

## Fruits: A smart choice of antioxidants

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Food remains the smart choice of antioxidants. Studies consistently demonstrate that for optimum health, one should eat at least five servings of fruits and vegetables everyday as part of a balanced diet. Antioxidants are in sufficient amount in fruits of natural/cultivated, underutilized and under exploited horticultural plants, especially in dark green, bright colour fruits and vegetables.

Just as a burning fire needs oxygen, every cell in our body needs a steady supply of oxygen to derive energy

from digested food. But consuming oxygen comes with price; it also generates free radicals, unstable molecules that can damage healthy cells, usually DNA as well as proteins and fats. Free radicals are highly reactive because they contain an unpaired electron, and electrons prefer to pair up. So these free radicals search for a molecule from which they can steal an electron. The molecular victim then goes in search of an electron to satisfy its deficiency and sets off a chain reaction in the body that results in the

Fruits rich in antioxidants	
Antioxidants	Fruit source
Vitamin C	Barbadoscherry, Seabuckthorn, Aonla, Citrus Fruit, Melon, Guava, Kiwi and Strawberry
Vitamin E	Nuts, Blueberries, Jackfruit, Durian, Guava, Mango
Vitamin A	Apricot, Kinnow, Oranges, Mango, Guava, Papaya, Jackfruit
Vitamin B9	Plantain, Passion Fruit, Papaya, Red Guava, Carambola, Avocado, Barbados Cherry
Vitamin B5	Pomegranate, Durian, Pear, Seabuckthorn, Apple.
Selenium	Nuts, Jack Fruit, Pomegranate
Magnesium	Jackfruit, Custard Apple, Pear
Potassium	Jackfruit, Pecan
Calcium	Jackfruit, Custard Apple, Barbados Cherry, Grapes, Apple, Pear
Iron	Apple, Jack Fruit, Pomegranate, Apple, Pear, Peach, Custard Apple, Loquat, Jammun
Iodine	Amra
Carotenoids (e.g. Beta Carotene, Lycopene, Lutein, Zeaxanthin)	Oranges, Apricots, Peaches, Watermelon, Pink Grapefruit Fig, Water-Melon, Muskmelon, Phalsa, Sapota, Carambola
Flavonoids (e.g., anthocyanins, Hesperidin, Isoflavones, Quercetin)	Grapes, Blueberries, Strawberries, Cherries, Apples, Grapefruit, Cranberries, Raspberries, Blackberries, Black Currents, Red Grapes, Plums, Apples, Citrus Fruits
General phenolic	Aonla, Barbados Cherry, Guava, Carambola, Khirni
4-CQA	Mango
5-CQA	Banana, Mango
Catechins	Khirni, Aonla
Lupeol	Mango, Papaya, Aonla
Ellagitannins, gallic acid	Aonla
Resveratrol	Grape



creation of more free radicals. A molecule that has lost electrons in this manner is said to have been oxidized. Free radicals are also introduced through external sources such as exposure to the sun or pollution. Other

reasons are stress, as well as unhealthy foods and cigarette smoke. This chain of events weakens immunological functions as well as speeding up the aging process, and is also linked to several diseases such as cataracts, various forms of cancer, and heart diseases. Some studies indicate possible links to arthritis and several other chronic conditions.

Antioxidants, or anti-oxidation agents, reduce the effect of dangerous oxidants by binding together with these harmful molecules and decreasing their destructive nature. Antioxidants can also help repair damage already sustained by cells. Certain antioxidant enzymes are produced within the body. The most commonly recognized of these naturally occurring antioxidants are Superoxide Dismutase, Catalase, and Glutathione. Superoxide Dismutase changes the structure of oxidants and breaks them down into hydrogen peroxide. Catalase in turn, breaks down hydrogen peroxide into water. Glutathione is a detoxifying agent, which binds with different toxins to change their form so that they are able to leave the body as waste.

Other antioxidant agents are found in foods, such as dark green leafy vegetables, plants rich in vitamin A, vitamin C, vitamin E, and beta-carotene and fruits having the strongest colors such as Oranges, Cherry, berries etc.

**Antioxidant power-** Some photochemical and fruits as

their source that are currently under study for their antioxidant activity and ability to reduce disease risk are listed below.

#### How do Antioxidants work?:

Antioxidants defend against the free radical menace in three different ways.

- Bind to free radicals and deactivate them,
- Convert reactive free radicals into non-damaging species, or
- Repair the cellular damage.

**Fruits as source of Antioxidants:** Antioxidants are found in our food and is measured by ORAC score (Oxygen Radical Absorbance Capacity). The higher the ORAC score, the greater its antioxidant capacity. Top 10 antioxidant fruits with their ORAC value are mentioned under

ORAC score for 3 <sup>1/2</sup> oz (100ml)	
Fruit	ORAC value
Prunes	5,770
Raisins	2,830
Blueberries	2,400
Strawberries	1,540
Raspberries	1,220
Plums	949
Oranges	750
Grapes	739
Cherries	670
Kiwi	602

One should add more and variety of fruits in daily diet to fight against free radicals. Thus it is advisable to inculcate the regular serving of rainbow colour fruits and vegetables in our diet to achieve healthy and wealthy life.

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