

Your Mother was Right: Food is Key to Health and Happiness

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Your mother knows that food is the key to the heart. But what your mother didn't know is that food is absolutely critical for health. The ground-breaking science of *nutrigenomics* recently proved that health starts with cells, not the overall body. And a healthy dog is a happy, well-behaved dog. Your mother was right, as usual.

Health begins at a cellular level because inflammation begins at the cellular level. The tendency of cells to become inflamed occurs across a continuum. Even low-level, chronic inflammation makes a dog feel badly and perhaps even act badly. They can't really tell us how they feel.

Certain triggers, perhaps such as exposure to environmental toxins in foods, land, and water including chemicals, pesticides, herbicides and even certain drugs and vaccines, may cause cells to express their genetic tendency to become inflamed. Eventually, after enough exposure to these triggers, the cells reach a tipping point and the inflammation becomes chronic and manifests physically.

Inflammation on a temporary basis to combat a virus, for example, is a good expression of that tendency. However, low-level inflammation in cells already genetically predisposed towards inflammation can become chronically debilitating and lead to obesity, recurring infections, and even cancer.

Nutrigenomics is the name given to the role of nutrition in affecting the genome meaning the genetic makeup. Nutrigenomics has found that food is critical for health because food can change the expression of our genes at a cellular level. The same principles apply to people as well as to our dogs and cats. Through applying nutrigenomics, chronic inflammation can be arrested at the cellular level before it becomes apparent physically, and can be minimized if it is already manifested physically, by using customized, individualized and appropriate nutrition.

Consider diabetes, an autoimmune disease resulting in, among many other symptoms, chronic inflammation. Modifying a diabetic's diet

to avoid certain foods and to incorporate others will not cure the underlying genetic predisposition to diabetes. However, such food modifications will greatly reduce the impact of the disease through minimizing cellular inflammation.

Nutrigenomics just makes sense as a means of preventing, mitigating and even curing chronic diseases.

A dog's health can improve by eating certain so-called super foods, super herbs and other super substances. All of these decrease cellular inflammation, whether or not already expressed. Super foods, super herbs and other super substances are a class of functional, whole foods that are nutrient-rich, contain plant chemicals called phytochemicals that help fight disease and are easily digestible.

Even the best diet needs to be properly absorbed to be effective. Digestibility is critical. Poor digestibility leads to failure to thrive, particularly in very young, very old or sickly dogs.

Below is a list of some these super ingredients with a brief description of their particular protective properties. Be sure to consult your veterinarian for their appropriateness for your dog and for the correct amounts.

Super Foods:

Certain Fish and Plant Oils: Wild salmon (not farmed), sardines, herring, cod, trout, green-lipped mussel, anchovies, krill, algae extract, flax seed, hemp, olive, canola and soybeans (if not genetically modified) contain omega-3 fatty acids which are potent anti-inflammatories especially helpful for arthritis. Avoid omega-6 fatty acids which promote inflammation in dogs, and omega-9 fatty



acids which have no effect on inflammation in canines. Salmon is also high in iron.

Oat, Barley, Wheat (not genetically modified) and Rye: Contain beta-glucans, which secrete interleukins that decrease inflammation. However, although considered super foods for most, those at risk for bowel or thyroid issues should avoid glutes including barley, wheat and rye.

Whole grains: Quinoa, millet, rice, soy, corn, flax and tapioca. If gluten-free and not genetically modified, these grains are healthy protein sources and good for digestion. Tapioca (cassava root) is a gluten-free starch. Millet is a goitrogen when cooked, so it is not advised for pets with thyroid disorders.

Bee Products: Raw, not liquid or processed, Manuka honey fights against fungi and bacteria making it an anti-microbial. It is a natural antioxidant by inhibiting the oxygen molecules that promote tissue inflammation. Manuka honey contains enzymes and nutrients that heal wounds, minor burns, and ulcers and can help resolve diarrhea, indigestion and sore throat. Locally grown honey can be effective against inhalant allergies common to that area.

Green or Black Tea Leaf Extract: Contain quercetin, tannins and polyphenols which are antioxidants and antimicrobials.

Leafy Greens: Leafy greens such as kale, spinach, collard and mustard greens contain vitamin B9 (folate) and vitamin B6 which are good for brain health and memory.

Cruciferous and Other Vegetables: Cruciferous vegetables include broccoli, cauliflower, bok choy and brussel sprouts. When eaten raw, cruciferous vegetables are goitrogens, meaning that they inhibit thyroid activity, but this effect is mostly reduced when they are cooked. Other beneficial vegetables include yellow squash, asparagus, tomatoes, carrots and beets. All are rich in folate and carotenoids which are good for brain health and memory.

Beans and Legumes: Green beans, pinto beans, kidney beans, garbanza beans (chick peas), soybeans, lentils and peas are all healthy superfoods and rich in proteins. However, peas and soybeans are phyoestrogens which can delay puberty and may affect fertility.

Berries and Cherries: Berries, such as blueberries and raspberries, and cherries are all very good antioxidants. However, avoid strawberries which can be toxic to dogs.

Eggs: Contain high-quality protein and choline which are good for brain health and memory.

Sweet Potatoes: High in vitamins A and C, calcium and potassium. They are rich in fiber to help control irritated and inflamed bowels and are an excellent source of protein. Use sparingly in diabetics.

Medicinal Mushrooms: Certain mushrooms including turkey tail, reishi and maitake are helpful in fighting and treating cancer, help regulate insulin and glucose levels in diabetes and have infection-fighting properties (anti-microbial). Be extremely careful to avoid any toxic mushrooms; consult a professional if unsure.

Raw Apple Cider Vinegar and Willow Bark: Both are relatives of aspirin and help decrease pain. Neither should be combined with NSAIDs, such as carprofen, deracoxib and other cyclooxygenase enzyme-inhibiting “wonder” drugs commonly used for pain relief.

Coconut Oil: Improves brain function as well as digestion, skin, coat and promotes weight loss. Also acts as an antimicrobial. May reduce the frequency and severity of seizures.

Super Herbs:

Nettle Leaf: Contains the flavonoid quercetin which helps detoxify and relieve allergic reactions such as itchy skin, coat and eyes.

Licorice: Licorice, especially combined in equal portions with nettle leaf, helps reduce inflammation in the bowel and respiratory tract.

Grape Seed Extract: An antioxidant, anti-inflammatory and anti-cancer agent.

Ginger: Aids in digestion and helps with colon cancer and arthritis.

Milk Thistle: Cleanses the liver.

Yucca root: A gluten-free starch, like tapioca, is helpful for bowel disorders.

Turmeric: An anti-inflammatory, anti-oxidant and anti-cancer spice. Also known as curcumin.

Hawthorn: Improves heart and digestive function. May help decrease anxiety.



Super Supplements:

Prebiotics: These are soluble, fermentable fibers which improve digestion. They include lactulose, spirulina, beet pulp, guar gum, larch and inulin. Available in a combination pill.

Probiotics: These are beneficial gut bacteria that also aid in digestion. They include raw green tripe, lactobacillus, yeast, yogurt and kefir from sheep or goats but not cattle. Also available in a combination pill.

Some foods such as sprouted seeds, are both prebiotics and probiotics. Prebiotics and probiotics work best when given in tandem.

Boswellia: Helps with lameness and pain.

King of Bitters: Helps with arthritis.

Glucosamine and Chondroitin: Both are found in shellfish including green lipped mussel, bones and certain fungi. These are precursors of the building blocks of joint cartilage called glycosaminoglycans and reduce joint inflammation.

Deer or Elk Velvet: Found in the center of deer or elk antlers. Contains glycosaminoglycan that helps rebuild cartilage and improve joint fluid and circulation.

MSM (Methylsulfonylmethane): Another good joint anti-inflammatory, especially to reduce joint pain.

Avocado/Soybean Unsaponifiables (ASU): Produced as a byproduct of the soap industry. Stimulates interleukins, the white blood cell components that fight inflammation, and collagen, the structural protein of tissues and blood vessels, to help minimize arthritis pain.

DLPA (D,L Phenylalanine): An essential amino acid and endorphin stimulant for relief of chronic bone and muscle pain.

SAME (S-adenosylmethionine): Cleanses the liver and also helps with arthritis.

Most of us cannot afford to feed our dogs, or ourselves, with the purest, most organic whole foods we would like to use. But all of us can afford to rotate what we and our pets eat by adding a few super foods, super herbs and other super substances. The next time you feed your dog, consider adding a few of them. You should add several to your diet, too. Your mother will be proud.