

The Bad Guys and the Good Guys

Crime is everywhere. Theft is reported on a daily basis and the police have a big job in catching the thieves and we try our utmost to protect our houses by walls, electric fences and infra-red sensors. Did you know that theft also takes place in your body and that your body must work hard to prevent it and to repair the damage ?

Firstly, let's look at the thieves, called free radicals. A free radical is an unstable oxygen atom. We can compare the atom to our solar system with the sun in the middle and the planets circling it. In the oxygen atom we find the nucleus in the middle and the electrons circling it. These electrons occur in pairs and the atom is stable. But under certain conditions it loses an electron and becomes unstable. To regain its stability, it steals an electron from another atom and then that one steals again. This theft then results in a chain reaction. If you consider that oxygen forms part of every cell in the body, you can imagine what the damage can be.

How are these free radicals formed ?

- As by-products when the cells produce energy. People who actively participate in sports will then form more free radicals (please do not stop your exercise routine, there is a solution)
- When the body works hard to neutralise medication, alcohol, toxins and other chemicals.
- When the white blood cells attack foreign invaders like bacteria they produce free radicals to kill these organisms.
- Ultraviolet light from the sun, air pollution, cigarette smoke and pesticides can enter the body and start the process. Therefore the more you are exposed to them, the more free radicals can form.
- Prolonged stress increases the body's metabolism and more free radicals are formed.
- People suffering from certain diseases also form more free radicals, e.g. diabetes, arthritis, emphysema, varicose veins, Alzheimer's to name but a few.

What are examples of damage that they can do ?

- The cells which are attacked can not function properly, because their membranes have been damaged.
- When free radicals attack the nucleus of the cell it can eventually contribute to cancer formation.
- They destroy enzymes in the cells and the organelles that are responsible for producing energy.
- The whole process of ageing. "Ageing is the sum total of the damage caused by free radicals over a lifetime" (A van der Merwe)

How does the body try to protect itself from this damage ?

It has certain systems to keep these under control but sometimes there are so many being formed that the body can not cope on its own. Then we need extra protection like additional security around our houses.

These defenders are called anti-oxidants and work in many ways to protect the oxygen atoms from the theft. How do they do that ?

- Firstly, they destroy the free radicals.
- They strengthen the body's own systems to keep the free radicals under control.
- They help to neutralise the effect of substances that can cause cancer.
- They help cancer cells to return to normal cells.

Now you'll want to know more about these protective substances and where one can find them. That is very easy, they are present in certain foods and include : Vitamins A, C, E, beta carotene that we find in orange and green fruit and vegetables, and the minerals selenium, zinc, copper and manganese. Other anti-oxidants that are available as supplements include : pycnogenol, co-enzyme Q10 and alpha lipoic acid.

Although fresh fruit and vegetables are good sources of anti-oxidants, it is almost impossible to take in enough by means of diet alone, due to the huge demands made on our bodies. A good supplement is therefore recommended : when looking at the different options available it is best to choose a product that contains as many as possible from those listed above. When taking a supplement, it is better to divide the daily intake, than taking it all at once.

A final saying by Dr van der Merwe “ Damage caused by free radicals plays a role in almost every modern disease. Everyone will benefit from taking supplements”

Reference : Health and Happiness by Dr A van der Merwe