

## Are You in Debt...Oxidative Debt?

Plants use carbon dioxide and water to create carbohydrates (get it? carbo-hydrate). Then we consume carbohydrates and oxygen to create the energy that we need to power ourselves, especially our muscles and our brain. However, this biological process is messy and results in the creation of free radicals. In fact, numerous aspects of everyday living produce free radicals. Why? Because a variety of vitally important functions within our bodies require oxygen, and oxygen is a very unstable molecule. During the course of normal, biological, chemical reactions, the oxygen involved can become damaged and turn into free radicals. Free radicals can damage our DNA, our cell membranes, and can cause us to age. In fact, if free radicals attack a cell's chromosomes, the cell can lose its ability to control its most basic functions, including reproduction. It could start to multiply out of control, which is the beginning of cancer. So why would we have evolved such critical internal processes that result in such destructive by-products?

The answer may lie once again in the food we eat, or should I say, the food we are supposed to eat. When we consume plant foods in their natural form, they come prepackaged with antioxidants and other phytonutrients which naturally help not only to prevent the build-up of free radicals that could potentially damage our DNA and cell membranes, but also modulate our gene expression which can enable damaged cells to recover instead of being irreparably lost. We have likely only begun to identify the antioxidants that exist *only in plants* and all of the protective functions which they provide for us when we eat them. As their name implies, antioxidants are plant compounds that protect us from rogue oxygen molecules. Antioxidants provide reinforcement in a number of different ways. Some antioxidants protect our cells' outer membrane from free radical attacks, much like a bullet might hit the outer surface of an armored car, but not harm the occupants inside. Others patrol the liquid within our body, such as our bloodstream and the watery substances inside our cells. It is important to note, however, that the credible scientific studies that have found the protective effect of antioxidants in food have not found that same effect with antioxidant supplements, and in some cases, have found those supplements to be harmful.

Without sufficient plants on our plates, our bodies can become tipped out of balance toward a pro-oxidative state which makes us vulnerable to oxidative stress diseases. Oxidative stress is implicated in virtually every known human disease as well as in the aging process. In fact, aging has been referred to as the slow oxidation, or rusting, of our bodies. The typical American doesn't even get half the minimal level of antioxidants required to breakeven with the oxidation that results from simply digesting our food.

Other factors that can contribute to oxidative debt that can be eliminated or minimized include meat consumption, disease, stress, sleep deprivation, smoking, drugs, and excessive sun. Antioxidant levels can plummet in as little as two hours after a stressful event and can take up to three days to fully recover. We are a country in oxidative debt warns Michael Greger, MD, and as such, we

should be soaking our blood in antioxidants at every meal. We need to eat a variety of antioxidant-rich plant foods throughout the day as the antioxidant level in our blood will fall, everything else held constant, as the antioxidants are used up fighting free radicals in our bodies.

Help tip the scales back in your favor and eat a varied, plant strong diet.

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