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Mini Review

Free radical fighters: How antioxidants protect your body from harmful toxins

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Abstract

Free radicals reactive oxygen species and reactive nitrogen species are generated by our body by various endogenous systems, exposure to different physiochemical conditions or pathological states. A balance between free radicals and antioxidants is necessary for proper physiological function. If free radicals overwhelm the body's ability to regulate them, a condition known as oxidative stress ensues. Free radicals thus adversely alter lipids, proteins, and DNA and trigger a number of human diseases. Hence application of external source of antioxidants can assist in coping this oxidative stress.

Keywords: Free radicals, DNA, Proteins, lipids.

INTRODUCTION

We live in a world full of harmful toxins that can damage our bodies and increase our risk of developing chronic diseases. Toxins are produced by our own metabolism, as well as by the environment we live in, including pollution, tobacco smoke, and processed foods (Balino-Zuazo & Barranco, 2016).

Fortunately, our bodies have a built-in defense system against these toxins, which includes antioxidants. Antioxidants are natural compounds that can neutralize harmful molecules called free radicals. Free radicals are unstable molecules that can damage cells and DNA, leading to inflammation and chronic diseases such as cancer, heart disease, and Alzheimer's disease. Antioxidants work by stabilizing free radicals, making them less harmful to the body (Chalupowicz et al., 2020).

There are many different types of antioxidants, including vitamins C and E, beta-carotene, selenium, and flavonoids. These nutrients are found in a variety of foods, including fruits, vegetables, nuts, and whole grains. Some of the best sources of antioxidants include berries, leafy greens, nuts, and dark chocolate. Research has shown that a diet rich in antioxidants can have a number of health benefits. For example, antioxidants can help reduce inflammation in the body, which is linked to a variety of chronic diseases. They can also improve the health of our heart, brain, and immune system, and even help slow down the aging process (Chaudhry et al., 2008).

One of the most well-known antioxidants is vitamin C. This nutrient is found in many fruits and vegetables, including oranges, kiwis, strawberries, and bell peppers. Vitamin C is important for the immune system, as well as for the health of our skin, bones, and blood vessels. It also helps our body absorb iron from plant-based foods, which is essential for the production of red blood cells (Cheng et al., 2006).

Another important antioxidant is vitamin E. This nutrient is found in nuts, seeds, and vegetable oils, as well as in leafy greens and fortified cereals. Vitamin E is important for protecting the body against oxidative stress, which can damage cells and lead to chronic diseases. It also helps boost the immune system and promote healthy skin (Shi et al., 2018).

CONCLUSION

In conclusion, antioxidants are an essential part of a healthy diet and lifestyle. By eating a variety of fruits, vegetables,

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nuts, and whole grains, we can ensure that we are getting enough of these important nutrients to protect our bodies from harmful toxins and reduce our risk of chronic diseases. So next time you're grocery shopping, make sure to fill your cart with colorful, antioxidant-rich foods. The recent growth in the knowledge of free radicals and reactive oxygen species (ROS) in biology is producing a medical revolution that promises a new age of health and disease management. It is ironic that oxygen, an element indispensable for life under certain situations has deleterious effects on the human body. Most of the potentially harmful effects of oxygen are due to the formation and activity of a number of chemical compounds, known as ROS, which have a tendency to donate oxygen to other substances. Free radicals and antioxidants have become commonly used terms in modern discussions of disease mechanisms.

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