



COMMENTARY



## Effects of Oxidative Stress and its Prevention

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### Description

Oxidative stress is basically an imbalance among the production of free radicals and the capacity of the body to counteract or detoxify their dangerous outcomes via neutralization with the aid of using antioxidants.

Oxidative stress results in many pathophysiological conditions inside the body. Some of those include neurodegenerative diseases such as Parkinson's disease and Alzheimer's disease, gene mutations and cancers, chronic fatigue syndrome, fragile X syndrome, heart and blood vessel disorders, atherosclerosis, coronary heart failure, coronary heart attack and inflammatory diseases. Much of the damage caused by oxidative stress arises from its modification of the DNA inside a cell's nucleus which gives rise to mutations. Oxidative stress is an imbalance of free radicals and antioxidants in the body, which can lead to cell and tissue damage.

Oxidative stress occurs naturally and plays a role in the aging process. The body's cells produce free radicals at some point of normal metabolic processes. However, cells additionally produce antioxidants that neutralize those free radicals. In general, the body is able to maintain a balance among antioxidants and free radicals. Several factors contribute to oxidative stress and excess free radical production. These factors can include:

- Weight loss plan
- Lifestyle
- Certain conditions
- Environmental factors such as pollutants and radiation

The body's natural immune response can also trigger oxidative stress temporarily. This type of oxidative stress causes mild inflammation that goes away after the immune system fights off an infection or repairs an injury. Uncontrolled oxidative stress can boost up the aging process and may contribute to the development of a number of conditions.

### Effects of oxidative stress

The outcomes of oxidative strain vary and aren't always dangerous. For example, oxidative stress that effects from physical activity may have beneficial, regulatory effects at the body. Exercise will increase free radical formation, which can cause temporary oxidative stress in the muscles. However, the free radicals formed during physical activity regulate tissue growth and stimulate the production of antioxidants.

Oxidative stress can cause chronic inflammation. Infections and injuries trigger the body's immune response. Immune cells referred to as macrophages which produce free radicals while fighting off invading germs. These free radicals can harm healthy cells, leading to inflammation. Under normal circumstances, inflammation goes away after the immune system eliminates the infection or repairs the damaged tissue. However, oxidative stress can also trigger the inflammatory response, which, in turn, produces more free radicals which can lead to further oxidative stress, creating a cycle.

Chronic inflammation due to oxidative stress may lead to numerous conditions, including diabetes, cardiovascular disease and arthritis. Factors that may increase a person's risk of long-term oxidative stress include:

- Obesity
- Diets excessive in fat, sugar and processed foods
- Exposure to radiation
- Smoking cigarettes or different tobacco products
- Alcohol consumption
- Certain medications
- Pollutants
- Exposure to insecticides or industrial chemical substances

### Prevention

It is important to remember that the body requires both

free radicals and antioxidants. Having too many or too few of either may cause health problems. Lifestyle and nutritional measures that may help reduce oxidative stress in the body include:

- limiting intake of processed foods, particularly those high in sugars and fats
- Exercise regularly
- quitting smoking
- reducing stress
- Avoiding or reducing exposure to pollutants and harsh chemicals.

One method of preventing oxidative stress is to ensure that you're obtaining enough antioxidants in your diet. Eating five

servings per day of a variety of fruits and vegetables is the best way to provide your body what it needs to produce antioxidants. Examples of fruits and vegetables include:

- berries
- cherries
- citrus fruits
- prunes
- dark leafy greens
- broccoli
- carrots
- tomatoes
- olives