

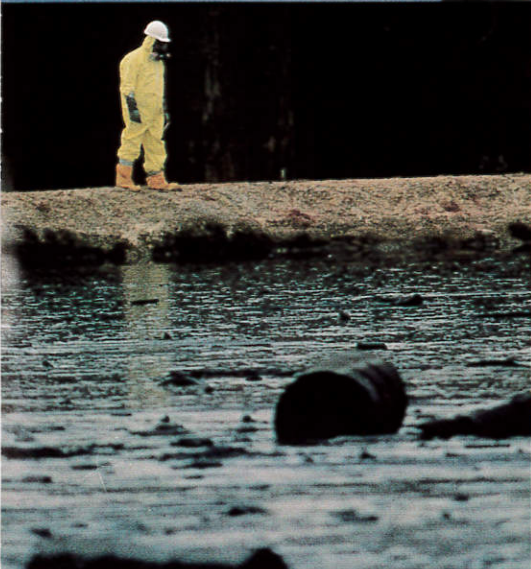
# ADVANCE

## Increased Exposure to Toxic Substances is Overloading our Immune Systems

**Y**ou can't escape the dangers of our toxic environment. No one is immune to the effects of hazardous wastes in the air, in the water, and in the foods we eat. Every day, we are exposed to a number of chemicals that were nonexistent a hundred years ago. It would be foolish to assume that these additions to the ecological chain have no effect on it. Today, we are only beginning to understand the consequences of our tampering with Mother Nature.

With more chemicals being added to our food, air and water, we are steadily increasing our exposure to free radicals and toxic levels of other substances. We are progressively becoming susceptible to debility and disease, unable to fight current threats to our health and well-being.

Most Americans—despite a growing awareness of the imminent hazards—do very little in the way of protecting themselves from the damaging effects of pollution.





# ICES IN POLLUTION SOLUTIONS

## FREE RADICALS and OXIDANTS—The Damaging Effects

by Dr. Arthur Furst  
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Oxygen is essential for life, but oxygen intake can be likened to a two-edged sword.

A very minute percentage of oxygen in the air, and hence that which is inhaled, is in the form of an extremely active molecule

**“Free-radical oxygen is very damaging to all cells”**

called “free-radical” oxygen. This form is very damaging to all cells, and it can initiate a variety of reactions which can propagate other free radicals. The active oxygen can react with water to form hydrogen peroxide; peroxides are powerful mutagenic agents.

What damage can free-radical oxygen do? It can react rapidly with unsaturated fats and induce rancidity. The first chemical

**“Free-radical oxygen can also damage cell membranes”**

step in this rancidity reaction is the formation of a chemical structure called “epoxides.” Epoxides, too, are mutagenic, and in many cases, are also carcinogenic (cancer-forming). Epoxides can also form peroxides.

Cholesterol contains an unsaturated unit in its molecule which can be converted to cholesterol epoxide. The latter can contribute to plaque formation in the arteries, or can enhance the formation of cancer.

All of the cells in the body are covered by membranes. Free-radical oxygen can also damage cell membranes.

Free-radical oxygen or the epoxides formed from it, or the peroxides formed

**“The most damaging effect of free-radical oxygen is the effect on nucleic acids”**

from the epoxides, can react with all the proteins in the body. This reaction involves cross-linking of the protein chain and results in loss of elasticity of the skin, which is one indication of aging. Also, since enzymes are proteins, cross-linking limits their ability to function well or at all.

The last and most damaging effect of free-radical oxygen, or other oxidants resulting from free-radical oxygen reactions, is the effect on nucleic acids. Nucleic acids carry all of the genetic information from

cell to cell, from parents to offspring. If a nucleic acid portion is damaged, one type of new genetic information which can be given to the dividing cells is to form cancers. Another type of possible distorted information is that an embryo should either die or grow to maturity with an anatomical or mental defect.

We must all breathe oxygen to live; we all, therefore, breathe in free-radical oxygen as a small portion of inhaled oxygen. Why then does only a very small percentage of the population get cancer, why are the vast

**“The nutrients we take in can nullify the oxidant reactions”**

majority of newborns normal and not defective? There are two answers to this question. One, the body has built-in defense mechanisms; two, the nutrients we take in can nullify the oxidant reactions. In other words, antioxidants are of key importance.

### Vitamins C and E: Their Antioxidant Role

“Advances in Vitamin Research” April, 1985

Steven R. Tannenbaum, Ph.D.

Vitamins C and E are the principal natural antioxidants in the body. They work in concert: an adequate amount of vitamin C will spare vitamin E and vice versa. One protective function of these vitamins in the body is the prevention of nitrosamine formation, a

### Vitamins C & E are the principal natural antioxidants in the body

class of carcinogens that can act on various tissues. Nitrosamine formation occurs when nitrate—a common ion in our environment—is converted to nitrite by bacteria in the stomach or the saliva. You can destroy the nitrite and prevent the formation of N-nitroso compounds by introducing either ascorbic acid or vitamin E in doses sufficient to

### Vitamins C & E may also help to protect against lung damage

counteract the amount of nitrite. By a different mode of action, vitamins C and E may also help to protect against lung damage from nitrogen oxides. My hypothesis is that environmental pollutants can cause lung damage, but this damage can be inhibited by increased intake of vitamin E.

## THE NEO-LIFE SOLUTION

The latest scientific research reveals new evidence about the potential of vitamins, particularly E, C and beta carotene, to protect the body from harmful environmental agents, and to reduce our vulnerability to some chronic disease processes, such as certain types of cancer.

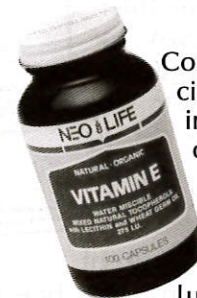
### BETAGARD

A complete, full-spectrum free radical antioxidant with nutrients like beta carotene, to help protect against harmful substances found in air, water, and the foods we eat.



### VITAMIN E

Contributes to healthy circulation by improving oxygen content of blood; acts as a natural antioxidant by improving the body's ability to cope with pollutants; promotes healing. Regular or Threshold Control formulas.



### VITAMIN C

Five formulations to choose from! Vitamin C promotes healing; improves resistance to infection. Neo-C (100 mg.), All-C (200 mg.), Hi-C (300 mg.), Threshold Control C (monitored release formula), and Powdered C (1,000 mg, can be mixed with foods or beverages).

