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Free radicals.

Free radical production is actually a normal part of life, part of the equation of simply breathing in oxygen.

The process of "oxidation" within the dog's body damages cell membranes and other structures including cellular proteins, lipids and DNA.

When "oxygen is metabolized" in the dogs body, it creates 'free radicals molecules' which in turn steal electrons from other molecules - antioxidant molecules - causing damage.

The dog's body can cope with "some free radicals" and actually needs them to function effectively.

However, an overload of free radicals has been linked to certain diseases, including heart disease, liver disease and some cancers.

Oxidation can be accelerated by stress, sunlight, pollution, lack of antioxidants in food and other factors at cellular molecule level aside the dog's body.

Antioxidants counteract these cellular by-products "free radicals "and bind with them before they can cause damage.

Looking at free radicals.

Harmful free radicals are toxic molecules of oxygen that damage every area of the dog's bodies.

A free radical is an "unstable incomplete molecule" because it is missing an electron which exists in pairs in stable molecules.

Free radicals steal an electron from another molecule, thereby create another free radical.

This new free radical then duplicates the process over and over, resulting in a chain reaction of events, which ultimately damage the body.

Free radicals are natural by-products of ongoing biochemical reactions in the body, including ordinary metabolic processes and immune system responses.

The common free radicals are oxygen reactive species (ROS), namely, "superoxide radical, hydroxyl radical, and peroxy radical" which are internally produced by cellular metabolism, inflammation by immune cells and externally by radiation, pharmaceuticals, hydrogen peroxide, toxic chemicals, oxidized polyunsaturated fats and cooked food.

Free radicals and antioxidant molecule activity.

Anti-oxidants come from various vitamins, minerals and trace minerals, fruits, vegetables and berries.

Berries outperform vitamins in fighting these free radicals- (Wolfberry, blackberry, blueberry, cranberry etc.)

Because of the destructive power of free radicals it became necessary to supplement anything you feed your dog with antioxidants rich foods.

Either in supplement form commercial products or adding the proper types of food items containing them.

The diet today - what we feed our dogs and other animals is mostly commercial processed or home cooked foods.

And as such taxing our canine dog's immune systems – then more so with over vaccination, antibiotics and all the common toxic chemicals, detergents and pesticides our dogs are daily exposed to in, on and around our homes, yards while driving the illness or dis-ease further into the body.

Sadly but true that modern medicine treats the symptoms instead of looking for the underlying causes of illness.

Aside from trauma, the process of death, at the cell level, is "oxidation."

The death of cells is caused by an invading molecule called a "free radical" which invades cells causing cell death.

These invading "free radicals" are part of our dogs and other animals environment, the chemical preservatives in processed dog foods, in water, in the chemical pesticides and detergents we purchase, anything that is foreign to the dogs body can, potentially, become a free radical.

To keep it simple, when a free radical enters the body and if the immune system is not functioning optimally, three things can occur.

Allergies can occur - should the free radical attack a cell membrane.

The cell dies - should the molecule attack the fat globule that nourishes the cell - this is associated with aging and rheumatoid arthritis.

Cancer can develop - should the free radical attack the nucleus of the cell, which has the reproductive map of the cell (DNA).

Immunodeficiency combined with a weak antioxidant defense system are the primary causes of illness.

Since the dog's body is constantly bombarded by free radicals it is virtually impossible for the existing antioxidant defense system to be consistently at peak performance.

The crux then is to understand that to a great degree, immune activity is aided by antioxidants.

Antioxidants are also molecule substances that act as shields or barriers to prevent the invading free radicals from doing harm to cells.

Antioxidants not only increase the number of white blood cells it also enhances antibody formation.

The only logical solution (this we as dog owners and feeder **can do**) is to help the ailing antioxidant defense system with and through the use of antioxidants in feeds.