



International Journal of Home Science

ISSN: 2395-7476
IJHS 2019; 5(2): 459-460
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www.homesciencejournal.com
Received: 05-03-2019
Accepted: 05-04-2019

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Role of antioxidants in human body

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Abstract

A large amount of free radicals can be generated in human body during metabolic process. These free radicals can result in oxidative stress and homeostasis imbalance, even some chronic diseases.

This article reviews the basic knowledge of free radical formation in the body, the consequences of free radical induced tissue damage, and the function of antioxidant defence system. Antioxidants are man-made or natural substances that may prevent or delay some types of cell damage. Antioxidants are found in many foods, including fruits and vegetables. Although, oxidation reactions are crucial for life. Traditional herbal medicines, dietary foods were the main sources of antioxidant for ancient people that protected them from the damage caused by free radicals.

Keywords: Antioxidants, free radicals, disease, natural substances

Introduction

Antioxidants are substances that may protect our body cells against the effect of free radicals. Molecules produced when our body breaks down food or is exposed to tobacco, smoking and radiation. Free radicals may play a role in heart diseases, cancer and various diseases. Antioxidants are substances that can prevent or slow damage to cells caused by free radical, unstable molecules that the body produces as a reaction to environment and other pressures. Antioxidants are also known as "Free Radical Scavengers". The sources of antioxidants can be natural and artificial. Certain plant based foods are thought to be rich in antioxidants. Plant based antioxidants are a kind of phytonutrient, or plant based-nutrient. The body also produces some antioxidants known as endogenous antioxidants and those taken from outside the body are called exogenous antioxidants. Antioxidants acts like first line of defense for protection of cells. Increased intake of antioxidants in the diet will help in maintaining cell integrity and also the normal physiological and biochemical function. The antioxidants help in neutralizing the free radicals and thus protect the cells [1].

Free radicals are waste substances produced by cells as the body processes food and reacts to the environment. If the body cannot processes and remove free radicals efficiently, oxidative stress can result. This can harm cells and body functions. Free radicals are also known as Reactive Oxygen Species [ROS]. Factors that increase the production of free radicals in the body can be internal such as inflammation, or external for example, pollution, UV exposure and cigarette smoke. Oxidative stress has been linked to heart disease, cancer, arthritis, stroke, respiratory diseases, immune deficiency, emphysema, Parkinson's disease and other inflammatory or ischemic conditions. Antioxidants are said to help neutralize free radicals in our bodies and this is thought to boost overall health. Antioxidants can protect against the cell damage that is caused by free radicals known as 'Oxidative Stress'. The damage caused by antioxidants deficiency has been linked to cancer, atherosclerosis and vision loss. It is thought that the free radicals cause changes in the cells that lead to these and possibly other condition. An intake of antioxidants is believed to reduce these risks. Antioxidants play an important role in scavenging free radicals and maintaining body balance. The main function of antioxidants is to prevent oxidation in various contexts. The human body is protected from cardiovascular, neurological and carcinogenic disease, delaying chronic heal the problems like cataracts by the use of antioxidants [2].

Antioxidant acts as a radical scavenger, hydrogen donor, electron donor, peroxide decomposer, singlet oxygen quencher, enzyme inhibitor, synergist, and a metallic chelating agent. Antioxidant supplements may help in reducing vision loss due to age related muscular

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degeneration in older people. Overall, however, there is lack of evidence that a higher intake of specific antioxidants can reduce the risk of disease. In most cases, results have tended to show no benefit or a detrimental effect, or they have been conflicting. Many natural antioxidants have been identified as free radical or active oxygen, on the basis of limited researches it appears that dietary antioxidants have the anti-ageing activity at least in fruit fly model by enhancing endogenous enzymatic defense capacity via up-regulation of SOD and catalyze and suppression on formation of radicals [3].

There are thought to be hundred and possibly thousands of substances that can act as antioxidants, each has its own role and can interact with others to help body work effectively. Antioxidant is not really the name of a substance, but rather it describes what a range of substance can do. Examples of antioxidants that comes from outside the body include Vitamin A, Vitamin C, Vitamin E, Beta carotene, Lycopene, Lutein, Selenium, Manganese, Zeaxanthin Flavonoids, Flavones, Catechins, Polyphenols, and Phytoestrogens, are all types of antioxidants and phytonutrients, and they are all found in plants based foods. Each antioxidant serves as a different function and is not interchangeable with another. This is why it is important to have a varied diet.

The best sources of antioxidants are plant based foods, especially, fruits and vegetables foods that are particularly high in antioxidants are often referred to as a "Super food or Functional Food". To obtain some specific antioxidants please include these types of food in the diet such as dairy products, eggs and liver which are rich in Vitamin A, fruits and vegetables, especially berries, oranges and bell pepper which are rich in Vitamin C. Nuts, seeds, sunflower and other vegetable oils and green leafy vegetables which are rich in Vitamin E. Brightly colored fruits and vegetables such as carrots, peas, spinach and mangoes which are rich sources of beta carotene. Pink and red fruits and vegetables, including tomatoes and watermelons are rich sources of Lycopene. green leafy vegetables, corn, papaya and oranges are rich sources of lutein, rice, corn, wheat and other whole grains as well as nuts, eggs, cheese and legumes are rich sources of selenium. Other foods that are believed to be good sources of antioxidants includes eggplants, legumes (Black beans or kidney beans), green and black tea, red grapes, dark chocolates, pomegranates, Gogi berries, blueberries, apples, broccoli, spinach, lentils etc. are foods with rich vibrant colors are often contain the most antioxidants. It is important to seek out natural sources of antioxidants in the form of healthful diet. Consuming of fruits and vegetables has been linked to a lower rate of chronic diseases, and oxidants may play a vital role in it. However it is unlikely that consuming added antioxidants especially in processed food, will provide significant benefits [4].

A diet rich in antioxidants can aid in the prevention of many chronic diseases including heart disease, eye disease, premature aging and cancer. Although our body may be equipped with natural antioxidants, it is still important to incorporate foods rich in antioxidants such as fruits and vegetables so that we can provide all energy and essential nutrients for our body to functions optimally. Though, supplements containing antioxidants are generally considered safe. Two recent studies have suggested that taking higher than recommended possibly toxic. In contrast, many foods higher in an array of health benefits such as being high in fiber, protein, and other vitamins and minerals and low in saturated fats and cholesterol.

Eating plenty of antioxidants rich food and beverages such as fruits and vegetables, whole grains, nuts, seeds, fish, tea, red wine will help in stay healthy and prevent from diseases. Expert also says that it is best to obtain antioxidants from eating food rather taking from supplements. As a result, it is important to seek out natural resources of antioxidants in the form of a healthful diet. Current recommendation provided by the US government and health organizations to consume a varied diet with atleast 5 servings of fruits and vegetables each day and 6 to 11 portions of grains per day, with atleast half of these servings of whole grains.

Conclusion

By reading some of these studies, we have found that antioxidants are playing very important role in maintaining a healthy life, as they prevent us from various diseases such as cancer, cardiovascular and eye cataracts and also work as an anti-ageing factor in our body.

References

1. Kattappagari KK, 2015. <http://www.jofs.in><article
2. Anuj Yadav, 2016. <http://www.researchgate.net>>publication
3. Cheng Peng, 2014. <http://www.hindwai.com>
4. Megan Ware, 2018. <https://www.medicalnewstoday.com>