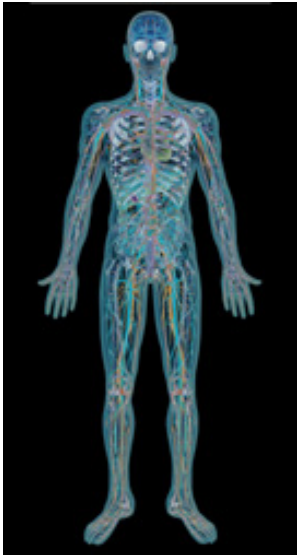


Free Radicals Are Costly Thieves



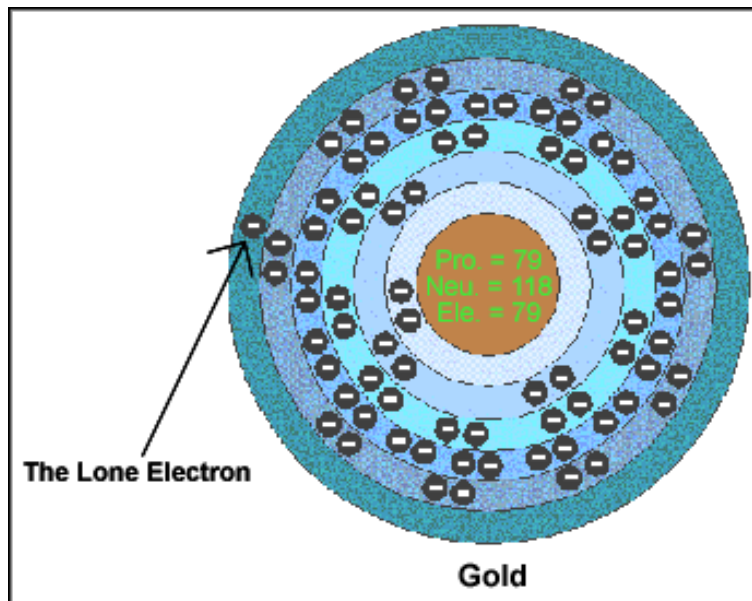
The immune system creates free radicals like, superoxide and nitric oxide, in order to send them out to poison the body's foreign invaders, such as bacteria and viruses. It also uses free radicals to mark damaged cells for destruction. The mitochondria of a cell often produces free radicals when performing its work. So why all the talk about the horrors of free radicals? Because free radicals disrupt cells by stealing electrons from them.

The Atom's Structure

Before the details of free radical damage can be understood a little bit about cell science needs to be explained. Every atom has both protons, with a positive charge, and neutrons, with no charge, at their center. Electrons, with a negative charge, circle around the protons and neutrons. The electrons pair up in outer layers called 'shells'. The first shell can hold only 2 electrons, the next shell 8 and each shell thereafter can hold more and more. Visualize the whole unit looking like a solar system with the sun playing the part of the protons and neutrons, and each planet representing a shell.

Within the shell electrons are paired together. These pairs rotate on their axis, each spinning in opposite directions. This rotational force causes the pair to cling to each other without actually touching. Free radicals are created when one of the pair becomes dislodged and leaves the shell. This creates a positive electrical charge within the cell which turns it into an 'ion'.

Some elements such as the transition metals of chromium, cobalt, gold and silver have an odd number of electrons and protons. This makes them a free radical in and of themselves; because there is a lone electron in the outer most shell. However these metals are not ions for electrically they are balanced. These metals can easily be made to give up their lone electron, which will turn them into an ion with a positive charge, while taking them out of the category of being a free radical.

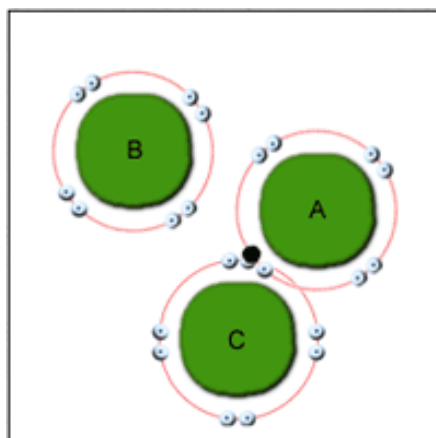


How Free Radicals are Created

As previously mentioned the body makes free radicals for the immune system to use, and without wanting to, the mitochondria can create free radicals when transforming food into energy. Mitochondria, which possess their own form of DNA, are the body's energy factory. They produce energy through a chemical process called the 'electron transport chain'. Through this procedure electrons move between various molecules, which creates the energy. Oxygen is always the last element in the electron transport chain. At times the process runs amok resulting in the electron and oxygen connecting up in such a way that a free radical is created. In general this is not too big a problem as the body also produces antioxidants which will freely give up an electron to make the atom's structure whole again.

The Damage Free Radicals Cause

When the mitochondria make a free radical the atom quickly searches for an electron, any electron, to replace the one lost. This atom can start a chain reaction within the cell where millions of atoms exchange electrons within seconds. Even though free radicals are able to get an electron from anywhere they prefer to grab the electron from the cell's wall.



A logical question to ask is whether this whole situation is like playing the game Musical Chairs? How can there be any more loss than one atom, no matter if 10 or 10 million atoms are involved? In the end only one remains without the number of electrons needed, right? Well yes that is true, but the injury is not in electrons lost, but in damage done during the loss of the electron. Think of it this way. Imagine the cell's covering as a concrete dam, with the free radical being a meteorite. If the meteorite hits the dam with enough force it will not only create a hole, which may be easily fixed, but could create a crack, not so easily fixed. The crack represents the power of a cascading chain of free radicals. Free radicals don't just create small holes, they have the ability to create huge splits.

Over time free radicals can actually change the structure of the mitochondria DNA. Regular DNA can easily be repaired by the body, mitochondria DNA is not so lucky. Damaged mitochondria will eventually cause them to stop making energy, which will lead to the death of the cell, resulting in the acceleration of the aging process.

Ways to Stop Free Radicals

Antioxidants are molecules that can give up an electron without becoming unstable for having done so. Both vitamin C and E are considered excellent antioxidants. Vitamin C is more beneficial to the water-soluble components within the cell, while vitamin E is more able to help the fat-soluble cell membrane.

Detoxification of heavy metals is essential to halting free radical damage. Heavy metals exacerbate the cascading effect of free radicals and will end up causing more damage than other atoms. Both the detoxification suppositories Medicardium and Detoxamin are designed to remove heavy metals.

Detoxification in general will help the body fight free radicals. Taking a sauna is an excellent way to remove toxins from the body. The Bio-Cleanse is an ionic foot bath that creates negatively charged ions from water. These ions are then absorbed

through the skin where they help to neutralize free radicals.

To some extent free radical damage is unavoidable. The body itself contributes to the problem, but through proper eating, taking antioxidant vitamins and detoxifying the injury done can be held to a minimum.



Article written by Cat Pippin Lowe for Promolife, Inc.