

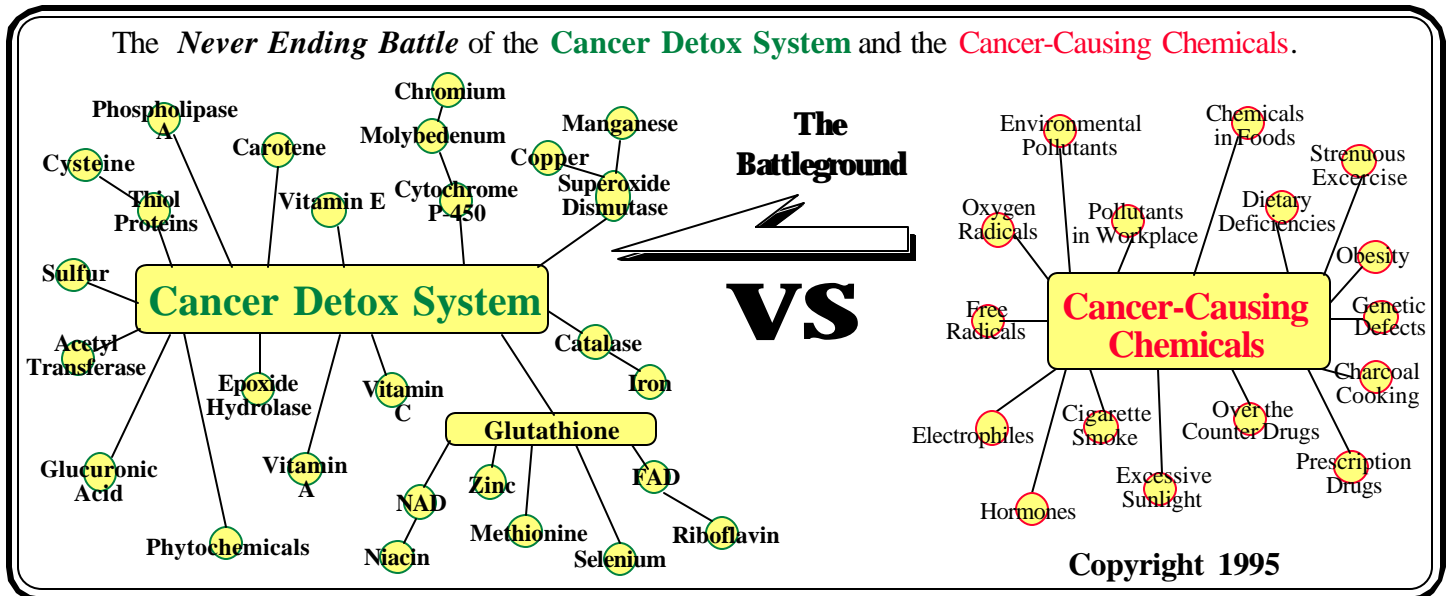
# The Cancer Detox System

## The First Line of Defense against Developing Cancer

Drs. Peter Shields of the National Cancer Institute, Christine Ambrosone of the National Toxicological Research Center, John Gropman and Paul Talalay of Johns Hopkins University, and Richard N. Armstrong of University of Maryland are among the many scientists who in recent reports have uncovered the structures and functions of the enzymes that comprise the Cancer Detox System. This research confirms what was written by Angelo John in 1961 in one of the first anti-cancer diet and nutritional books titled *Diaitis; Anti-Cancer Nutrients In Cancer Prevention & Cure*.

Everyone is born with a built-in **Cancer Detox System** which protects the body against cancer-causing chemicals. Each of the trillions of cells that comprise the human body contains this **Cancer Detox System** which is made up of a network of enzymes, and enzyme systems.

Vitamins, such as niacin, riboflavin and certain minerals such as selenium, copper, zinc and manganese, are also members of the **Cancer Detox System** and act as co-enzyme factors. Other vitamins, such as A, C, E, and carotene, lycopene and tocotrienols support the **Cancer Detox System**, through their anti-oxidant activities.



Contrary to popular belief, it is the **Cancer Detox System**, not the immune system, that protects the cells of the body against cancer-causing chemicals.

Also contrary to popular belief, certain chemicals manufactured within the human body, such as the oxygen radicals, free radicals, and electrophiles, produce most, if not all, cancers in humans.

Toxic chemicals, such as those found in cigarette smoke, the air you breathe at home or in the workplace, increase your risk of developing cancer by stimulating the production of the radicals and the electrophiles within the body. In reality, it is your own body that determines when and if you will develop cancer in your life time.

Every minute of every day of your life, the cells of your body manufacture these toxic cancer-causing chemicals. During the breakdown of carbohydrates and fats, the cells strip away electrons that are converted into energy through a series of enzymatic reactions known as the Krebs Cycle. During the liberation of energy, these electrons attach to an oxygen molecule and form a very toxic chemical called *superoxide*. A deficiency of ATP in cells can also produce *superoxide*.

Superoxide, a highly toxic free radical, is a normal end product of everyday metabolism. Other toxic radicals produced during every day normal metabolism, include: hydrogen peroxide, lipid peroxy radicals, epoxides and hydroxyl radicals.

### Cancer Causing Free Radicals and Electrophiles Manufactured Within The Cells Of The Human Body

<b>O<sup>+</sup></b> Super Oxide	<b>H<sub>2</sub>O<sub>2</sub></b> Hydrogen Peroxide	<b>•OH</b> Hydroxyl Radical	<b>ROOH</b> Lipid Hydroperoxide	<b>HO•</b> Hydroperoxy Radical	<b>ROO•</b> Lipid Peroxy Radicals
<b>RO•</b> Lipid Alkoxy Radicals	<b>CHO</b> Alderhydes	<b>NO</b> Nitric Oxide	<b>O</b> Epoxides	<b>C:O</b> Activated Carbonylis	<b><sup>1</sup>O</b> Singlet Oxygen

As soon as these toxic radicals are produced, they are immediately acted upon by the enzymes of the **Cancer Detox System** (see chart), such as; superoxide dismutase, catalase, glutathione, epoxide hydrolase, and others.

Certain enzymes will attack and neutralize only a single toxic radical. For example, superoxide dismutase will detoxify only superoxide, which it readily converts to hydrogen peroxide. The enzyme catalase will detoxify only the peroxide and convert it to water. Some of the peroxide may combine with the mineral iron. This results in the production of a more toxic radical called the hydroxyl radical, which is an electrophile and can damage DNA or proteins and initiate the development of a cancerous cell.

However vitamin C, backs up the **Cancer Detox System**, and can convert the hydroxyl radical into a harmless substance.

The enzyme called *glutathione* is the most versatile of all because it can literally detoxify almost every kind of toxic chemical.

Carotene plays an important role in support of the **Cancer Detox System**, by its ability to detoxify a cancer-causing radical called singlet oxygen.

Vitamin E exerts its protective effects against cancer-causing chemicals by its ability to detoxify the toxic lipid peroxy radicals.

Glutathione is the workhorse of the **Cancer Detox System**. It can work with the mineral called selenium to detoxify a wide range of cancer-causing chemicals. This enzyme is constantly being regenerated by the enzymes called NAD and FAD, which contain niacin and riboflavin.

The **Cancer Detox System** can neutralize cancer-causing chemicals through processes known as *oxidation*, *reduction*, *conjugation*, and *hydrolysis*.

When the cancer-causing oxygen radicals, free radicals, and electrophiles are produced within the cells, they are immediately detoxified by enzymes that function in the processes of *oxidation* and *reduction*. When toxic chemicals enter the body from the environment, such as those found in cigarette smoke and in polluted air, they are attacked by enzymes and bio-activated. These toxic chemicals are then attacked and eliminated from the body through a process known as conjugation and hydrolysis. If the cancer-causing chemicals entering the body from the environment are not totally detoxified, they then produce the toxic free radicals and electrophiles.

A number of phytochemicals such as grapeseed extract, olive leaf extract, limonene and curcumin also protect against cancer by activating or supporting the **Cancer Detox System**.

As mentioned throughout, it is the **Cancer Detox System** that protects against the cancer causing free radicals and electrophiles.

### **Dietary Guidelines**

In Diatits, Mr. John explains why proper diet and proper nutritional supplements represent the best possible means of maintaining a healthy and effective **Cancer Detox System**.

Mr. John still recommends the same dietary guidelines he outlined in Diatits some 45 years ago to regenerate the enzymes that comprise the **Cancer Detox System** and to replace the vitamins and minerals that are depleted during everyday wear and tear and through lifestyle abuses.

The dietary guidelines are as follows:

- 1) Consume approximately 15 to 25 grams of proteins (for an average weight person) at each meal (breakfast, lunch, and supper). Employ the following table: one ounce of meat, fish, fowl, cheese, one egg, one glass of milk, a serving of beans, nuts, or lentils all contain approximately 7 grams of proteins. A serving of a grain product or a serving of a vegetable contains approximately 2 grams of proteins. This is a crucial dietary rule because it is the only effective means of regenerating or replacing the worn out enzymes with the amino acids that make up the **Cancer Detox System** on a daily basis.
- 2) Consume from 4 to 7 servings of grain products daily, preferably of the whole grain variety.
- 3) Consume a minimum of 3 servings of vegetables daily, in addition to a salad. Use dressing of choice.
- 4) Consume a minimum of 3 servings of fruit of choice daily.
- 5) Consume approximately 3 servings of dairy products daily (milk, cheese, or yogurt).

To compensate for the additional stress placed on the **Cancer Detox System** because of life style abuses and everyday wear and tear, Mr. John recommends the following nutritional supplements:

For smokers, take daily a complete multi-vitamin and mineral supplement plus a potent anti-oxidant formula.

For obesity, abuse of over-the-counter or prescription drugs, dietary indiscretions, or over exposure to chemicals from the workplace or in the environment, take a complete vitamin & mineral formula plus a anti-oxidant formula that includes MSM, grape seed and olive leaf extract daily.

For alcohol abuse, take a complete vitamin & mineral supplement, a anti-oxidant formula, and a high potency B-complex formula, daily.

Keep in mind that nutritional supplements only supplement your daily diet. By adhering to proper dietary guidelines such as those recommended above, your chances of reaping the maximum benefits for maintaining a healthy and effective **Cancer Detox System** are greatly increased.