

# THE CANCER REVOLUTION

## Additional Material for Chapter 13

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### **Environmental toxins**

I would like you to become aware of how many immune depressing toxins you come into contact with in your daily life. Your body is constantly under assault. Now, more than any other time in history, you need your immune system functioning in your defense. Most people have an idea but really don't know how toxic our world is. Let's take a look.

### **Water**

The contamination of water threatens everyone around the world. Humanity uses rivers, lakes and the ocean as dumpsites. The false belief is that the natural biological cycles will absorb waste and purify the water. But, there is a balance between water's chemical, physical and biological elements. The dumping of contamination in an uncontrolled fashion has converted many coastal regions into unsafe environments where dangerous bacteria thrive. This has been a problem that has increased greatly as the frequency of earthquakes, hurricanes and tsunamis continue to devastate populated areas and release more sewage and radioactive materials into the waterways. These toxins enter into the human food chain and stress the immune system. Unsafe drinking water is correlated to many types of cancers in the digestive tract. [Ebenstein, A. (2012). The Consequences of Industrialization: Evidence from Water Pollution and Digestive Cancers in China. *Review Of Economics And Statistics*, 94(1), 186-201.] This correlation holds true in areas where illegal dumping occurs but also in regions where water pollution discharges are regulated and permitted. [Permitted water pollution discharges and population cancer and non-cancer mortality: toxicity weights and upstream discharge effects in US rural-urban areas. (2012). *International Journal of Health Geographics*, 11(1), 9-23. doi: 10.1186/1476-072X-11-9]

### **Industry**

Just in the United States, there are over four million chemicals are produced and introduced into the environment. More than one trillion pounds of these chemicals are manufactured annually. These are synthetic substances that we come into contact with that the human body was never designed to deal with. Many of the 60,000 most toxic chemical substances, such as pesticides, make their way into our water supply. These are the chemicals that are discharged legally. It is not hard to imagine that hundreds of billions of tons more are discharged into the atmosphere illegally. Law professor Rebecca Katz referred to environmental studies and concluded that there is a correlation between corporate environmental pollution and increased cancer mortalities globally. [Katz, R. (2012). Environmental pollution: corporate crime and cancer mortality. *Contemporary Justice Review*, 15(1), 97-125.] Katz stated, "The variety of transnational corporate production processes from fuel processing and extraction to plastics and chemical production are responsible for producing, transporting, and dispersing carcinogenic materials." She claims that corporate environmental crimes take more lives than street crimes. [Ibid].

Many of the chemicals released into the air and water affect estrogen receptors and can lead to various types of cancer including ovarian and endometrial cancers [Willing, C., Peich, M., Danescu, A., Kehlen, A., Fowler, P., & Hombach-Klonisch, S. (2011). Estrogen-independent actions of environmentally relevant AhR-agonists in human endometrial epithelial cells. *Molecular Human Reproduction*, 17(2), 115-126. doi:10.1093/molehr/gaq081] as well as breast cancer. [Kietz, S., Shu, F., Agoulnik, A., & Hombach-Klonisch, S. (2009). Estrogen and TCDD Influence RLN2 Gene Activity in Estrogen Receptor-Positive Human Breast Cancer Cells. *Annals Of The New York Academy Of Sciences*, 1160367-373. doi:10.1111/j.1749-6632.2009.03836.]

## **Air**

I am always saddened when one of my health conscious patients asks me, "I was a vegetarian and always exercised. How did I get cancer? I did everything right!" The sad answer is that everyone still has to breathe. Air pollution is the second leading cause of lung cancer and heart disease, only behind smoking. Driving this point home was a study done with patients who already had lung cancer. The patients that lived in a region with very high air pollution level had a 14% higher morbidity rate than patients who lived in a region with low levels of air pollution. One of the main culprits is gas-powered-automobiles. Thousands of tons of lead are released into the air by motor vehicles. [Xiaohui, X., Sandie, H., Haidong, K., Hui, H., Curbow, B. A., & Lissaker, C. K. (2013). Health effects of air pollution on length of respiratory cancer survival. *BMC Public Health*, 13(1), 1-9. doi:10.1186/1471-2458-13-800]. You may be surprised to note that air pollution is not only associated with lung cancer. It is also associated with increased incidence of other cancers including breast cancer. [Wei, Y., Davis, J., & Bina, W. F. (2012). Ambient air pollution is associated with the increased incidence of breast cancer in US. *International Journal Of Environmental Health Research*, 22(1), 12-21. doi: 10.1080/09603123.2011.588321]

## **Acid Rain**

Acid rain brings the worst of air and water pollution together. The United States expels 74,000 tons of sulfuric dioxide into the atmosphere everyday. When it rains, this chemical compound, along with nitrous oxide, hydrocarbons, fluorocarbons, lead, carbon monoxide and many other toxic chemicals return to earth and poison the groundwater.

## **Indoor Pollution**

In cities that have very high levels of air pollution such as London, Los Angeles, Mexico City and Shanghai, poor air quality warnings are texted to mobiles urging people to avoid outside activities. If you try to escape exposure to toxins by staying indoors, here are a few things you may face. Coal burning furnaces without proper ventilation have been associated with an increased incidence of lung cancer. [Reid, B. C., Ghazarian, A. A., DeMarini, D. M., Sapkota, A., Jack, D., Qing, L., & ... Birnbaum, L. S. (2012). Research Opportunities for Cancer Associated with Indoor Air Pollution from Solid-Fuel Combustion. *Environmental Health Perspectives*, 120(11), 1495-1498. doi:10.1289/ehp.1204962] Most of the items in your home are made of chemicals. Formaldehyde, asbestos and other toxins are present in textiles, plywood, rugs and molded plastics. They are found in deodorants, toothpaste, shampoos, hair conditioners, mouthwash and detergents. Lead is present in water pipes, plastics, paint and ceramic containers. Experts calculate that at any given moment, we are all exposed to more than 34,000 highly toxic manmade products that our body cannot metabolize or neutralize.

## **Processed Food**

Refined sugar, refined flour and processed oils are the clearest examples of processed foods. They are the core ingredients of the food industry. They cost nearly nothing to produce, last a lifetime on the shelf and are highly addictive. Since 1751, refined sugar has been the most consumed product worldwide. That is sad because it has zero nutritional value and it is directly correlated to cancer progression. Cancers thrive on sugar and all foods that are high on the glycemic index, which include all white flour products. Would you believe that corn flakes are as high on the glycemic index as chips?

## **Fruits & Vegetables**

I applaud you if you are keeping your consumption of processed foods to a minimum. But, please look for fruits and vegetables that have been grown without pesticides. Pesticides are highly toxic and act like estrogen in our bodies. Excessive levels of endogenous and exogenous, or xeno estrogens are linked to breast, ovarian and prostate cancers. [Koutros, S., Berndt, S. I., Hughes Barry, K., Andreotti, G., Hoppin, J. A., Sandler, D. P., & ... Beane Freeman, L. E. (2013). Genetic Susceptibility Loci, Pesticide Exposure and Prostate Cancer Risk. *Plos ONE*, 8(4), 1-6. doi:10.1371/journal.pone.0058195]. It is also very important to avoid consuming fruits and vegetables that have been genetically engineered or exposed to radiation for pest control.

## **Meats**

Meats are a major source of chemicals and estrogen. Hormones and antibiotics are used to get animals to market quicker or to increase the output of milk in dairy cows. Did you know that sixty years ago a dairy cow produced 2,000 pounds of milk a year? Guess what the average dairy cow's annual production is now....50,000 pounds! In 1940, it took four pounds of feed to produce one pound of meat. Now it only takes one pound of feed to produce one pound of meat. Drugs and chemicals have miraculously increased production and lowered costs. But the drug and hormone laden meats deposit their toxins in our bodies when we eat them.

## **Smoking**

This one is obvious. Smoking causes lung cancer. What is less obvious is that smoking is also a high risk factor for all cancers, including breast cancer. How malevolent is smoking? A group of scientists studied tobacco use and lung cancer trends over the last 50 years and calculated that had cigarette smoking ceased altogether in 1965, over two million lives would have been spared in the United States alone. [Levy, D. T., Blackman, K., & Zaloshnja, E. (2012). A Macro-Model of Smoking and Lung Cancer: Examining Aggregate Trends in Lung Cancer Rates Using the CPS-I and CPS-II and Two-Stage Clonal Expansion Models. *Risk Analysis: An International Journal*, 32S125-S141. doi: 10.1111/j.1539-6924.2012.01795.]

## **Alcohol**

Frequent reports warn that alcohol abuse is on the rise in the UK. But, the reports never state that alcohol consumption increases the risk for breast cancer. [Coronado, G., Beasley, J., & Livaudais, J. (2011). Alcohol consumption and the risk of breast cancer. *Salud Pública De México*, 53(5), 440-447.] It is reported that elements in alcohol may in fact provoke DNA mutations that can lead to cancer. It is estimated that alcohol consumption increases a woman's breast cancer risk by 2%. It may not sound like much, but when you add it to all of the other risk factors, it is something worth thinking about.

## **Your Mind**

The skyrocketing increase in use of anti-depressants and anti-anxiety drugs is indicative of the emotional stress and distress more and more people are feeling in this world where violence is on the rise, job security is a thing of the past, and relationships have become disposable. As a result, many are overwhelmed by negative emotions. Chronic anger, sadness, fear and anxiety negatively affect the immune system through the stress response. When a person perceives a threat from a situation he or she feels unable to cope with, a negative emotion will emerge and the accompanying negative thought will send messages through neuro-pathways to the HPA axis. The hypothalamus receives the signal from the psyche and then sends messages to the pituitary gland, which will send electrical charges and release proteins to stimulate the adrenal glands to produce and release epinephrine, cortisol and other substances into the blood stream. These natural chemicals will provide energy and strength to the heart, brain and muscles but if a person remains in the stress response for prolonged periods of time, the immune system will diminish.

Some of the most toxic thoughts and emotions that most of my cancer patients have to deal with include, lack of forgiveness, fear, hopelessness, guilt, bitterness, resentment, anxiety and anger.

## **Your Spirit**

Science is not able to determine what happens pre-cognition. It is in that realm where the spirit is found. Existential dread can play into the development of schema and automatic thoughts that result in negative emotions. Faith overcomes fear. Hope dismisses anxiety. Love replaces resentment. Seek a personal relationship with the Lord and spiritual toxins will be eliminated leaving only faith, hope and love; and the greatest of these is love. Each morning at Oasis of Hope, we gather our patients to pray, worship and speak the Word of God over each other. We do this because it is necessary to truly become a cancer.