

Medi Quest BRS Hospital

A monthly News letter from BRS Hospital

Antioxidants and its role

Ms. K.A. ANITHA, B.Sc.,(N&D) MBA.,(HSM)

Dietitian – BRS Hospital

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Editors

Dr.B.Madhusudhan,
MS.MCh.,DNB(Plastic)

Dr.S.Ramesh,MD,DCh

28,Cathedral garden Rd,
Nungambakkam,
Chennai - 600 034.

Phone:

044 - 30414250

044 - 30414230

Email:

brsmadhu@yahoo.co.in

Web:

www.brshospital.com

INTRODUCTION:

The normal functioning of cells is dependent on a proper balance of pro oxidants and antioxidants. The former promote the release of oxygen to provide energy needed for cell functioning. In the process, different biochemical reactions take place, which continuously produce various free radicals.

Thus the USDA definition of an antioxidant can be extended in a nutritional context to include **“compounds that protect biological systems against the potentially harmful effects of processes or reactions that can cause excessive oxidations”**. Antioxidants protect against free radical damage. Antioxidants have therefore also been termed as 'free-radical scavengers'.

WHAT ARE FREE RADICALS ?

Oxygen is necessary for all essential bodily functions. However, a small amount of this oxygen gets loose and produces unstable by-products called free radicals. An overload of free radicals in the body causes damage to the cells, ultimately resulting in disease and accelerated aging.

Free radicals are chemical species with one or more unpaired electrons. When a molecule or radical with an unpaired electron has unbalanced energy and becomes unstable and highly reactive. It can either lose an electron and get “oxidized” or lose an electron and get reduced.

Factors that increase Free-Radical Formation

Body factors

Energy metabolism

Diabetes

Exercise

Acute illness

Immune response

Injury

Obesity

Environmental factors

Air pollution

Asbestos

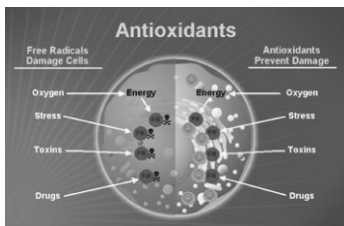
High levels of oxygen

Radioactive emissions

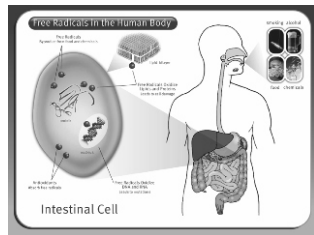
(for example, from radon gas)

Tobacco smoke

Ultraviolet light rays



Antioxidants and free radicals



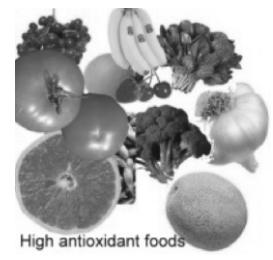
ANTIOXIDANTS IN FOODS:

Carotenoids:

They are a group of red and yellow fat-soluble compounds that pigment different types of plants, such as flowers, citrus fruits, tomatoes, and carrots, as well as animals, such as salmon, flamingos, and goldfish. The ingestion of carotenoids is essential to human health, not only because some convert into Vitamin A, but also because they have antioxidant effects, which may combat such diverse problems as cancer and macular degeneration. Carotenoids also help prevent heart disease by inhibiting low density lipoprotein (LDL) cholesterol (the "bad" cholesterol) from sticking to artery walls and creating plaques. Food sources include eggs, liver, milk, spinach, and mangoes.

Vitamin E:

It is also known as alpha tocopherol. Because vitamin E is found in oils, people who follow a low-fat diet may not get enough. Beta-carotene is a member of the carotenoid family. Found mainly in plants, carotenoids provide the vibrant red, yellow, green, and orange colors of fruits and vegetables, with carrots being a major contributor of beta-carotene. Typically, beta-carotene is a conditionally essential nutrient, but when one's intake of vitamin A is low, beta-carotene becomes an essential nutrient, meaning that it must be obtained from food and cannot be manufactured by the body.



Antioxidants in foods

Selenium:

It is an essential trace mineral (trace minerals are needed only in small amounts). The amount of selenium found in food is directly related to the amount of selenium in the soil in which the food was grown. It is necessary for healthy immune function and is tied to killer-cell activity and antibody production. The many health benefits of the various antioxidants can be provided by a variety of food sources. Sources: Brazil nuts, seafood, eggs, meat, poultry, whole grains.

Vitamin C:

It is also called ascorbic acid. It destroys free radicals that are produced during oxidation in the body. Healing of wounds, absorption of iron into the body, healthy gums and prevention of bruising are some of its varied Antioxidant benefits. Vitamin C is also known to reduce the risk of heart disease and cataracts. Sources: Citrus fruits, broccoli, cabbage, spinach, papaya, mango, tomatoes, peppers, berries, potatoes.

Those who may benefit most from antioxidants include people dealing with a lot of stress, dieters limiting their calories to 1,200 per day or less, people on a low-fat diet, smokers, older adults, and people with a family history of heart disease or cancer.



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HEALTH BENEFITS OF ANTIOXIDANTS AND THEIR FOOD SOURCES

Antioxidant	Health benefits	Food sources
Selenium	Helps maintain healthy hair and nails, enhances immunity, works with vitamin E to protect cells from damage. Reduces the risk of cancer, particularly lung, prostate, and colorectal.	Garlic, seeds, Brazil nuts, meat, eggs, poultry, seafood, whole grains. The amount in plant sources varies according to the content of the soil.
Beta-carotene	Keeps skin healthy, helps prevent night blindness and infections, promotes growth and bone development.	Red, yellow-orange, and leafy green vegetables and fruits, including carrots, apricots, cantaloupe, peppers, tomatoes, spinach, broccoli, sweet potatoes, and pumpkin.
Vitamin E	Acts as the protector of essential fats in cell membranes and red blood cells. Reduces risk of cancer, heart disease, and other age-associated diseases.	Peanut butter, nuts, seeds, vegetable oils and margarine, wheat germ, avocado, whole grains, salad dressings.
Vitamin C	Destroys free radicals inside and outside cells. Helps in the formation of connective tissue, the healing of wounds, and iron absorption, and also helps to prevent bruising and keep gums healthy. May reduce risk of cataracts, heart disease, and cancer.	Peppers, tomatoes, citrus fruits and juices, berries, broccoli, spinach, cabbage, potatoes, mango, papaya.

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Department of plastic & Cosmetic Surgery

Cosmetic Surgical Procedures :

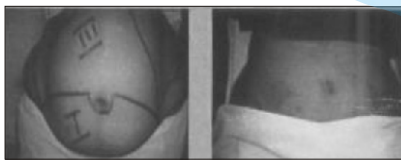
Liposuction
Abdominoplasty
Breast Augmentation
Breast Reduction

Gynaecomastia
Rhinoplasty
Hair Transplant

MultiSpeciality Hospital

Intensive care unit (Pediatric & Adult)
Paediatrics & Neonatology
general surgery & key hole surgery
arthroscopic surgery - sports injuries
laparoscopic surgery

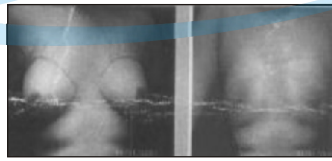
Liposuction



Pre OP

Post OP

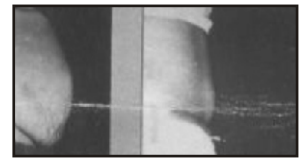
Male Breast Reduction Gynaecomastia



Pre OP

Post OP

Abdominoplasty



Pre OP

Post OP

28, Cathedral garden road Nungambakkam, Chennai - 600 034.

Ph: 044 30414250, 044 30414230 Email: brsmadhu@yahoo.co.in, Web: www.brshospital.com

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