

The Free Radical Challenge

Each day, we are exposed to free radicals.

Free radicals are formed naturally in the body and play an important role in many normal cellular processes.

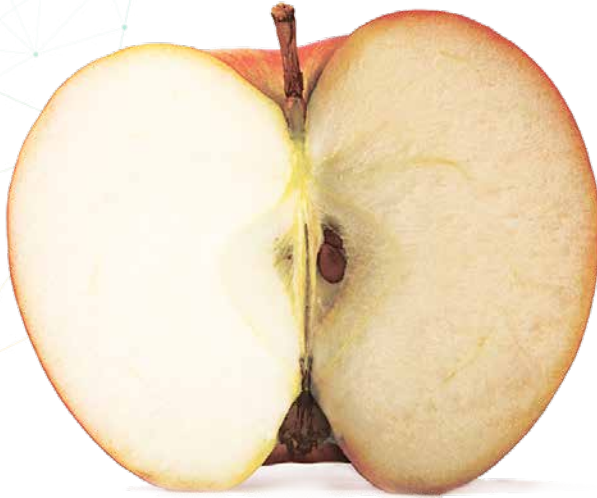
These are molecules that become unstable after losing an electron. To regain stability, the molecules react quickly with other compounds and try to capture the needed electron. The attacked molecule loses its electron becoming a free radical itself and will pull an electron off a neighbouring molecule starting a chain reaction.

These reactive intermediates cause oxidative stress to biologically relevant molecules if they are not intercepted by the antioxidant network which includes free radical scavengers like antioxidant nutrients. A balance between free radicals and antioxidants is necessary for proper physiological function. Oxidative stress arises when the production of reactive oxygen species overwhelms the intrinsic anti-oxidant defences.

As we grow older, a cellular down-regulation of our antioxidative enzymes makes our cell protection from oxidative stress less efficient with age.

An example of free radical stress is an apple that has been exposed to the air. It turns brown due to the oxidation coming from the oxygen, which interacts with the apple.

Oxidations causes stress to cells.



NO OXIDATION

OXIDATION

Free radicals come from two major sources:

- Generated by your body during specific metabolic reactions
- Generated by environmental factors



POLLUTION
EXPOSURE



SMOKING



EXCESSIVE
SUNLIGHT



STRESS

Antioxidants

The antioxidant protection system is a complex network including endogenous antioxidants and dietary antioxidants, antioxidant enzymes, and repair mechanisms, with mutual interactions and synergetic effects among the various components.

Antioxidants donate one of their own electrons to the free radical molecule.

With or without electron, antioxidants remain stable so they do not become free radical themselves.

Vitamin C, a water-soluble antioxidant, plays a major role as a free radical scavenger and as electron donor.

Vitamin E functions physiologically as a chain-breaking antioxidant that prevents the propagation of lipid peroxidation.



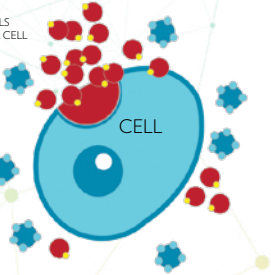
- FREE RADICAL



- ANTIOXIDANT

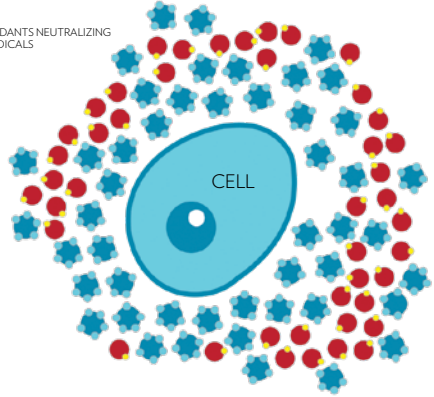
FREE RADICAL DAMAGE

FREE RADICALS
DAMAGING A CELL



ANTIOXIDANT PROTECTION

ANTIOXIDANTS NEUTRALIZING
FREE RADICALS



How can I protect myself from free radicals

To protect yourself from free radicals, you should maintain a balanced lifestyle.

You can have a balanced lifestyle by having a healthy lifestyle and balanced diet.



BALANCED DIET



ACTIVE LIFESTYLE



HEALTHY/PROPER WEIGHT



ADEQUATE SLEEP



SUPPLEMENTATION,
WHEN NEEDED