



*Weekly News from Berry Science
and the Superfruits Industry*

Deciphering Dietary Antioxidants



Spooning up antioxidant-rich berries.
What components really do give us antioxidant benefits?

[follow the [Wikipedia](#) links]

It's little appreciated in public information about antioxidants but our bodies are constantly producing oxygen free radicals in roles *essential* to our health.

Oxygen radicals are typically formed and disabled over a period of only milliseconds or seconds. Some of them are so transient that they are formed as gas molecules that, like a wisp, are here, exert their effect, then are neutralized in the blink of an eye.

Examples of what roles these short-life oxidation signals serve?

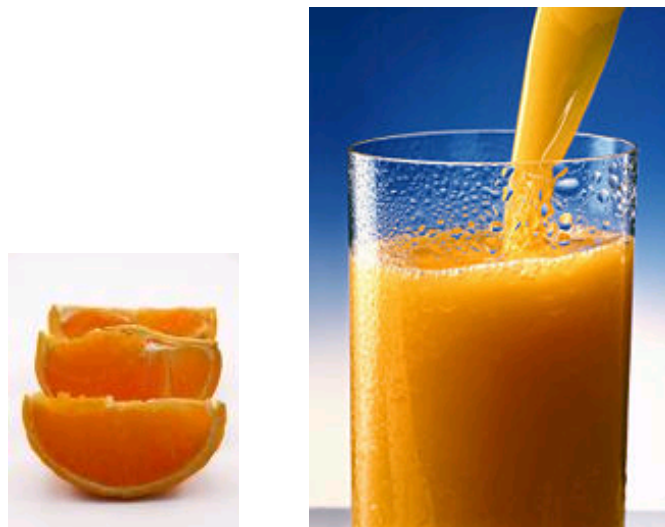
- local control of blood vessel tone for rapidly reducing or increasing blood flow

- creating rapid signals between adjacent cells
- inhibiting platelet aggregation and so reducing risk of blood clots
- initiating a cascade of mediators required for immune regulation
- destruction of pathogens in or near cells

An example of such an oxidant is **nitric oxide**, biological **Molecule of the Year in 1992** and subject of the **1998 Nobel Prize for Physiology or Medicine**.

When oxidation is unregulated or prolonged over months-years, damage to cells can result as the beginning of such diseases like cancer, arthritis, diabetes, heart and vascular disease plus others.

Many of these disorders begin first as part of the **inflammation response**.



Orange: A simple source of dietary antioxidants -- vitamin C and pro-vitamin A carotenoids.

What can we do to affect this possible course of unregulated oxidation effects in our bodies?

Consume more antioxidant-rich foods... *every day*

What are the key dietary antioxidant agents,
and which ones are not useful?

***Key dietary nutrients --
the antioxidant "ACE" vitamins and
how to get them into your diet!!***

- **vitamin C** *click for plant sources!*
- **vitamin A** (from plant foods containing carotenoids)

- [vitamin E](#) (from seeds, nuts, oils)

Polyphenols are **NOT** key dietary antioxidants -- here's why

Read a [summary article about what physiological roles polyphenols likely have in the human body](#) -- *click!*
mechanisms pertaining to cardiovascular disease
and cancer are discussed

(polyphenols are the parent family of plant chemicals
called [flavonoids referred to in this article](#))

There are new research-based theories about [what polyphenols may be doing in the human body after digestion](#). Here are a few

1. alter on-off switches for genes
2. inhibit proliferation of inflamed cells
3. inhibit growth of new blood vessels that may be stimulated by proliferating disease cells
4. alter receptor sensitivity
5. alter cell-to-cell signaling
6. alter rates of [apoptosis](#) ("eh-poh-toe-sis")
7. modify proteins, enzymes and DNA
8. affect inflammatory mediators, serving as anti-inflammatories (not as antioxidants)

Read

[a review article about how these effects may occur in cancer prevention by eating a diet rich in berries](#), *click!*



Polyphenols account for the colors of these different berries, but likely do not contribute the same antioxidant benefit after digestion as they do in the lab test tube. Berries are good sources of vitamins C and E (in seeds, if chewed)



Alphonso mango (*Mangifera indica* L.), a simple and delicious dietary solution for getting your vitamins A (from carotenoids) and C

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