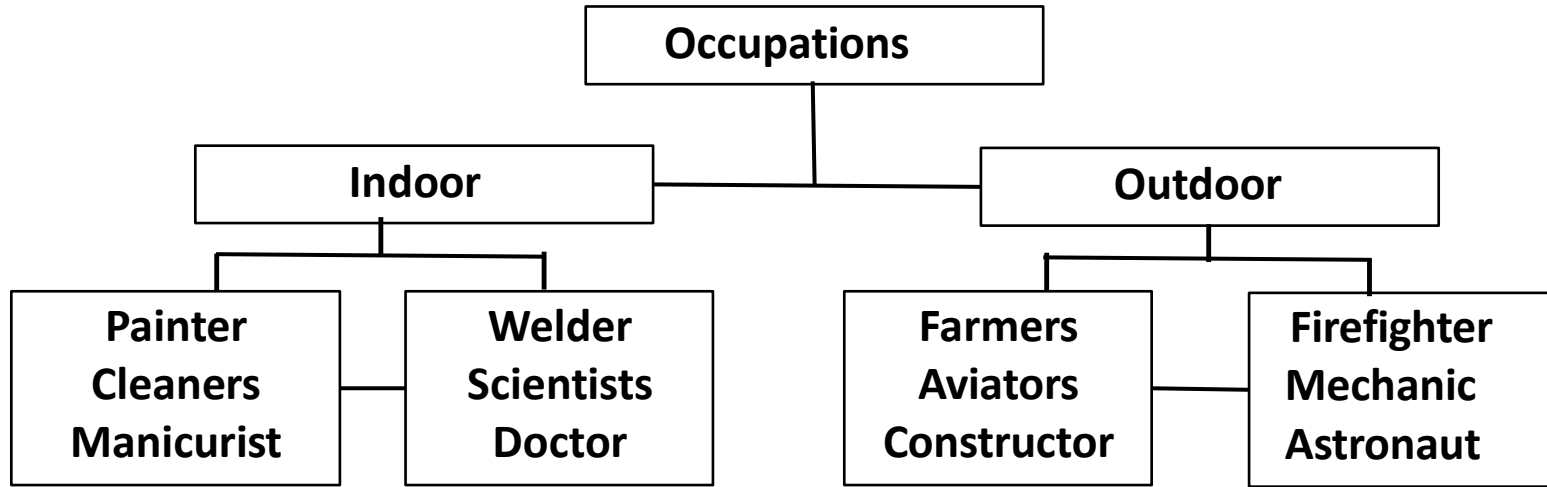
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Abstract

Different factors in the environment can trigger various cells to turn into cancer cells. This can be at work, outside, through second hand smoke, and cosmetics. The aim of this research was to spread awareness about getting exposed to cancerous agents through factors from the environment. By spreading knowledge about getting exposed to cancer, we will in turn, know how to prevent it. Many things in our environment can easily cause cancer through inhalation and many other methods of consumption. Some of these things include food dyes, bookshelves, newly dry-cleaned clothes, etc. Since these items have harmed many people, scientists have found prevention methods and risk factors to stay away from. Many employees work in high risk areas for cancer such as painters, manicurists, etc. Women that apply cosmetics on their body daily don't know that most of the products they use are cancerous.

Potentially Harmful Occupations



Why... All of the occupational resources listed *increase risk of cancer*, although, they all do that in *different ways*. Cancer can be caused by *inhalation of fumes and chemicals*, as well as radiation waves and UV rays. *Blue light*, which usually come from screens, can also slowly *burn through your cornea*, exposing you to dangerously high levels of radiation, which, again, can cause cancer. (3)

Reasons for Occupational Effects

- Workplaces can cause the diseases to spread, which can have harsh effects
- If your job involves working with heat, you could be exposed to toxic fumes and radiation
- If you have a desk job, your risks of getting cancer go up by about 10% due to *inactivity*
- Farmers can be exposed to harmful pesticides (4)
- Fire fighting can cause cancer due to the *inhalation* of smoke
- Miners can consume unwanted chemicals, as well as just regular, everyday dirt, which can harm the body systems
- Astronauts can be harmed and exposed to cancer because of the oxygen deficiency in space (4)

How You Can Be Exposed At Work

You can be susceptible to many different kinds of diseases in a numerous amount of places. One of those places is at work. Jobs involving your *sense of touch* are the most vulnerable. *Inhalation* is another very common way to be affected at work. If your job involves chemical, toxins, or fumes, they can be inhaled and when they reach your cells, they can disrupt the performance of your body. Exercise is also crucial to your health, and if you don't do enough exercise, it can lead to *buildup of unnecessary fats*. Radiation from the sun, as well as UV rays can destroy your internal organs leading to illnesses such as cancer. (3)

Smoke and Lung Cancer

- *Tobacco* use remains the *largest preventable* cause of *death* and disease.
- *Cigarette smoking kills more than 8 million people around the world each year.*
- Symptoms of *pneumonitis*, usually caused by a virus may include shortness of breath and chest pain
- Studies show that *areas with high arsenic levels in drinking water* have a *higher lung cancer risk.*(2)
- Smoke damages lungs and turns benign cancer cells into malignant cancer cells.
- *80%-90%* of *lung cancer deaths* are caused by *inhaled smoke*
- *½ of the children* around the world are exposed to *secondhand smoke.*
- *Radon causes about 20,000 cases of lung cancer each year. 2nd leading cause of lung cancer.*(2)

Environment and Cancer

- ***Food dyes*** carry known *carcinogens*. They cause cancer in lab animals, such as brain and testicular tumors.
- **Dyes** cause cancer in animals. *Air fresheners* emit one of more *carcinogenic chemicals*.
- **Household cleaning products** also emit carcinogenic substances. $\frac{3}{4}$ of 2500 *cleaning products* contain *ingredients that harm respiratory health*.(1)
- **Shower curtains** contain PVC and VOC that can leak toxic chemicals. It would be more suitable to use linen or cotton shower curtains instead.
- **Styrofoam cups** contain *styrene*, a suspected carcinogen. Books on a *bookshelf* contain ethylene oxide
- **About 50% of leather furniture** contains *chromium*, a toxic carcinogen. (1)

Environment and Cancer

- Granite countertops contain *radon*. Fluorescent lighting carries *mercury*, a known carcinogen and emits high levels of ultraviolet radiation. A better substitute would be to use led bulbs instead.
- Vinyl flooring contains PVC and dioxins and installing them in a house means exposing a family to its potential dangers. It would be safer to use laminate flooring instead.(1)
- Couches made before 2014 contained flame-retardants that cause cancer to protect the couch from fire caused by cigarettes.
- Cleaning products contain carcinogens. A chemical called perchloroethylene is found in all dry-cleaning products and is very toxic.
- Bug-spray contains organophosphates and many other chemicals. (1)

Cancer causing Carcinogens in everyday use

- Carcinogens are very dangerous and we must be careful when buying products with those chemicals. These certain items can disrupt the cell structure around your liver, stomach and colon.
- Hair dyes, Benzene, and Parabens that are found in makeup products can cause skin and eye cancers. Products with Benzene and Parabens increase the risk of cancer cells multiplying by 15%.
- Direct and prolonged exposure to sun, without sunscreen and people making exceptions to go to tanning beds and salons run a risk of skin cancer.
- Habits that people develop such as smoking and chewing tobacco causes cancer. Some everyday products that we buy like sodas, foods with MSG and even a stick of gum can cause certain types of cancer.

30%

Of cancer deaths are caused by smoke. 7300 deaths are caused by second hand smoke. Factors like family history and ethnicity are the cause for cancer.

- Smoke is the leading cause for lung cancer in the world
- Smog and pollution also cause lung cancer

18%

Of cancer deaths are caused by obesity and lack of exercise. This is just a reminder that what you eat can affect your health.

- Try to control your weight
- If you have diabetes you are at a higher risk of breast cancer.

2%

Of cancer deaths are caused by family history, age, race and sunlight. This shows that cancer is usually caused by a person's actions. (smoking ect.)

- Avoid radio and gamma rays. They cause cells to die.
- Sunlight is NOT direct radiation

Risk factors around us

There are risks of cancer everywhere but only some cause harm. Things like radiation, age, gender and ethnicity all have a role to play when you are trying to find a cause for cancer. These are all-natural causes. Things like gender and ethnicity can affect you getting cancer but it is not your fault it's something you're born with, but things like smoking, taking drugs and drinking alcohol are all ways you contribute to getting cancer. Materials such as fiber , cement and plaster can contain many carcinogens such as asbestos which is a dangerous silicate mineral and even lead which a metal used in piping. Other things like second-hand smoke can be prevented by us, so we don't make others sick. More than 7300 people die every year because of second-hand smoke, we could prevent that.

How to Protect yourself

- **Avoid direct sunlight- Try to wear sunscreen and wear a hat to block the sunlight**
- **Avoid any type of radiation- Avoid going to salons and tanning beds, these actions can lead to melanoma**
- **Avoid tobacco- Don't smoke or consume any type of tobacco**
- **Control weight- Try to eat healthy and control how much junk you eat**
- **Get lots exercise- Exercise everyday and get plenty of vitamins.**

Cosmetics and Cancer

Parabens...

- Chemical conservatories that have been identified as estrogenic and is disturbing natural hormone function.
- Estrogenic chemicals mimic the function of the naturally occurring hormone estrogen, and exposure to external estrogens has been shown to increase the risk of breast cancer.

Phthalates...

- Known to cause a broad range of birth defects and lifelong reproductive problems in laboratory animals exposed to these chemicals during pregnancy and after birth.
- Phthalates are also known to be hormone-mimicking chemicals, many of which disrupt normal hormonal processes, raising concern about their implications for increased breast cancer risk.

Cosmetics and Cancer

- The ingredients in consumer products like cosmetics can cause cancer. Carcinogens which are things that cause cancer and 1,4 dioxane cause cancer by disrupting the hormones in your body which can cause cancer
- Cosmetics are anything that can be rubbed, poured, sprinkled, or sprayed on like:
 - Skin moisture lotions
 - Perfumes
 - Fingernail polishes and Lipsticks
 - Eye & Facial makeup
 - Permanent (Tattoos and hair dyes), shampoo
 - Toothpastes
 - Deodorants (You can use the deodorants that don't have antiperspirants)

Cosmetics and Cancer

Bath and body care products: known endocrine disruptors

The Environmental working group (EWG) found carcinogen 1,4 dioxane (1,4 dioxane is a highly toxic chemical compound that is harmful and can cause problems with reproduction, development, and the immune system which disrupts the hormones in your body and can lead to cancer.) Both carcinogens and dioxane are found in 28% of all personal care products and the OCA found 40% of it in products labeled natural. This includes shampoos, soaps, and body-firming and anti-aging lotions. 1,4-dioxane isn't listed on product labels. Some chemicals that may include it:

- PEG
- Polyethylene
- Polyethylene glycol
- Polyoxyethylene

Most product manufacturers have removed known cancer-causing chemicals from baby care products, but adults are still at risk.

Glossary

Occupational Resources: Something that takes up your time, usually referred to as a job/career/occupation

Radiation: The emission of energy as electromagnetic waves or as moving subatomic particles.

Cornea: The transparent layer forming the front of the eye.

Pesticides: A substance used for destroying organisms harmful to cultivated plants or to animals.

Toxins: An antigenic poison of biogenetic origin, especially one produced by microorganisms.

Pneumonitis: Inflammation of the walls of the alveoli in the lungs, usually caused by a virus. **Alveoli:** Any of the many tiny air sacs of the lungs which allow for rapid gaseous exchange

Arsenic: The chemical element of atomic number 33, a brittle steel-gray metalloid **Malignant:** Very virulent or infectious

Testicular: Any kind of disease that occurs through the testicles **Carcinogen:** Any substance, radionuclide, or radiation that promotes

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