

Understanding Free Radical Damage for Cats and Dogs

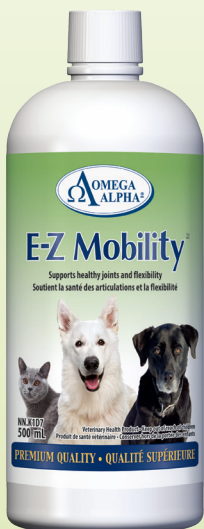
The damage done by free radicals in the body is known as oxidation. Oxidation is the same process that browns an apple or rusts metal. Uncontrolled free radical production reacts with compounds in the body and oxidizes them. The amount of oxidation in the body is a measure of oxidative stress. High levels of oxidative stress affect every organ and system in the body and have been linked to many diseases. Oxidation lays the foundation for the proliferation of free radicals and damage to every cell, muscle, tissue, gland and organ. In nature, all elements (e.g. oxygen- O_2 , chlorine- Cl_2) and compounds (salt- $NaCl$, water- H_2O), exist in a stable form. Free radicals refer to unstable and highly reactive atoms or groups of atoms that usually have an unpaired electron. These form when the bond between electrons is broken and leaves behind an uneven number of electrons. Unpaired electrons become chemically reactive, so reactive in fact that it can only exist for less than a picosecond (10^{-12} of a second). In order to reach a stable state, the free radicals will steal an electron from a neighbouring molecule which leads to a chain reaction called a free radical cascade, wherein bonds left with an uneven number of electrons will try to grab electrons from other molecules nearby. Free radicals form from atoms that are already present in the body. Enzymatic and non-enzymatic reactions, and exposure to certain sources (e.g. foods, exercise, inflammation) can contribute to the production of free radicals in the body. The major sources of free radicals include normal ordinary body functions such as breathing and digestion, to unhealthy exposure to radiation and other environmental pollutants (pesticides, herbicides).

Free radicals play an important role in the body. They are one of the major ways that the body uses to destroy viruses and bacteria, and is important for the remodeling of muscle and bone. Free radicals eventually age the body over time because they damage DNA, cellular membranes, and lipids (fats) stored within blood vessels. Normally, free radicals live in balance with antioxidants in the body. When this balance is disturbed, accelerated aging occurs due to low antioxidant intake and when there is a high exposure to free radicals. An inadequate pet's diet that includes sources of unhealthy fats, sugar, food additives, and processed food may contain oxidized fats that add free radicals to the body. Extreme physical stressors can also contribute to the oxidative process as a stress hormone called cortisol can generate free radical action. Antioxidants provide electrons to stabilize harmful free radicals and ensure that all electrons have a corresponding electron paired with it. Antioxidants counteract free radicals because they donate an electron to free radicals to "calm" them down and are used up in the process. Antioxidants help to slow down the effects of free radical damage and help to protect the dog and cat's body from diseases and/or for faster recovery when damage does occur to the pet's body. The ability to produce antioxidants naturally in the body declines with the pet's age, and this is the reason that antioxidants are often suggested in holistic pet practices. Antioxidants help to protect the pet's body from age-related diseases, which are caused in part by free radical damage and inflammation is often associated with the damage. When antioxidant levels in the body are lower than those of free radicals, the immune system is overloaded and this can accelerate the aging process. The usual culprits are from poor nutrition (causing deficiency) or poor ingredients found in pet food choices, or from environmental toxins that the pet are exposed to. Antioxidants may help mobility issues in the senior dogs and cats, and help them to age much more gracefully. The best way to reduce free radical damage is a healthy, whole food approach including a variety of plant foods choices and a rotation of meat choices (protein sources), together with implementing a balanced daily exercise program.





Get to Know E-Z Mobility™



- ✓ Supports healthy joints and flexibility
- ✓ For the maintenance of good joint/tendon health
- ✓ Provides the muscles relief from stiffness and soreness
- ✓ Helps the body to cope with physical and mental strain
- ✓ Provides trace elements and phytonutrients
- ✓ Supports the immune system by providing a source of antioxidants, supporting immune pathways
- ✓ Herbal antioxidants are known to reduce inflammation
- ✓ MSM helps to ease joint aches associated with osteoarthritic conditions
- ✓ Helps ease aches and discomfort associated with daily activity



For thousands of years and in traditional healing methods, the approach taken was to create a balance in the body by reducing inflammation through the integration of nutritional choices, low-impact exercise and herbal preparations. Nowadays, most holistic pet owners recognize the root called turmeric rhizome (*Curcuma longa* extract) that is known for its support for the liver and its ability to reduce inflammation in the body for their dogs and cats. However, there are many pet remedies that use natural botanical ingredients. Many botanicals, fruits (berries), sea vegetables and green foods contain different types of antioxidants which help with reducing inflammatory conditions. These kinds of phytonutrient sources have vitamins, antioxidants, trace elements, and minerals that help to reduce inflammation and keep the free radical or oxidation process in proper balance in our pets' bodies. E-Z Mobility™ uses seven botanicals but it also contains methylsulphonylmethane (MSM), known for its support in the relief of pain associated with osteoarthritic conditions. This is a unique formulation and is a great choice for your pet's mobility. Get to know the ingredients and their properties below.

Methylsulphonylmethane (MSM) helps to relieve joint pain associated with osteoarthritis and osteoarthritis of the knee. MSM is an organic sulfur-containing mineral that is used to improve immune function, reduce inflammation and it helps restore healthy body tissue. MSM provides biologically active sulfur, which is the fourth most plentiful mineral in the body, and it is needed for many different critical bodily functions. MSM is also used for degenerative joint problems and helps form connective tissue and repairs joints, tendons and ligaments. It is also a component to restore collagen production. MSM is a mineral required in the formation of the extra cellular matrix that is an integral part of cartilage formation and restoration. Sulfur is crucial to the action of L-Glutathione, an important antioxidant and a very potent free radical scavenger of oxidative damage. Sulfur also supports the formation of the extra cellular matrix that is an integral part of cartilage formation and restoration.

Notopterygium root (*Notopterygium incisum*) helps to maintain joint health, supports the immune system and provides antioxidants. It also aids in relieving aches in rheumatic conditions and is used for the relief of hip, elbow and shoulder pain. Notopterygium has analgesic, anti-fungal, anti-inflammatory, anti-microbial, antioxidant, and anti-spasmodic properties.

Siler root (*Ledebouriella divaricate*) relieves body aches and supports joint

health. It is also useful for rheumatic aches, especially when the ache seems to move from place to place. Siler root in traditional Chinese medicine is the herb of choice for body aches and pain. It exhibits anti-proliferative, antioxidant and anti-inflammatory activities. It also has analgesic, anti-rheumatic, anti-microbial, carminative, and anti-spasmodic properties.

Rehmannia root (*Rehmannia glutinosa*) is an adaptogen which can increase the resistance to physical, environmental, emotional or biological stressors at the same time to restore normal physiological function to the body. It is also an adrenal restorative, thus assisting in improving the health of the adrenal glands. Rehmannia root contains adaptogenic, anti-septic, anti-bacterial, anti-fungal, anti-inflammatory, and tonic properties.

Gentian root (*Gentiana macrophylla*) exhibits potent anti-inflammatory action by suppressing the production of pro-inflammatory cytokines. Gentian root is beneficial for joint pain, a bitter tonic, and helps to maintain blood health, protects the liver, and promotes bile flow. It has analgesic, digestive, stimulant and carminative properties.

Pubescent Angelica root (*Angelica pubescens*) is beneficial for painful joints and it strengthens tendons. Pubescent Angelica root provides antioxidant support and has analgesic, anti-inflammatory, anti-spasmodic, hepatic, laxative and sedative properties.

Turmeric rhizome (*Curcuma longa* extract) has anti-inflammatory properties that help to reduce the aggravation that occurs with arthritis as it reduces inflammation. It also supports the liver functions and aid the digestive process by increasing bile (supporting the natural elimination processes). Turmeric provides antioxidants and helps to relieve pain and inflammation, and assists in healing minor wounds, cuts, burns and minor skin irritations. It also possesses anti-inflammatory and hepatic properties.

Acanthopanax bark (*Acanthopanax gracilistylus*) is traditionally used to strengthen the bones, tendons, sinew and helps with conditions such as rheumatic aches and arthritis in the limbs, and weakness and stiffness in the knees and lower back. It has anti-inflammatory properties and provide trace elements and minerals, and has immunomodulatory properties.