

Antioxidants and Free Radicals

BY Dr. Alfred F. Libby, MD(H), LHD, Ph.D.

Let's talk about antioxidants! What are they, and what exactly do they do in this body of ours? We have all read, or have been told, the antioxidants protect us against the dreaded "free radicals" who wreak such havoc in our bodies. Now I guess we ought to ask, what are "free radicals" anyway, and why should we fear them, or, for that matter, where do they come from?

"Free radicals" are produced from normal oxygen metabolism within the body, but their activity can be increased by exposure to certain chemicals, environmental pollutants, sunlight, radiation, burns, cigarette smoke, drugs, alcohol, viruses, bacteria, and parasites. This "free radical" activity can be further increased within the body by foods high in fats, sugar, and by many of the contaminants contained in our municipal water supplies such as lead, cadmium, mercury, copper, and even iron.

To illustrate how "free radicals" are generated, let me point out that perhaps the greatest source of "free radicals" is the oxygen we consume every day. It is reported that for every 25 molecules of oxygen we inhale, 1 "free radical" is produced. Considering that we consume *trillions* of oxygen molecules with a single gulp of air, you can imagine how many "free radicals" can be generated every time you breathe in air. I hate to pick on you cigarette smokers, but a single puff of cigarette smoke can contain up to *100 trillion* "free radicals," never mind the *3000 plus* different aromatic compounds, some of which are known carcinogens, that single puff of smoke contains. Maybe this explanation can clear up why there is a legitimate complaint regarding, "second hand smoke."

Barbecued and fried foods such as those you buy at fast food outlets, are also a great source of "free radicals." The combination of high-temperature heated oils that are used to prepare these foods along with oxygen is the ideal condition for the generation of *enormous numbers* of "free radicals."

What makes "free radicals" so dangerous to our bodies?

Like moths that shred your wool clothes to pieces, or termites that gnaw away the inner workings of your house, uncontrolled "free radicals" can do the same to the delicate tissues of your body. "Free radicals" destroy cell membranes, damage collagen and other connective tissues, disrupt important physiological processes, and create mutations in the DNA cells. "Free radicals" have been implicated in more than *60 diseases*, including heart disease, hardening of the arteries, arthritis, Alzheimer's disease, cataracts, and cancer. It is important to note that "free radical" generation takes place throughout a person's lifetime, but increases with age. Particularly vulnerable are brain cells and white blood cells because they are rich in unsaturated fat. A destruction of large numbers of white blood cells can lead to the weakening of your immune system. This is one of the reasons why you become more susceptible to diseases and infections as you become older.

The question remains, what do we do to slow down this "free radical" damage to our bodies?

Luckily, we are not entirely without defense against these freaks of nature. Through our body's manufacture of its own antioxidant enzymes, and by the food we eat, we can help shield our tissues and organs from "free radical" damage. But is that enough? The answer is clearly, no! Due to the

high levels of "free radicals" in our bodies today, we need a way to greatly increase our ability to minimize this tissue and organ system damage. How do we do this? Why with For•Mor's antioxidants of course! Is this important to do on a regular basis? Consider that as we age, the body's inherent production of antioxidant enzymes decreases. Skin becomes leathery and wrinkled. Arteries lose their elasticity. Joints and cartilage stiffen. Vision becomes cloudy. The spine becomes stooped. Every part of the body gradually deteriorates. Antioxidants can deactivate "free radicals" and put a stop to the cellular and tissue damage they cause.

For•Mor International has clearly recognized the complex issues involved in "free radical" damage to the body. "Free radical" damage is created in two very distinct ways, hence the two antioxidants, "Power Antioxidant" and "Avengers." Without trying to become too technical, there are certain "inside" the body functions such as the availability of oxygen for its metabolism, functioning, and well-being. Metabolism however does not occur without certain costs. To further complicate the problem, our body is also subject to "outside" influences, such as the type of foods we eat, which, in turn, leads to further formation of "free radicals." This process, if not stopped, leads to tissue and organ degeneration that will eventually result in clinically manifested conditions such as chronic inflammation, heart disease, accelerated aging, and disorganized cell growth that may result in cancer.

Do we need to take *both types* of antioxidants on a regular basis?

You bet we do!