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Antioxidants: Positive effect on human health by decreasing free radicals.

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Abstract :

Antioxidants are the stable substances which can be mainly used to prevent the damage of the cell caused by free radicals. A free radical is an atom or group of atoms having highly reactive chemicals that has an unpaired electron causing damage to cells. Antioxidants are very important to neutralize free radicals in our body and so they also called as free radical scavengers. Free radicals causes damages to skin, brain , lungs, digestive track, arteries and also to DNA. To fight with free radicals the body has its own weapon called antioxidants. The main micronutrients antioxidants are vitamin C, vitamin E and B-carotene which protect our body against free radicals . The daily required dose of vitamin C is 75mg for women and 90mg for men per day. Recommended dose for B-carotene is 6-15mg per day. This is equivalent to 10,000-25,000 units of vitamin A per day. Antioxidants neutralize the effect of free radical and prevent us from various diseases so we will be very healthy and happy.

Key Words: Antioxidants, Free radicals, Micronutrients ...

Introduction :

Antioxidants are the stable substances which can be mainly used to prevent the damage of the cell caused by free radicals. They also inhibits the cellular damage caused by chemical reaction .These are mainly chain reactions that damages the cells of organism. These low molecular weight antioxidants interact with free radicals to terminate chain reactions before vital molecules are damaged such antioxidants including glutathione, ubiquinol and uric acid which are produced in the body by normal metabolism process. Other antioxidants are found in the diet. The principal micronutrient antioxidants are vitamin E(α -tocopherol), vitamin C(Ascorbic acid) and B-carotene. Our body cannot synthesize these micronutrients, they must be supplied in the diet .

There are two sources of antioxidants 1) natural and 2) artificial. Some plants are rich in antioxidants which are also known as plant based nutrients .Antioxidants are very important to neutralize free radicals in our body and so they also called as free radical scavengers. They also help to boost overall health.

A free radical is an atom or group of atoms having highly reactive chemicals that has an unpaired electron causing damage to cells. They are unstable and very highly reactive naturally formed in the body. They can either donate an electron to or accept an electron from other molecule, so they behaving as oxidants.

The number of electrons in its outermost shell determines its chemical behavior. The atom is stable when its outermost shell is full and unstable when outermost shell is not full. They can stabilize itself by either donate an electron or accept an electron by forming a bond with another atom therefore they behaving as an oxidants.

High concentration of free radicals in the body is very hazardous and causes damages to all major components of the cells. In abnormal condition high concentration of free radicals can be caused by exposure to ionizing radiation and some environmental toxins. Ionizing radiation hits an atom electron may be lost and formation of free radical takes place. There are some environmental toxins such as cigarette smoke, high oxygen atmosphere and some metals may contain large amount of free radicals.

Materials and Methods:

There are some toxins which are produced in the body by the process of metabolism and as a result produce free radicals. When the concentration of free radical increases in the body it weakens our immune system and makes the body to suffer from various diseases and infection.

They can causes damages to skin, brain, lungs, digestive track, and arteries and also to DNA.

Oxidative stress:-

Oxidative damages are formed when the free radical formation and antioxidant defense imbalanced. These are mainly occurring in the tissues which are injured by various infection, Head injury and excessive exercise. An excess of oxidative stress can lead to oxidation of lipids and proteins which is associated with the structural and functional changes. An oxidative stress role has been contributed to many conditions including antherclerosis inflammatory condition, cancers and process of aging.

Carcinogenesis;_

Free radicals are chemicals which are highly reactive and have the potential to harm cells. As they are formed naturally in the body which play very important role in many cellular processes. The concentration of free radicals increases it become hazardous to the body and damages all the major components of cells including DNA, cell membrane, protein carbohydrate and fat. And this damage to DNA-the genetic code which control cellular behavior which can play a role in cancer development. The excess free radicals or prolonged period of time could cause chronic diseases like cancer, stroke, diabetes, arthritis and heart diseases.

To fight with free radicals the body has its own weapon called antioxidants. Antioxidants can interact with free radicals and terminate the chain reaction before damaging of molecule. The main micronutrients antioxidants are vitamin C, vitamin E and B-carotene which protect our body against free radicals, which also helps in neutralizing the free radicals from further damage of the molecule. Our body cannot prepare these micronutrients so they should be supplied in our diet. There are some plants which are used as antioxidants are as follows.

- 1) Vitamin C – Ascorbic acid which are water soluble vitamins mainly present in the citrus fruits, guava, yellow bell paper, red bell paper, Kiwi, broccoli,lychee, spinach, papaya, strawberries, pineapple cauliflower, cabbage, raspberry blackberry, mango, tomatoes.The daily required dose of vitamin C is 75mg for women and 90mg for men per day.
- 2) Vitamin E – d-alpha tocopherol which are fat soluble, mainly present in sunflower seeds, peanuts, spinach vegetable oils, fish oil, olive oil, avocado, almond, asparagus, broccoli, wheat germ oil, apricots, hazelnuts oil, mangos, kiwis.

The recommended dose of Vitamin C is approximately 8-10mg per day

- 3) Beta- carotene – Is an antioxidants that can convert to vitamin A which is also called as precursor to vitamin A ,which are present in carrots, sweet potatoes, dark leafy green vegetables red and yellow pepper, apricots, liver, egg yolk, milk, butter, squash, cantaloupe, peaches, grain, peas, corianders, parsley chilli.

Recommended dose for B-carotene is 6-15mg per day. This is equivalent to 10,000-25,000 units of vitamin A per day.

Conclusion:

Consuming foods rich in antioxidants may be good for our better health and also helps to lower risk of infections and some form of cancer and some other diseases. So by eating more nuts, seeds, legumes, green vegetables and fruits increase antioxidants in our body. Antioxidants, vitamins and supplements fight with free radicals and help to keep you very healthy. Antioxidants neutralize the effect of free radical and prevent us from various diseases so we will be very healthy and happy.