



DOG & PUPPY NUTRITIONAL INFORMATION MANUAL



None of these statements have been evaluated by a country's veterinarian association. The Cell Wellbeing Dog and Puppy Epigenetic report is not intended to diagnose, treat, cure or prevent any disease or condition, it is intended to provide nutritional food information. The digital process does not provide reproducible indicators as it reflects the changing epigenetic environment at the quantum biological level. Nutritional Food Optimization should only be considered every 60 days. It is NOT recommended that a new Nutritional Food Plan be created within this period.



THE DOG & PUPPY EPIGENETIC REPORT

The personalized Dog & Puppy report highlights individual epigenetic markers which are intended to provide useful indicators to optimizing the well-being of canine pets.

The nutritional diet you provide to a dog, combined with environmental influences, are often expressed in a dog's functionality. Correcting environmental influences and nutritional imbalances may have a positive effect on the wellbeing, and often the emotional state, of puppies and dogs.

ENVIRONMENTAL CHALLENGES

Some of a dog's expressed stressors may be linked to environmental issues such as toxins or even electro magnetic frequencies which may cause sensitivity issues with a pet.

If you live in a non-rural setting, the majority of toxins are often caused by household supplies which may be poisonous to many animals. In a rural settings, toxicity may be the result of pesticides.

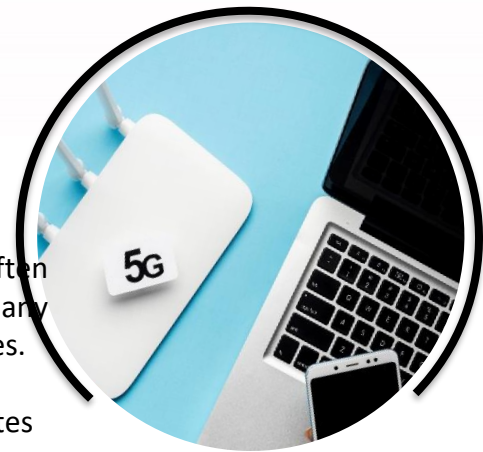
Exposures to environmental toxins have been linked to higher rates of mental stress, behavioral problems and hyperactivity.

Poor nutritional balance and environmental influences interact in complex and, often unknown, ways to cause stress in dogs.

We have included several environmental factors into the dog and puppy report in order to assist the professional in gauging any potential issues created by these modern day stressors.

The overall results of the report are not intended to pinpoint specific diseases, pesticides or industrial chemicals that could be causing expressed symptoms; for these, a specific blood test is required.

Nonetheless, the reports epigenetic overview may provide underlying information, which may assist in the prevention of a future issue, by using a step by step approach that could be considered during a consultation with a professional veterinarian.



OVERVIEW

FEEDING YOUR DOG

Dogs have learned to adapt to the foods available. In the twenty first century, dogs have adapted to feed that is unnatural for their species and their digestive systems. They often receive starchy foods even though their digestive systems are based on their forbearers which include predators, carnivores and wolves.



Dogs have a short and simple digestive system compared to humans and herbivores who have a longer gut and intestinal tract. Therefore, it is important that the food they consume is easily digestible, as the time the consumed food flows through a healthy digestive system is short. This limits the time the dog's enzymes have to break down the food.

There is also very limited microbial activity in the dog's short colon, so it is difficult for the dog to digest fiber. If you give your dog too many vegetables, you may find that many of them will pass undigested through the dog's digestive tract.

Canines have a highly acidic stomach and a relatively short intestinal tract to allow for rapid transit of food. The dog's stomach is the place where most of the food is broken up by the movement of the muscular wall of the stomach and gastric juices. Gastrin, a substance released from the gastric wall, activates the release of hydrochloric acid at a pH equivalent to 1-2 (very acidic environment).

In humans, the pH in the stomach is 4-5, therefore, much less acidic. This PH level in the dog is maintained by the proteins and can unintentionally be increased by the starches contained in the cereals which many reports suggest are inappropriately fed to a dog.

It is, therefore, unrealistic for dogs to be fed foods that contain refined sugars and starches, as these substances can negatively modify the stomach's environment, making it unsuitable for "good bacteria". This can cause a major imbalance in the local immune system. Non-absorbed starch and fibers reduce bowel movements and can limit absorption capacity of nutrients.

A dog has a greater need for protein and fat compared to humans. Dogs can also do well without carbohydrates. Dogs are better able to utilize and metabolize protein and fats derived from other animals rather than from plant-based proteins often found in starchy and industrially produced dog foods.

Dog's whose diets contain difficult-to-digest starch, carbohydrates, additives and preservatives may express various digestive issues.

The majority of diseases in all living things commence in the gut which is often stressed by poor digestion. Therefore, it is wise to consider excluding difficult to metabolize foods such as grains or other starchy products in your dog's diet.





OVERVIEW



OVERALL WELLBEING FOR DOGS

We want the very best for our puppy and dog pets.

Here are some points to keep in mind when reviewing the wellbeing of a puppy or dog:

- ❖ Eyes: Should be bright and clear
- ❖ Ears: Should be clean and free of discharge, odor and redness. Untreated ear problems can lead to pain and may cause hearing loss.
- ❖ Nose: Should be clean, wet and without discharge or sores.
- ❖ Mouth: Should smell fresh. Gums should be pink. Teeth should be free of tartar or plaque. Mouth and lips should be free of sores or growths.
- ❖ Coat: Should be shiny and clean.
- ❖ Weight: Active, playful puppies are rarely overweight. Do not over feed older dogs.
- ❖ Bladder/Bowel: Urine - color of transparent yellow (straw yellow, pale gold, amber, clear yellow) is a sign of robust wellness. Healthy bowel / stool movements will be absent of blood, mucus, worms, eggs, a chalky white discoloration, a black, tarry appearance, a greasy coating or diarrhea.

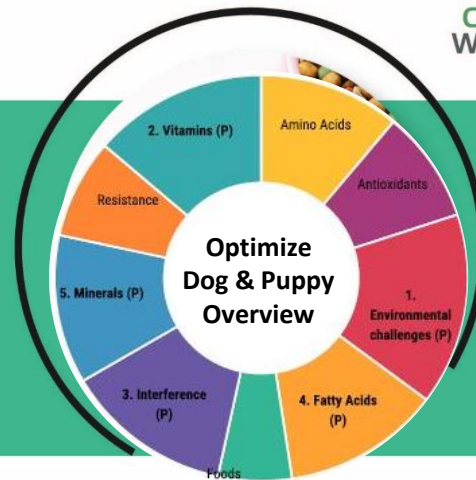
OVERALL WELLBEING FOR SENIOR DOGS

As dogs age, there could be complications from weak joints, obesity and gut irritability. There are many ways to extend the wellness years of our dog including a balanced nutritional diet, gentle exercise including swimming and frequent grooming.

The immune system of our senior dogs slows down with age, it is, therefore, extremely important to use natural foods which contain a variety of vitamins, minerals, fatty acids, amino acids and antioxidants to strengthen their wellness for ongoing years.

When in doubt, it is advisable to visit a local Veterinarian clinic who will provide more clarity.

OVERVIEW OF THE REPORT PAGES



KEY OPTIMIZATION OVERVIEW PAGE

This report page was developed in order to provide a quick overview of the individualized page highlights detailed in the other 30 + report pages.

The Pie Chart indicates the report's nutritional priority values. The priorities are listed in sequence in the tables beneath and associated with the relevant detailed page number. There are two other table charts shown on this page, The Food Restrictions Summary and the Additives to Avoid Summary. Nether chart is based on an allergy but on underlying energetic indicators that may well be stressing the dog's system.

The Food Restrictions Summary

When dogs are struggling against stressful foods they ingest, their systems will consume energy from another stored source in order to digest the stressing food. This process leads to a compensation process, which will leave another function unable to perform optimally impairing wellness. Therefore, it is important for puppies and dogs to eat natural foods that support their functionality while allowing for further dietary adjustments to enhance wellbeing.



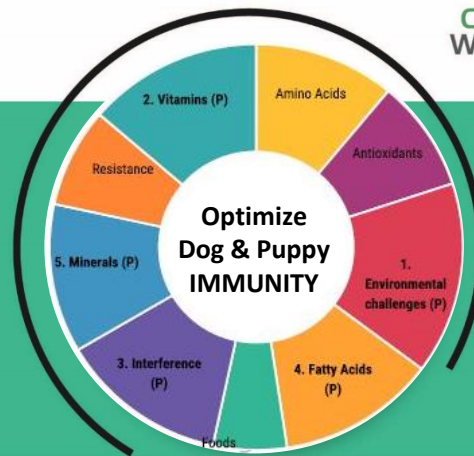
There are many different levels at which foods can effect a dog, from the severe to the very mild, but all have the ability to affect the wellness process. A dog's food restrictions list is based on epigenetic relevancy indicators and does not indicate a physical intolerance or allergy. Please continue to avoid foods that you know have a negative physical affect on a dog or cause an allergic reaction. Please consider refraining from using these foods for the next 48 hours. In that time, you should discover an improvement in the dog's performances. If so, continue for the next 60 days only.

Additives to Avoid Summary

These listed items are not allergies but epigenetic indicators that may be considered in recommending nutritional plans. The best natural food choices often lead to optimized wellness. Natural, unprocessed food is, in our considered opinion, the superior approach for optimized wellness of dogs.

Understanding how food additives may affect wellness is crucial in reaching wellness goals. Further information can be found on page 11 of the report.

OVERVIEW OF THE REPORT PAGES



IMMUNITY SYSTEM SUPPORT PAGE

There are many studies linking nutrition with the immunity system. For puppies and dogs, diet can play a major role in supporting the immune system. The role that the diet plays on a puppy's immunity is extremely important for their future wellbeing.



A poorly balanced diet can lead to nutritional deficits that may impair the immune function. This includes a diet of highly processed refined, foods, which can lead to inflammation that can further burden the immune system.

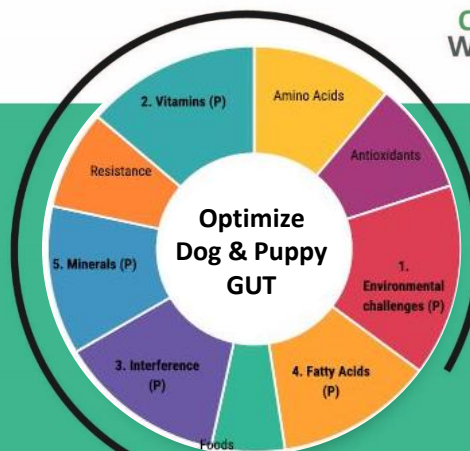
There is a strong correlation between dogs who enjoy a robust immune system and the interactions they have with the environment, lifestyle, and nutrition. It is some times difficult to control the environment we live in, however we do have the ability to influence the nutritional and lifestyle factors of our dogs.

The indicators in the list are once again are not deficiencies but reflect a demand for these nutrients at an epigenetic level. This may be due to environmental factors or an imbalance in the diet.

It is wise not to feed any canine chocolates or nuts and reduce the dairy dietary content of adult dogs, as most canines can become lactose intolerant.



OVERVIEW OF THE REPORT PAGES



GUT SUPPORT INDICATORS PAGE

The wellbeing of a puppy's or dog's gut dictates the flow of nutrition to the other parts of the system. Good bacteria in a dog's gut plays an important role in keeping them both mentally and physically in optimal condition.

The potential expressed symptoms of a poorly functioning gut include: uncomfortable digestion, intestinal stress, reduced nutrient absorption, strains to the immunity system, negative sleep patterns, mood swings, fatigue and reduction of coat condition.

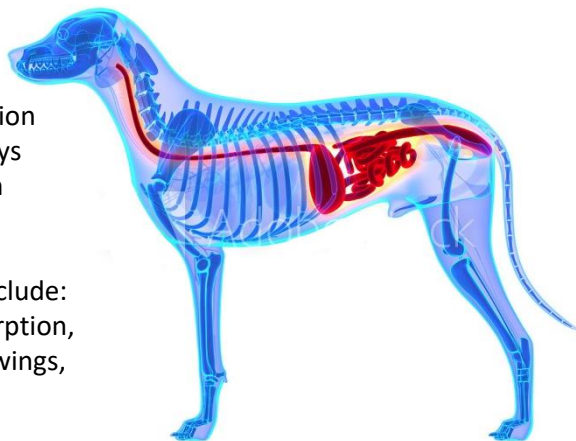
The gut microbiome is established in the early years of life. It is particularly important to support a puppy's gut microbiome to insure thriving while they're growing up. This is a great time to build a strong and healthy gut flora in a dog!

Most nutritional foods consumed by a dog are 'activated' in the gut and GI tract. The gut contributes to more than 85% of the dog's functionality. Therefore, the gut's wellbeing is of significant value in optimizing the functions of the Immune System, The Brain, Growth, Stamina as well as the dog's coat and most other functions.

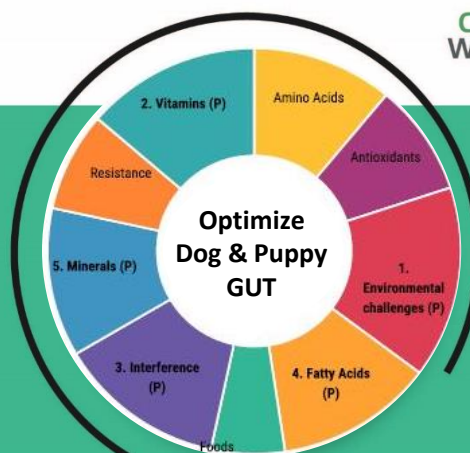
The internal environment of a dog's gut is dictated by the environment they live in and what is put in their mouth! The foods and nutrients you choose to give a dog are crucial components to maintaining gut wellbeing and performance. It has not been easy, until now, to recognize epigenetic "Gut stress", which is often overlooked when considering a specific personalized plan for each individual dog.

Nutritional food is of fundamental importance for the state of wellness and wellbeing of any animal. There is a popular saying that states "They are what they eat". However, this is not the case at all; in fact **THEY ARE WHAT THEY ABSORB**. The rest of the food a dog eats can become toxic waste which needs to be eliminated via feces, urine and sometimes vomiting. The toxins that are not discarded through the process of elimination, accumulate in their body which, overtime, can cause organs to become impaired.

It is, therefore, wise to seek Veterinarian advice when changing food sources or diets.



OVERVIEW OF THE REPORT PAGES



GUT SUPPORT INDICATORS PAGE

The dog's stomach is where most of the food is broken up by the movement of the muscular wall of the stomach and gastric juices. Gastrin, a substance released from the gastric wall, activates the release of hydrochloric acid at a pH equivalent to 1-2, this is very acidic environment.

In humans, the pH in the stomach is higher at 4-5, therefore a much less acid value. The dog's stomach pH is maintained by the proteins but is negatively increased by starches contained in the cereals. Starches may be inadvertently added to processed foods that dogs should not eat.

An incorrect unbalanced diet can also result in sore joints, overweight, poor well-being, dry fur and a weakened immune system. Furthermore, many dogs are allergic to stock mites and corn mites which are found in products that contain grains, rice and corn.

Try to reduce or avoid feeding your dog foods which contain grains, rice, corn, potatoes or other starchy products. At the same time, it may be wise to consider reducing feeding a dog preheated meat, which impacts the structure of the proteins, making this meat more difficult for the dog to break down into amino acids. Lack of amino acid uptake can result in the dog not receiving natural nutritional needs.

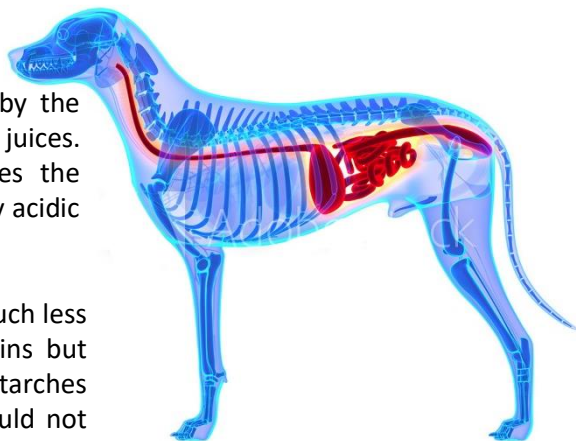
Not all convenience foods are totally absorbable by the dog's gut. It is, therefore, worthy to consider:

- Supplementing the dog with probiotics
- Discover which food groups, ie poultry or fish that might supply their natural nutritional needs
- Your Veterinarian may advise vitamin and mineral supplements and omega 3 fatty acids
- Ensure access to fresh water 24 hours a day.

Raw Food and feeding of your dog

Many dog owners believe natural foods will enhance a dog's wellbeing as canines have evolved from predators in the wild. Providing a dog with a diet that includes raw meat, bones, offal and fat is becoming more popular by many dog lovers.

Also, it's important to make sure your dog always has access to fresh drinking water.



OVERVIEW OF THE REPORT PAGES



OPTIMIZED SKIN AND COAT CONDITION

Your dog's skin and hair play an important role in keeping your canine friend healthy and comfortable. The hair and skin prevents water and heat from leaving their body, plus they help keep viruses and bacteria out of the internal systems.

Nutrients like protein, fat, vitamins and minerals can all impact your dog's skin and coat wellbeing. Your dog's coat is made up almost entirely of protein. If their diet does not contain enough balanced protein, then your dog's hair might fall out or the coat may become dry, weak and brittle.

A dog's skin is made up of tightly packed cells with membranes made of proteins and fats. The cell membranes can weaken if balanced nutrients are not given to the dog, allowing water to escape and bacteria and viruses to enter through the skin.

Protein forming fats also are found in both animal and plant-based ingredients and are formed into skin cells by way of fatty acids. Linoleic acid plays an important role in a dog's skin and coat health. Without a balanced linoleic acid intake, dogs may express a dull and dry coat or experience hair loss, greasy skin or skin inflammation.

Linoleic acid is found in many natural meats which the dog can absorb easily in their digestive systems.

It is wise to seek Veterinarian advice when changing food sources or diets.



OVERVIEW OF THE REPORT PAGES



OPTIMIZED GROWTH INDICATORS PAGE

During a puppy's formative years, under-nutrition in dietary nutrients or imbalances in the diet can affect physical growth, body weight and, ultimately, height. These same nutritional discrepancies can also impact a puppy's energy levels, which can also negatively influence cognitive development.

The nutritional indicators on this page are known to be associated with growth and optimal development. While this information is not a diagnosis or treatment, it does allow the professional to consider variation in any protocols being recommended.

Obesity can be another form of nutritional imbalance. It is often associated with low nutrient density foods, as well as fat or carbohydrate content.

There are growing concerns regarding dog's obesity levels, as they can lead to cardiovascular stress during the dog's senior years. Veterinarian professionals understand the role of nutrition in the growth and development of dogs. Once identified, it may be easier to implement changes through dietary interventions using the personalized charts for each individual dog.



THE NUTRITIONAL INDICATORS PAGES

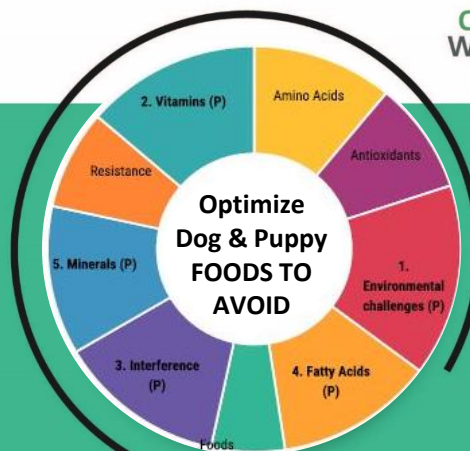
These page indicators are intended to fortify a dog's systems. The value of each nutrient varies depending on the overall mapping results. They do not signify any disease or treatment.

Generally, nutrition for dogs is based on natural foods which provide a balanced amount of vitamins, minerals, carbohydrates, protein and fat.

This is extremely important through the years of growth and development. It is wise to seek Veterinarian advice when changing food sources or diets.



OVERVIEW OF THE REPORT PAGES



FOODS THAT DOGS AND PUPPIES SHOULD AVOID

❖ *Alcohol and tobacco*

It may not be necessary to mention it, but alcohol and tobacco are for humans only. Both things are life threatening for the dog and can be for humans as well.

❖ *Chocolate*

Chocolate contains substances such as theobromine and caffeine that are toxic to dogs. The darker the chocolate, the more toxic it is to the dog. Ingestion can be life threatening.

❖ *Dough and yeast flakes*

It is not healthy for dogs to eat yeast dough. The dough rises and ferments in the stomach and forms alcohol. It is rarely life threatening but can be very uncomfortable for the dog.

❖ *Coffee*

The caffeine in coffee is not healthy for your dog. Therefore, do not give your dog tea or types of soda that contain caffeine.

❖ *Grapes and raisins*

Some dogs cannot tolerate grapes or raisins. Ingestion may cause acute renal failure in your dog.

❖ *Onions, garlic and leeks*

Onions contain allicin which is toxic to dogs if ingested in excessive amounts. Allicin is found in both raw and cooked onions and can cause anemia in the dog. Leeks also belong to the onion family and should not be consumed by dogs.

❖ *Avocado*

Contains the substance persin which is toxic to dogs.

❖ *Macadamia nuts and many other types of nuts*

May result in nervous system problems, vomiting, increased body temperature and tremors.



Nutrition Information

VITAMINS



- **Inositol** - plays a role in helping a dog's liver process fats as well as contributing to the function of muscles and nerves. It promotes the growth of hair, contributes to the function of muscles and nerves and has a calming effect. It has been known to reduce cholesterol levels.
- **Vitamin A** - is responsible for maintaining a dog's healthy eyesight and boosts their immune function, it can also promote body cell growth.
- **Vitamin B1** - is responsible for a dog's energy and their carbohydrate metabolism and activates ion channels in neural tissues.
- **Vitamin B2** - is important for a dog's body growth, red blood cell production, aids in the release of energy from proteins and supports the absorption of amino acids and carbohydrates in their body.
- **Vitamin B3** - plays a role in supporting a dog's metabolism of carbohydrates and proteins. In addition, it also helps to maintain a good digestive system.
- **Vitamin B5** - assists a dog's energy metabolism.
- **Vitamin B6** - supports amino acid metabolism and may also help reinforce bladder wellness.
- **Vitamin B7** - Biotin helps to maintain a dog's healthy skin, shiny coat and strong nails. It has also been known to boost the liver, energy and nervous functionality, sustain brain function and reduce mood swings.
- **Vitamin B9** - plays a part in a dog's important nutritional diet as it supports the growth of red blood cells in a dog and assists circulatory wellbeing.
- **Vitamin B12** - is needed as part of the nervous system and brain function, as well as for the formation and growth of blood cells. It plays an important part in intestinal, liver and kidney wellbeing.
- **Vitamin C** - enables a dog to metabolize collagen which supports ligaments, tendons, organs, muscles and bones. It also assists in cognitive aging and may reduce inflammation created by oxidization.
- **Vitamin D** - is essential as it is part of the immune system, it can also assist the absorption of calcium and phosphorous.
- **Vitamin E** - assists in fighting against oxidative stress. It is necessary for fat metabolism and cell functionality.
- **Vitamin K** - boosts blood wellness, also promotes bone and health development.

Nutrition Information

MINERALS



- **Calcium** - is an essential mineral that is necessary for a dog's normal bone development, as well as numerous other metabolic functions. It is also essential for the teeth and blood, as well as controlling the passage of fluids through cell walls.
- **Chromium** - has been known to improve blood sugar metabolism, blood lipid concentrations and reduce body fat.
- **Copper** - is used in a dog's diet to assist in the formation of red blood cells, skin pigmentation and in supporting growth.
- **Iodine** - is needed for a dog to help with hormone synthesis, growth and development of puppies and to regulate metabolic rates.
- **Iron** - is one of the most necessary minerals for a dog. It has many functional roles, as well, in transporting oxygen throughout the body. It also helps strengthen the immune system.
- **Magnesium** - maintains muscle contraction, cellular functions, nerves, acid balance, fluid balance, and combines with calcium to strengthen skeletal conditions.
- **Manganese** - fortifies the quality of bone and cartilage, while playing a significant role in the mitochondria function.
- **Molybdenum** - is an essential mineral that activates enzymes and is known to assist in detoxification.
- **Potassium** - is one of the main electrolytes present in a dog's body. Electrolytes play a crucial role in maintaining a dog's energy and fluid balance.
- **Phosphorus** - like calcium, it is an essential mineral that is necessary for a dog's normal bone development. It also has numerous metabolic functions including assistance in controlling passage of fluids through cell walls.
- **Selenium** - performs an important role in the metabolism, provides antioxidant protection, plus it assists the immune system.
- **Silicon** - is needed for dogs to maintain quality hair, skin and nails.
- **Sodium** - is one of the most important electrolytes present in a dog's system. Electrolytes play a crucial role in maintaining a dog's energy and fluid balance.
- **Sulphur** - is associated with the dog's skin.

Nutrition Information

FATTY ACIDS



- **Arachidonic Acid - 6 (AA)** - is essential for a dog's cell membrane structure and cell function. It is required for a dog's growth, immune function, plus it's skin and coat health. It also contributes calories to a dog's diet.
- **Alpha-Linolenic Acid - 3 (ALA)** - assists in the support of brain development in puppies while reducing inflammation in adult dogs. It benefits the immune system, supports circulation functionality and kidney wellness. It is also associated with skin and coat wellbeing and has been known to reduce a dog's anxiety and hyperactivity.
- **Docosahexaenoic Acid - 3 (DHA)** - is part of the development of a dog's nervous system and visual cortex functionality.
- **Eicosapentaenoic acid - 3 (EPA)** - Is an omega 3 that is needed to support the brain development and also to reduce inflammation. It also benefits the growth systems, boosts circulatory and kidney wellness, supports skin and coat condition. It has also been known to minimize the risks of anxiety and hyperactivity.
- **Gamma Linolenic Acid - 6 (GLA)** - is involved in the cell membrane structure and cell function associated with growth, the immune function, and skin and coat condition.
- **Linoleic acid - 6 (LA)** - is part of a dog's growth and immune function, as well as skin and coat condition.

Nutrition Information

ANTIOXIDANTS



- **Alpha-Lipoic Acid** - Is an omega 3 that's needed to help support the brain development of puppies. It can also help to reduce inflammation and enhance the immune, circulatory and kidney systems. It is also associated with the improvement of skin and coat condition.
- **Carotenoids** - are crucial for puppies as it optimizes blood cell performance. However, they are important in all canines as they enhances antibody levels and scavenges free radicals.
- **Co - Enzyme Q10** - has been known to assist in inflammatory stress, as well as hair and skin conditions.
- **Flavonoids** - helps a dog regulate cellular activity and fight off free radicals that cause oxidative stress on in a dog's body.
- **Polyphenols** - are involved in all functions of the metabolic systems . They boost the optimization of longevity.
- **Selenium** - has been known to help reduce the risk of various cognitive stressors and can boost the immune system.
- **Superoxide Dismutase** - is one of the most important and effective antioxidants in a dog's body and is part of first line of defense against free radicals and EMF/ELF irritation.
- **Sulforaphane** - Is essential for a dog as it improves gastrointestinal health while protecting joints, It also assists in boosting brain and circulatory functionality.
- **Vitamin B 12** - is responsible for glucose generation, red blood cell and nervous system functions, hormone regulation, immune response, as well as gene activation. It also helps a dog to regulate energy and carbohydrate metabolism.
- **Vitamin C** - is an important antioxidant. It scavenges potentially harmful free radicals and can help reduce inflammation and cognitive aging.
- **Vitamin D3** - allows a dog's body to balance minerals for healthy bone growth. It is also part of a dog's immune system.
- **Vitamin E** - is one of a dog's defenses against oxidative damage. This fat-soluble vitamin is also essential for cell function and fat metabolism.
- **Zinc** - is essential for dogs as it promotes healthy skin and coat, strengthens their immune system, assists DNA and RNA replication, improves eyesight and boosts cognitive function.

Nutrition Information

AMINO ACIDS



- **Arginine** - plays a critical role in the detoxification of ammonia, resulting from the turnover and breakdown of proteins. It has also been known to enhance blood vessel dilation and improves the circulatory system.
- **Asparagine** - required by cells to produce protein.
- **Glutamine** - it helps to assist the digestive system and reduce the risk of leaky gut.
- **Glycine** - is essential as it maintains lean muscle mass and supports joint function. Helps digestion and gut wellness. It is also thought to boost immunity and brain function.
- **Histidine** - plays a key role in oxygen exchange, is involved in the immune function and in circulatory system. It maintains hemoglobin, improving oxygen circulation to the whole body.
- **Leucine and valine** - can stimulate the synthesis of proteins for muscle use in a dog.
- **Lysine** - is thought to reduce the stress of virus in a dogs. It could also aid in protein synthesis for growth and development.
- **Methionine** - aids in keratin synthesis which promotes optimized eye and circulatory performance, as well as skin and coat condition.
- **Phenylalanine** - used to produce proteins and signaling molecules required for a dog's normal growth. It also supports glandular functionality.
- **Proline** - is involved in protein synthesis and structure, metabolism, antioxidative reactions and immune responses.
- **Threonine** - controls the activity of a dog's normal physiologic function such as insulin release. It also plays a role in energy production.
- **Tryptophan** - is important as it can help to reduce stress and aggression in a dog. It is also necessary for hormone production.
- **Taurine** - is essential for the cardiac function, eye and immune system functions.
- **Valine** - is essential for stimulating muscle growth and regeneration and is involved in energy production and protein synthesis.

Vitamin

NON-DIAGNOSTIC

Potential Nutritional Deficiency Indicators

Vitamins	Functions	Deficiency Possible challenges	Food Source
Choline	Brain development, ensure optimal liver health, maintain hydration.	Weight-loss, Vomiting, Liver dysfunction, and Hemorrhagic (bleeding) tissue, disorders like hepatic lipidosis, epilepsy.	Salmon, Chicken, Eggs, Beans, Broccoli, Peas, Wheat germ, Beets, Corn, and Flaxseeds.
Vitamin A1	Maintain healthy eyesight, fetal development, to boost immune function and to promote body cell growth. It is important for a healthy heart circulation.	Lack of growth, neurological problems and weight loss, nervous system damage and heart problems.	Carrots, spinach, liver, pumpkin, sweet potatoes, fish oil, eggs, and turnip greens.
Vitamin B1	Responsible for energy, carbohydrate metabolism and activation of ion channels in neural tissues.	Loss of appetite, bodily control defect and weakness.	Whole grains, nutritional or brewer's yeast, liver, beans, green vegetables, spirulina.
Vitamin B2	Healthy heart circulation, immune system, protects hair, skin and fur and helps with their digestive system and growth.	Anorexia, eye lesions, flaking dermatitis and muscular weakness.	Found in eggs, organ meats (kidneys and liver), lean meats and green vegetables.
Vitamin B3	Supports metabolism of carbohydrates and proteins, maintain good digestive system.	Convulsions, bloody diarrhea, continuous salivation, inflammation of throat, cheeks, and lips, weight loss and anorexia	Chicken, liver, salmon.
Vitamin B5	Keep energy metabolism processes operating normally.	Antibody to reduce function, gastrointestinal sign, convulsions. Rapid heart rates and respiratory functions or sudden prostration and indifferent food intake.	Salmon, shellfish, whole grain, egg yolk, milk, lentils, split peas and soybeans.
Vitamin B6	Supports amino acid metabolism and may also help reinforce proper bladder health.	Muscle weakness, impairment of balance and motor control, anemia in older dogs. Muscle twitching, convulsions, weight loss in puppies and anorexia in puppies.	Fish, turkey, beans, wheat germ.



Vitamin

NON-DIAGNOSTIC

Potential Nutritional Deficiency Indicators

Vitamins	Functions	Deficiency Possible challenges	Food source
Vitamin B7 (Biotin)	Maintain healthy skin, a shiny coat and strong nails. Promotes good digestive system, immune system, blood circulation and growth, brain health and boosts energy & mood.	Very poor coat condition, dry skin and intestinal problems.	Meat, fish, and eggs, green leafy vegetables and brewer's yeast.
Vitamin B8 (Inositol)	Aids in immune system, function of muscles and nerves, promotes growth of hair, reduces cholesterol levels, contributes to the function of muscles and nerves and has a calming effect.	Reduced diet intake, increased catabolism and/or excretion, decreased biosynthesis, inhibition of gut and cellular uptake, altered microbiota.	Kelp, strawberries, blueberries, spinach, eggs, broccoli.
Vitamin B9	Healthy immune system, fur and skin, supports the growth of red blood cells, protect cardiovascular health.	Cause anemia, reduction in hemoglobin concentration and weight loss.	Kelp, strawberries, blueberries, spinach, eggs, broccoli.
Vitamin B12	Healthy nervous system and brain function, formation and growth of blood cells, promotes intestinal health, need to absorb and store B12 in pancreas, intestines, liver and kidneys.	Bone marrow changes, anemia, lack of WBC and appetite loss.	Spinach, kelp, broccoli, strawberries, blueberries, liver, sunflower seed, beans.
Vitamin C	Promotes good immune system, healthy heart circulation, shiny skin and fur and digestive system. Reduces inflammation and fights harmful free radicals.	Bone marrow changes, anemia, lack of WBC and appetite loss.	Meat (especially organ meat), fish, poultry, eggs.
Vitamin D	Alternative of going under the sun, facilitates the right balance of minerals like calcium and phosphorous for a dog, secures calcium.	Low tooth growth, rickets, the maintaining or development of healthy bones or muscles, brittle and weak hair, dehydration, soft tissue calcification, vomiting, diarrhea, weakness and anorexia.	Liver, fish, egg yolks, beef and natural sunlight.
Vitamin E	Defends resistance against oxidative damage, necessary for fat metabolism and cell function, protects essential fatty acids and blood cells.	Cause retinal degeneration, reproductive failure and deterioration of skeletal muscles.	Eggs, salmon, trout, spinach, safflower oil, sunflower oil and soybean oil.
Vitamin K1	Helps in clotting process, promotes bone and health development.	Weak blood clotting ability and can cause hemorrhage.	Egg yolk, liver, leafy vegetables, meat.



Mineral

NON-DIAGNOSTIC

Potential Nutritional Deficiency Indicators

Minerals	Functions	Deficiency Possible challenges	Food Source
Calcium	For normal bone development, immune system, provide rigidity to bones and teeth, aid in normal blood coagulation, shiny skin and fur, proper digestive system and growth.	Antifreeze poisoning, inflammation of the pancreas, kidney failure, and parathyroid gland failure.	Tofu, sardines with bones, raw bones, bok choy, green beans, broccoli, and cauliflower.
Chloride	Maintaining fluid balance.	Vomiting, diarrhea, chronic respiratory disorders or diuretic administration.	Strawberries, blueberries, vegetables.
Chromium picolinate	Improve blood sugar metabolism, blood lipid concentrations and reduce body fat.	Diabetes, weight loss, impaired glucose tolerance, neuropathy, anxiety, fatigue and muscle weakness.	Lean meat, vegetable oils, and brewer's yeast.
Cobalt	Needed for blood cell formation, healthy brain and nervous system function, as well as in DNA synthesis, fatty acid synthesis and energy metabolism.	Failure to thrive, poor body condition, weight loss, inability to gain weight, cachexia, lethargy, weakness, anorexia, diarrhoea, vomiting, dysphagia, oral ulcerations, hematopoietic abnormalities.	Liver, kidney, fruit and vegetables.
Copper	Needed for formation of red blood cells, normal pigmentation of skin and hair.	Irregular heartbeat, anemia, low body temperature.	Seafood, whole grains, seeds and legumes.
Iodine	Helps with thyroid hormone synthesis, cell differentiation, growth and development of puppies and to regulate their metabolic rate.	Fatigue, constipation. Dry skin, weight gain, muscle weakness, elevated blood cholesterol levels, metabolic rate.	Iodized salt, seafood and kelp.
Iron	Transports oxygen throughout the body, helps strengthen the immune system.	Microcytic, hypochromic, potentially severe anemia with a variable regenerative response.	Red meat, chicken, liver, fish, eggs, legumes, poultry and shellfish.
Magnesium	Maintains muscle contraction heart circulatory, nerve conduction, acid base balance, fluid balance and skeletal structure.	End neuromuscular hyper excitability. Tetany, muscle spasms, fasciculation, and tremors, weak muscles and bones.	Spinach, broccoli, green beans, tofu, tomato juice, beans and seafood.



Mineral

NON-DIAGNOSTIC

Potential Nutritional Deficiency Indicators

<i>Minerals</i>	<i>Functions</i>	<i>Deficiency Possible challenges</i>	<i>Food source</i>
Manganese	Promotes bone growth and thyroid hormone production, ensures quality of bone and cartilage, plays role in the mitochondria function.	Shortening and bowing of the forelimbs , lameness and enlarged joints can occur.	Leafy vegetables.
Molybdenum	Activates enzymes that help break down harmful sulfites and prevent toxins from building up in the body.	Brain damage, toxins in body.	Legumes, cereals, organ meats.
Phosphorus	For normal bone development, metabolic functions, to provide rigidity to bones and teeth, aid in normal blood coagulation, aid in controlling passage of fluids through cell walls and is helpful for nerve excitability.	Chronic starvation.	Animal tissues, eggs, fish.
Potassium	Maintains fluid balance.	Severe weakness and death, rhabdomyolysis or abnormal muscle, glycogen metabolism.	Fruits, vegetables.
Selenium	Metabolizes thyroid hormones, antioxidant and protects the immune system, giving it shiny skin and fur coat.	Skeletal myodegeneration, fatal, myocardial necrosis.	Seafood, meat, brown rice and vegetables.
Silicon	Maintain and give beautiful hair, skin and nails.	Lack of protection from infection, Abnormal iodine metabolism, Interference with normal cell, diarrhea, crusted and cracked footpads, and multiple infections.	Vegetables, beans and peas.
Sodium	Maintains fluid balance, promotes skin and fur, as well as good heart circulation.	Restlessness, tachycardia, polydipsia and polyuria, dry and tacky mucous membranes and hemoconcentration.	Fruits, vegetables.
Sulphur	Relieving skin irritation, dry and flaky skin, and its anti-fungal and antiseptic effects.	Amnesia.	All protein foods (meats, fish, poultry, eggs, legumes).
Zinc	Activating hormones, enzymes, aids in growth, wound healing, reproduction, strengthening the immune system, skin and fur, promotes good digestive system.	Lack of protection from infection, abnormal iodine metabolism, interference with normal cells, diarrhea, crusted and cracked footpads and multiple infections.	Spinach, broccoli, beef, poultry and vegetables.



Fatty Acid

NON-DIAGNOSTIC

Potential Nutritional Deficiency Indicators

<i>Fatty Acids</i>	<i>Functions</i>	<i>Deficiency Possible challenges</i>	<i>Food source</i>
Alpha-linolenic (ala) (3)	Support the brain development, helps with arthritis by reducing inflammation, benefits immune system and digestive system, boosts the heart and kidney health, improves skin and coat health, helps reduce anxiety, depression and hyperactivity.	Cancer, anxiety, depression, hyperactivity.	Found in flaxseed oil, canola, soy beans, navy or kidney beans, plus green leafy veggies.
Arachidonic (AA) (6)	Involved in cell membrane structure and cell function, normal reproduction, growth, immune function, skin and coat health, contributes calories to the diet.	Poor skin and hair coat, abnormal growth and weakened immune systems.	Found in the body fat of poultry, lean meat, egg yolks, some fish oils.
Docosahexaenoic acid (DHA) (3)	Develops healthy nervous system and proper development of the retina and visual cortex. Supports digestive and immune system, shiny fur coat, growth and blood circulation.	Neurologic abnormalities.	Found in cold-water fish and their oil, eggs from chickens fed omega-3.
Dihomo-gamma-linolenic acid (DGLA)	Improve overall wellbeing.	Health issues.	Found in organ meats.
Eicosapentaenoic acid (EPA)(3)	Supports the brain development, helps arthritis by reducing inflammation, benefits immune system, boosts heart and kidney health, improves skin and coat health, helps to reduce anxiety, depression and hyperactivity.	Cancer, anxiety, depression, hyperactivity.	Found in cold-water fish and their oil.
Gamma Linoleic (GLA) (6)	Involved in cell membrane structure and cell function, required for normal reproduction, growth, immune function and skin and coat health. Contributes calories to the diet, blood circulation and digestive system.	Poor skin and hair coat, abnormal growth and weakened immune systems.	Found in blackcurrant seed oil, borage oil and evening primrose oil.
Linoleic acid (LA) (6)	Involved in cell membrane structure and cell function, required for normal reproduction, growth, immune function and skin and coat health. Contributes calories to the diet.	Poor skin and hair coat, abnormal growth, and weakened immune systems.	Found in corn, canola, sunflower oils and body fat of poultry.



Antioxidant NON-DIAGNOSTIC Potential Nutritional Deficiency Indicators

Antioxidants	Functions	Deficiency Possible challenges	Food source
Alpha lipoic acid	Supports the brain development, helps arthritis by reducing inflammation, benefits immune system, boosts the heart and kidney health, improves skin and coat health, helps by reducing anxiety, depression and hyperactivity.	Poor skin and hair coat, abnormal growth and weakened immune systems.	Spinach, broccoli, yams, potatoes, carrots, beets, and rice bran and red meat
Anthocyanins	Joint health which reduces inflammation and pain, improves and boosts immunity and protects against free radical damage, brain health which crosses the blood-brain barrier and provides essential nutrients. Improve eye, maintain and improve heart health.	Inflammation, heart disease.	Found in wild pacific sockeye salmon.
Beta carotene	Optimizes the types of cells present in the blood, increases antibody levels in the blood and scavenges free radicals.	Damaged cells, cancers, heart disease, cataracts	Found in liver, eggs, sweet potato, spinach and broccoli.
Colostrum	Supports immune system, relieving joint pain, reducing inflammation and increasing mobility, improves digestive system, promotes wound healing. Healing skin conditions, ear infections, abscesses, destroys bacteria and fights viruses.	Cancer.	Found in mother's first milk or powdered form.
Co – Enzyme Q10	Therapy for heart and neurological condition, treats inflammatory conditions and some cancers, gum disease and high blood pressure.	Muscle weakness and fatigue, high blood pressure and slowed thinking, chest pain, heart failure and seizures.	Found in fatty fish, soybeans, kelp, leafy vegetables.
Chondroitin	Maintain synovial fluid viscosity to aid joint support, building block for cartilage. Promotes good immune system and heart circulation.	Osteoarthritis.	Found in fish.



Antioxidant NON-DIAGNOSTIC Potential Nutritional Deficiency Indicators

Antioxidants	Functions	Deficiency Possible challenges	Food source
Flavonoids	Regulate cellular activity and fight off free radicals that cause oxidative stress in/on the body.	Cardiovascular disease, chronic pain and inflammation, viral infections.	Strawberries, blueberries, spinach, kelp, leafy vegetables.
Lactoferrin	Fights against viruses and bacteria, treats and prevents cancer.	Cancer, blood infection (sepsis).	Found in milk.
Polyphenols	Prevent the development of diseases from cancers to cardiovascular diseases, osteoporosis to diabetes.	Chronic diseases, diabetes, cancer.	Strawberries, blueberries, cooked yellow squash, carrots, sweet potatoes, steamed broccoli, spinach, kale, green beans.
Selenium	Protect and reduce the risk of cancer, heart disease, helps their cognitive function, supports thyroid health and reduces asthma symptoms. Promotes shiny fur, good immune and digestive system, healthy heart circulation.	Skeletal degeneration, fatal, myocardial necrosis.	Beef, turkey, chicken, fish, shellfish, and eggs.
Superoxide dismutase	Fight against free radicals that damage cells. Important for good heart circulation, immune system and their growth.	Disabling neurodegenerative disorder affecting specific breeds of dogs characterized by progressive motor neuron loss and paralysis until death or, more common, euthanasia.	Strawberries, blueberries, cooked yellow squash, carrots, sweet potatoes, steamed broccoli, spinach, kale, green beans.
Sulforaphane	Reduces seizures, improves gastrointestinal health, protects joints, prevents brain disorders and improves heart health.	Brain disorder, cancer, inflammation in joints, heart issues.	Broccoli ,sprouts.



Antioxidant NON-DIAGNOSTIC Potential Nutritional Deficiency Indicators

Antioxidants	Functions	Deficiency Possible challenges	Food source
Vitamin B1	Responsible for glucose generation, red blood cell and nervous system function, hormone regulation, immune response, niacin synthesis, and gene activation. Regulates energy and carbohydrate metabolism and activates ion channels in neural tissue.	Excessive shedding, flea allergies. Constantly picks up fleas and ticks, flies bother him/her in the summer, dirty and or decaying teeth, motion sickness, weight gain and constipation, hair loss premature greying, poor reaction to vaccines, anxious and stressed, Increased cholesterol levels.	Beef liver, leafy greens, eggs, chicken, oat, fish, beans.
Vitamin C	Promotes good immune system, healthy heart circulation and digestive system, along with shiny skin and fur. Reduces inflammation, and fights harmful free radicals.	Bone marrow changes, anemia, lack of WBC and appetite loss.	Potatoes, strawberries, broccoli, peppers.
Vitamin D	Alternative of going under the sun, facilitates the right balance of minerals like calcium and phosphorous for a dog, secures calcium, promotes good heart circulation and immune system.	Low tooth growth, rickets, the maintaining or development of healthy bones or muscles, brittle and weak hair, dehydration, soft tissue calcification, vomiting, diarrhea, weakness and anorexia.	Liver, fish, egg yolks, beef and natural sunlight.
Vitamin E	Alternative of going under the sun, facilitates the right balance of minerals like calcium and phosphorous for a dog, secures calcium.	Cause retinal degeneration, reproductive failure and deterioration of skeletal muscles.	Eggs, salmon, trout, spinach, safflower oil, sunflower oil and soybean oil.
Zinc	Promotes healthy skin and coat, strengthens immune system, assists in cell division, DNA and RNA replication, improves eyesight, boosts cognitive function, learning, and memory and helps to produce a variety of hormones.	Bolsters protection from infection. Abnormal iodine metabolism, interference with normal cell developments including wound healing and replacement of intestinal lining cells, skin cells, hair, and nails.	Spinach, broccoli, beef, poultry, whole grains, and vegetables.



Amino Acids

NON-DIAGNOSTIC

Potential Nutritional Deficiency Indicators

<i>Amino Acid</i>	<i>Functions</i>	<i>Deficiency Possible challenges</i>	<i>Food source</i>
Arginine	A critical role in the detoxification of ammonia, converts ammonia to urea, also for blood vessel dilation and improved circulation. It is essential for heart circulation, digestion and for the growth of dogs.	Decreased food intake and hyperammonemia resulting in vomiting and ptyalism, with an increase in urinary orotic acid excretion and muscle tremors.	Seeds, meats and dairy products such as cottage cheese.
Asparagine	Required by cells for the production of protein, used as a treatment for cancer. It is important for immune system, digestive system and fur and skin.	Emesis, excessive salivation and muscle tremors and hyperammonemia.	Milk, whey, beef, poultry, eggs, fish, seafood, asparagus, sweet potatoes, legumes, seeds, soy, and whole grains.
Glutamine	Energizes the body by aiding normal digestive system function and can help treat leaky guts. It is needed to promote immune system, growth, heart circulation, digestive system.	Energizes the body by aiding normal digestive system function and can help treat leaky guts.	Meat, fish, beans.
Glycine	Maintains lean muscle mass into old age, supports improved joint health and function, aids digestion and gut health, boosts immunity, improves brain function and accelerates recovery from injury or surgery.	Slow healing, poor digestion system, weak muscles.	Legumes, meat, fish.
Histidine	Takes part in oxygen exchange, protects and keeps immune function and healthy heart circulation, maintains hemoglobin, improving oxygen circulation to the whole body, promotes shiny skin and fur, as well as growth.	Develop lethargy and food refusal, decrease in weight, serum albumin and serum hemoglobin concentrations.	Meat, fish, poultry, seeds and whole grains.
Isoleucine	It is essential for good digestive system, immune system, shiny skin and fur and growth for the dog.	Skin rashes, hair loss, and fatigue, weak, muscle loss, decreased food intake and weight loss.	Meat, fish, poultry, eggs, cheese, lentils, and seeds.
Leucine	It is essential for good digestive system, immune system, shiny skin and fur and growth for the dog.	Skin rashes, hair loss, and fatigue, weak, muscle loss, decreased food intake and weight loss.	Milk, soy, beans, and legumes.



Amino Acids

NON-DIAGNOSTIC

Potential Nutritional Deficiency Indicators

<i>Amino Acid</i>	<i>Functions</i>	<i>Deficiency Possible challenges</i>	<i>Food source</i>
Lysine	It is essential for good digestive system, immune system, shiny skin and fur and growth for the dog.	Depressed food intake and weight loss, slow growth development	Meat, eggs, soy, black beans, quinoa.
Methionine	Aids in keratin synthesis to promote healthy skin and coat, eye health, heart circulation, helps to acidify urine, needed for good digestive system and immune system.	Decreased food intake, weight loss, evidence of dermatitis, hyperkeratotic, necrotic foot pad lesions.	Eggs, grains and seeds.
Phenylalanine	Produce proteins and signaling molecules, promotes normal growth, immune system, digestive system, shiny skin and fur and heart circulation.	Decreased food intake and weight loss, develop a reddening of the haircoat, cancer.	Meat, poultry, soy, fish, beans.
Proline	Protein synthesis and structure, metabolism and nutrition, as well as wound healing, antioxidative reactions, and immune responses.	Slow healing, low immune system, unfit, poor digestive system.	Meat, fish.
Threonine	Controls the activity for normal physiologic function such as insulin release or cellular apoptosis. It plays a role in energy production, promotes shiny skin and fur and good digestive system.	Decreased food intake and weight loss.	Wheat germ.
Taurine	Cardiac function, eye health, immune system function.	Heart disease called dilated cardiomyopathy (DCM).	Chicken liver, beef liver, beef, chicken, turkey , lamb.
Tryptophan	Reduce stress and aggression during stressful situations, hormone production like serotonin and melatonin. Promotes good immune system, shiny skin and fur, as well as digestive system.	Has aggression, depression and moodiness, anxiety.	Wheat germ, chicken, and turkey.
Valine	Stimulate muscle growth and regeneration involved in energy production and protein synthesis. Promotes good heart circulatory system, shiny skin and fur coat and growth for the dog.	Skin rashes, hair loss, and fatigue, weak, muscle loss, decreased food intake and weight loss.	Soy, and vegetables.



Potential Environmental Challenges

Environmental Challenges	Source	Possible challenges	Food Sources
Chemicals	Antifreeze, battery acid, drain cleaner, glue, fertilizer, bleach, household cleaners and detergents, motor oil, paint, varnish, lacquers, sealants, stains, paint thinner, rat poison, pesticide.	Caustic to the skin, mucous membranes, and gastrointestinal tract, ulcerate, experience toxic effects, harm and is deadly to pets, toxic and poisonous.	Activated charcoal, broccoli, asparagus, probiotics, digestive enzymes.
Hydrocarbons	Glue, lacquer, paint thinner, fast-drying paint, bath oil, sunscreen, kerosene, gasoline, motor oil, mineral oil, crude oil, tiki torch fluid, transmission fluid, brake fluid, fuel.	Red blood cell damage (benzene), severe neurological damage (toluene), lung tissue damage (gasoline and kerosene).	Activated charcoal, antibiotics, berries, citrus, red bell peppers, fish, grass-fed beef and beef liver, free-range chicken, egg.
Toxic metals	Lead weights, newspaper dyes, certain inks, paint, plumbing materials, lead foil, golf balls, linoleum tiles, and solder.	Seizures, running around in circles or running aimlessly, blindness, ataxia (loss of muscle coordination) and changes in behavior. Typical gastrointestinal problems include abdominal pain, vomiting, lack of appetite and either constipation or diarrhea.	Turmeric, rains, seeds and their oils, wheat germ oil, liver, eggs, oily fish like sardines, mackerel, salmon, red meat, poultry, antibiotic, probiotic.



OPTIMIZED NUTRITION IS THE KEY TO WELLNESS



WHAT COULD BE STOPPING CANINES FROM BEING NUTRITIONALLY OPTIMIZED

NUTRIENT INTAKE

Many soils are depleted of key nutrients. Fast growing plants from an inferior soil lack the nutritional value. So even a "healthy" FRESH FOOD diet may not provide your dog with enough nutrients.

LIFESTYLES

A lifestyle with high stress levels depletes a dog's body of many nutrients and, when combined with other factors, leave many dogs malnourished of micro-nutrients.

PROCESSED FOODS

These foods have a very low nutritional value as they often have lower absorbability of calories or carbs. This could actually create a deficit of key nutrients in the body.

CONVENIENCE

We like convenience in foods but it comes at a cost—the convenient options often have very low nutritional value compared to natural foods.

