

Montmorillonite Clay – An Amazing Gift from the Earth

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Scientific Facts about Clay

There are many types of clay that perform different functions making it very important to choose one that will fit your needs as well as the needs of your pets. Bentonite is a generic term that refers to a mineral compound that typically has one predominant mineral, typically either calcium or sodium. The focus of this article is on calcium bentonite clay. Calcium bentonite clay - also known as living clay - has both internal and external medical uses, as well as uses in industry. All references here pertain to clay as a natural remedy for health and wellness.

The name Montmorillonite clay originates from the original clay deposit found in Montmorillon, France, which was exhausted years ago. Today, Montmorillonite is used to describe certain properties – including the clay structure – found in certain clays.

There are mixed opinions among the scientific world as to the use of living clays, however most of the scientific community agrees on the following:

- Clay minerals all contain oxygen, silicon, potassium and other trace minerals.
- The actual clay structure will determine the use of a particular clay
- Montmorillonite clay is the clay of choice for internal and external medical use.

Types of Clay

There are many different types of clay, each with variations in shapes, sizes and mineral composition. In fact, the mineral structure of a clay determines its specific properties.

All clay deposits have different mineral structures. Some are naturally fine and pure. Some deposits are shallow and having been exposed to the environment, contaminated with toxins and other impurities. Some clays are sun-dried while others are irradiated or washed with alcohol or otherwise treated. Such practices greatly diminish the effectiveness of the ionic properties of the clay.

All bentonite clay contains a percentage of minerals in addition to calcium as well as a percentage of sand and silt. The process of removing the sand and silt from the clay takes time and adds to the cost, but it produces a higher quality product.

In addition to the many types of clay available, there is also much misinformation about clay. With the advent of the Internet, anyone can hang a shingle and sell products. Consider the following questions when buying clay:

- Is the clay specifically intended for internal use by humans?
- Is the clay sedimentary or from volcanic ash?
- Is the predominant mineral (after silica dioxide) calcium or sodium?

- Has the clay been tested for pathogens by an independent laboratory and is a copy of the results available to consumers?
- Is a mineral analysis available to consumers?
- Is there a phone number to call and talk to an actual person about the clay?
- Does the supplier have positive reviews and testimonials?
- Has the clay been chemically treated or irradiated?
- Is the packaging professional and not home-made?
- Does the vendor have a professional website in addition to selling on amazon, craigslist, etsy and the like?

Since we're talking about your pet's health and wellness, it's better to be safe than sorry!

How Clay Works

Calcium Montmorillonite clay contains one of the strongest negative ions of all the edible clays available today. This negative ionic charge not only enhances the availability for absorption of foods, vitamins, supplements and glucose but also increases their ability to go through the cell wall into the factory of the cell, which is called mitochondria. This allows the mitochondria to produce more energy and more oxygen for use in the body. Negatively-charged ions can enhance our immune defenses, reduce susceptibility to colds and the flu as well as provide relief from migraine headaches, allergies and hay fever.

Positive ions such as those found in polluted air – of which there are many more in today's environment than in times past – create an electrical imbalance in the atmosphere and in our bodies. Positive ions are also known as free radicals. Free radicals can damage cells and are thought to be responsible for degenerative health conditions, accelerated aging and even cancer. Positive ions are what comprise toxins, impurities, viruses and pollutants.

Negative ions are beneficial because of their ability to attract and stick to different positive ions or free radicals. This is what makes bentonite clay such a powerful detoxifier. Calcium bentonite clay is highly charged with negative ions and looks to attract positive ions to it when 'activated'.

Adsorption and Absorption

As the body does not absorb the clay, it is perfectly safe to consume. However not all clays available are intended for internal use. Be sure to ask the supplier if the clay being offered is considered safe for internal consumption. When mixed with food or water and taken internally, clay is eliminated through normal digestive and perspiration processes.

Adsorption refers to the process through which substances stick to the exterior of the clay structure. It is here on the surface of the clay structure where the ionic exchange

between the clay and the toxins and other impure substances take place. This is a key part of clay's ability to detoxify.

Absorption is a more familiar concept to most of us. It refers to the ability of the clay to act like a sponge and draw toxins and impurities from its environment. Absorptive clays expand to accommodate this process and are also known as expandable or swelling clays. This ability to swell provides calcium bentonite clay with greater drawing or detoxifying ability.

Clay and Radiation

Bentonite clay was used in the Chernobyl nuclear disaster to absorb the deadly levels of radiation caused by the nuclear reactor melt down. The reactors were smothered with bentonite clay due to its well-known ability to absorb and adsorb positively-charged ions. Bentonite clay neutralizes radiation.

The more recent Fukushima nuclear disaster in Japan continues to present major environmental problems. Migratory fish in the Pacific Ocean have been exposed to major levels of radiation. Now, not only is there a fear of eating fish that are high on the food chain that may contain higher amounts of mercury, but now radiation has also become a factor. Warnings to not consume fish from these waters are not without merit. More and more people living on the West coast of North America are consuming bentonite clay as a precautionary measure against radiation in food, water and air.

Chelation

The importance of these trace minerals - in addition to providing micronutrients that do not occur in depleted agricultural soils - is that they have been created in a chelated state, meaning that the body will not absorb any of these micronutrients unless the body needs them. This eliminates the possibility of over- mineralization.

Trace Minerals Revisited

It has been more than 25 years since I wrote about [my findings around trace minerals](#) in Pet Age magazine. Ever since that time, I have realized that micronutrients play a tremendous roll in the development of modern day diseases.

This really is the tip of the "iceberg" as to identifying the medical diseases we are seeing today, caused by deficient nutrients that no longer come to ourselves or to our animals in the foods we eat and the foods we feed them. Micronutrient deficiencies are causing worldwide diseases in people and animals.

Scientific evidence is mounting that genetically modified (GM) foods are harmful to human health over an extended period of time. Unfortunately, our beloved pets do not have the long lifespans that humans have. This means that conditions – good or bad – that impact human health are going to do so much more quickly than it would in people. This makes the impact of GMOs on our pets even more devastating. It's vital to be vigilant in avoiding GMO foods and treats for your pets. Plants grown from genetically modified seeds render the soil in which they're grown micronutrient-deficient. As a toxin, clay can play a vital role in removing GMOs from the body.

The value of micronutrients not only lies in their presence in food and making sure the patient does is not deficient, but also in their ability to help other vitamins, nutrients and supplements enter through the cell membrane. This occurs due to the negative ion these chelated micronutrients contain. Without them, many of the products that are ingested or produced in the body never get through the cell membrane to enhance the production of energy and oxygen for the body to use to help fight off disease.

Since exploring the use of micronutrients in the late 70's and early 80's, a remarkable amount of wonderful academic research has been completed on this natural, hydrothermally trace mineral, created by the earth.

Dr. Benjamin H. Ershoff, while working for Cal Tech, demonstrated to N.A.S.A. Manned Space Center, that bone density loss (known as osteoporosis), that occurs with prolonged walks in space at zero gravity does not happen if the astronauts ingest this clay routinely. This special, natural clay, not only reversed the effects of bone loss, but stopped it from happening.

Other scientific investigations have been done by Dr. Paul A. La Chance. Using this clay in male rats, hamsters, mice, miniature pigs, kangaroos and other mammals, he proved that normalization and recalcification of bone density occurred. Why not apply this same clay to millions of people and animals that suffer from many types of bone density loss or an inability to absorb other forms of calcium. This special calcium Montmorillonite clay has high levels of calcium in a form that is chelated. This means that in this chelated form, the body will absorb only what the body needs.

Dr. Howard E. Lind has completed a number of successful studies showing the anti-bacterial effects of this special calcium Montmorillonite clay including its ability to neutralize toxins. These are very important for people and animals that are sensitive to certain antibiotics. At the same time, the product will help neutralize toxins that may occur in our foods or the foods we feed our animals that already contain toxic food ingredients from foreign countries. Patients suffering from acid reflux and or IBS (irritable bowel syndrome) receive relief due to the high level of chelated calcium.

How Clay May Help

In my profession it is believed that the use of a calcium supplement in a large breed puppy may create excess bone growth with a bone malady being the end result. This will not happen with calcium bentonite clay, as the chelated calcium will only be used *if* the puppy's bone growth dictates it.

Bone loss is very common with people and animals with chronic kidney disease. The kidney disease often retains phosphorus and the body tries to maintain a 1:1 or 1:2 ratio between calcium and phosphorus and to do this, the body removes the calcium from the bones and ligaments. The high level calcium contained in this micronutrient product will help stop this.

In allied species, it has been scientifically proven in research facilities in Asia, that this special calcium Montmorillonite clay does cause elevated blood urea to be concentrated out of the blood, into the intestines for excretion.

Supplementation with this special living clay may make a difference for the patient, while providing an additional natural supplement to enhance their nutritional health and aid the actual healing process. We can only treat the clinical effects of a disease, but often the success or failure of our therapy will depend on the overall health of the patient. Calcium Montmorillonite can make that difference.

Clay for Pets

The information here is intended to help concerned pet owners understand some of the ways this amazing gift from the earth may help their beloved pets. It's not unreasonable to believe that if clay is used to successfully treat a given condition in one type of animal (including people!) that it will also be effective treating the same condition in another type of animal. For this reason, I recommend reading through ALL sections of this article in order to understand the many issues that can be helped with clay.

Treating Renal Disease

Introduction

Both acute and chronic kidney failure are serious illnesses that afflict dogs, cats, horses and other animals. Conventional treatment can help manage many of the symptoms. Supplementing with calcium Montmorillonite clay may help with a number of conditions brought on by kidney failure. Scientific research has proven calcium Montmorillonite effective in preventing osteoporosis and there are virtually no contraindications for its use. In addition to augmenting standard treatment for kidney disease, calcium Montmorillonite clay can be used as a daily supplement for animals to improve overall health.

What is Kidney Disease?

Kidney disease in dogs and cats often occurs in two main groups.

1. Acute Kidney Failure

The first group relates to a sudden failure of the kidneys known as acute kidney failure. This generally occurs when the patient ingests a poison or a toxin or is exposed to Leptospirosis (a rare and serious bacterial infection) and through urine formation, the kidneys are damaged.

2. Chronic Renal/Kidney Failure

The second group relates to a slow deterioration of the functional units of the kidneys. In cats, this condition is referred to as chronic renal failure. In dogs, this condition is referred to as chronic kidney failure. This can happen through slow ingestion of toxins, damaging heavy metals, poisons, radiation, and chronic inflammation due to an infection or due to an endocrine immune imbalance.

Improper diet, and/or a diet containing poor quality protein may also cause an excess use of the kidneys' ability to breakdown and excrete increased amount of nitrogenous waste products. Often the patient loses muscle mass, overall weight, and loss of appetite due to the elevated nitrogen level. Once your health care professional has made this diagnosis - and with your help - the following treatments may be suggested.

Conventional Treatments

Subcutaneous or intravenous fluids may be instigated to help perfuse the kidneys and help flush out the nitrogenous waste products. Note: If this is done for 48 hours, and the very elevated BUN diminishes only 10 to 15 points, there is a good chance that the kidneys may be permanently damaged, and to continue therapy may cause unnecessary suffering and expense for the patient. Your health care professional will advise you properly.

A special diet is usually recommended. For many years, a low protein diet was recommended, as it is thought to reduce the "pressure" placed upon the remaining functional kidney units referred to as nephrons for protein breakdown. The kidneys both in animals and humans detox waste product from the process of metabolizing protein. I have always believed, that high quality protein, in a small quantity, more frequently, would allow for less insult on the remaining nephrons. For pets, this would include the same attributes sought for humans:

- Organic
- Grass-fed
- Hormone- and antibiotic-free

The diet also needs to be low in phosphorus since with kidney failure, phosphorus retention occurs.

Often Omega 3 fatty acids are given and their anti-inflammatory action can be enhanced when Vitamin E is also given, to help reduce any inflammation that is helping destroy the kidneys. Much more recently krill oil is being substituted for the fatty acids.

A product called Calcitriol is often given due to advanced kidney disease, which may cause a lack of Vitamin D production.

Tumil K (potassium gluconate) may be needed, if the kidney disease causes the potassium levels to drop too low.

A Natural, Complementary Treatment

Health care professionals and pet owners that would like to use a more natural treatment to not only enhance normal treatment of patients with kidney disease, but also as a preventative treatment to help reduce the development of kidney disease, should consider including the use of calcium Montmorillonite clay. I have found this to be a better way to enhance the treatment of kidney disease in both dogs and cats even while still using traditional therapy. As I am not an equine veterinarian I cannot report on my direct experience of patients' use of clay to treat renal disease in horses, but I assume it is similarly effective.

[Improved Micronutrient Absorption](#)

Calcium Montmorillonite clay from the Death Valley area in California originates from volcanic ash that has baked in the hot sun for many centuries. It is thought that the exposure to high temperature from the sun, allows the micronutrient to lose one molecule of water, and create a negative ion that allows the micronutrient – once ingested - to enter the cell, through the cell membrane. This negative ion helps other essential nutrients, vitamins and supplements to traverse the cell membrane also.

[Detoxification](#)

Another important feature of this special calcium Montmorillonite is that it helps neutralize harmful toxins that enter the body through the mouth, the nose and the skin. When hydrated, the clay's negative ionic charge becomes available. As it moves through the body, the clay attracts positively charged molecules (toxins, most parasites, harmful bacteria, allergens) to the outside surface of the clay molecule. In addition, the clay absorbs or binds the toxins into its internal molecular structure. The negative ions are exchanged with the positive ions and the clay is eliminated from the body.

Conditions Clay May Improve

Elevated Nitrogen

The elevated nitrogen that builds up in the blood stream from failing kidneys can cause many problems. The resulting high level blood urea nitrogen (BUN) can irritate the mucous membranes of the stomach and intestines, reduce red blood cell production and inflame the pancreas. Often Carafate is used to sooth this irritation. Calcium Montmorillonite contains many micronutrients, which will have a similar soothing effect like Carafate, but is natural.

Gastrointestinal Irritation

The irritation of the gastrointestinal system that occurs from the elevated BUN can cause nausea, vomiting and diarrhea and the calcium Montmorillonite will help stop this with its soothing effect. Calcium Montmorillonite aids with absorption of normal foods while also “settling” the stomach and intestines.

Mineral Imbalance

Calcium Montmorillonite also provides chelated potassium and calcium to help correct any ratio imbalance caused by failing kidneys.

Osteoporosis From Phosphorous Retention

Another serious problem that is often encountered with kidney disease in animals is the retention of phosphorus. The body tries to maintain a 1:1 or 1:2 ratio of calcium to phosphorus. When kidney disease causes retention of phosphorus, the body often will remove calcium from the bone in order to try to maintain a normal ratio, causing osteoporosis.

Products like Amphogel and Maalox are used to help keep the phosphorus levels under control. Including the use of a calcium Montmorillonite, which is very high in chelated calcium, and can make a difference in reducing the amount of bone loss that occurs due to the kidney retention of phosphorus. It is also used extensively in people and animals that suffer from lack of bone density, aka osteoporosis, that do not have kidney disease. Scientists and researchers have found that the use of calcium Montmorillonite will allow for normal bone density to remain, while also correcting a state of diminished bone density.

Bacterial Infections

Not only can the use of calcium Montmorillonite help stop bacterial infections in the already damaged kidneys, but it can also help neutralize toxic molecules that may continue the damage.

Elevated Urea

Renal studies in allied species conducted at X'an Jiaotong University College of Medicine indicate that calcium Montmorillonite will help reduce elevated serum urea through concentration and increased excretion by the intestines.

Clay Protocol

For more information on how to use clay for your pet, see [the protocol for clay use](#) at the end of this article.

Promote Better Health for Horses

Calcium Montmorillonite clay will aid in promoting maximum health for both you and your horse and will also promote better healing from many diseases, when included with standard, medical therapy.

Calcium Montmorillonite clay promotes healthy bones, ligaments, and tendons, while stopping bone loss, referred to as osteoporosis. N.A.S.A. has used this product for several years, to help stop bone loss in the astronauts as a result of time spent in space at zero gravity.

Clay is not only important for all horses, but is especially important for pregnant mares. Over the years, calcium Montmorillonite clay has improved fertility, promoted easier birthing and much healthier offspring, with a much higher survival rate in horses and all allied species. It is best to use clay daily, even before fertilization of the mare occurs, and continued during and after the pregnancy. In the maturing embryo, a good quality, naturally chelated calcium is of tremendous importance, to produce stronger bones, ligaments and tendons for her foal at birth.

The efficiency and the amount of the chelated calcium found in calcium Montmorillonite, not only will help the mare maintain her bone density while being pregnant, but also will help increase her milk production when her foal is born. This is vital to newborn foals and helps stop the creation of a weak, decalcified skeletal system, which may lead to bone malformation and early crippling. Proper calcification is also vital in those horses competing in different types of athletics events.

Calcium Montmorillonite clay neutralizes toxins and provides a protective antibacterial action, and does help to reduce the major health problems that come from feed contamination. For the best results, include clay in your horse's food or water every day.

Calcium Montmorillonite clay will definitely help the liver – the primary organ of detoxification - to neutralize toxins and give the liver a chance to heal itself.

Calcium Montmorillonite clay also contains a naturally, chelated kaolin, that helps sooth the intestines and reduce the risk of colic.

If the dose of the clay is doubled, often a fluid return is created in the intestines, which often helps soften impactions, while also providing antibacterial and antitoxin action against some of the bowel inhabitants that produce an increase in gas, which can contribute to a horse's discomfort.

Research studies show that intestinal parasites flourish in a normal intestinal pH of 6 to 6.5. There are reports that indicate that calcium Montmorillonite clay – many with a pH as high as 9.7 – raises that pH significantly. In this environment, intestinal parasites can no longer live and are shed naturally.

The calcium Montmorillonite clay can be mixed with water and used as a healing paste, and applied twice daily to skin infections, bacterial eruptions, wire cuts, abrasions and insect bites.

Clay Protocol

For more information on how to use clay for your horse, see [the protocol for clay use](#) at the end of this article.

Mineral Supplements May Be the Answer to Skin Problems

Mention nutrition to most people and they automatically think of vitamins. However, they really ignore the role of minerals. Minerals really deserve more attention. After all, there are 96 times more minerals, by weight, in a body than vitamins. There could be no life without them and cells lacking in a single mineral cannot function optimally.

Minerals are present in soil, in water, and even in air, and help minute vitamins to form enzymes. They help transport oxygen into the bloodstream. They are the building materials of strong bones, tissue, teeth, nails and the hair coat.

Minerals are present in the soil, in water and even in air. In minute amounts they are absorbed from the soil by plants. As herbivores eat plants and drink water, they obtain the bulk of their mineral nutrients. Carnivores get their quota through the mineral content of the flesh they eat, the water they drink and the sporadic greens they chew.

Much more is known about vitamin requirements than about mineral needs. This is true for both humans and animals. That's because nutritional science only recently has developed the technology with which to study minerals.

Veterinary science has determined that certain minerals are required for animals. For cats, the vital minerals are calcium, phosphorus, sodium, potassium, magnesium, iron copper and iodine. Chlorine, manganese, zinc, sulfur, cobalt, selenium, molybdenum, fluorine, chromium, silicon and perhaps tin, nickel and vanadium are also assumed to be essential. For dogs, mineral needs include calcium, phosphorus, iron, copper, potassium, magnesium, sodium, chlorine, iodine, manganese, zinc, selenium, and perhaps molybdenum, fluorine, tin, silicon, cobalt, nickel, vanadium and chromium.

Such minerals should be included in the minimum standards for the maintenance of adequate health. If a product claims to be "complete and balanced", the suggested serving for an animal must meet all daily minimum requirements.

It is important to keep the word "minimum" in mind at all times. The Required Daily Amount suggestion and "complete and balanced" claims are nothing more than minimal requirements. They are not optimal in any sense. We haven't evolved so far as food mavens to design the best possible food diet for our animals. Look how poorly we do for our own nutritional needs! Veterinary science is doing its best, but has a long way to go.

Supplements

In my practice, I have used both vitamins and mineral supplementation as methods for preventing skin problems and aiding in therapeutic programs. By far my best success has been with the use of minerals rather than vitamins.

Generally speaking, I do not find allergic skin conditions to be very responsive to vitamins. In fact, I have found supplementation with B - complex vitamins frequently causing the allergy to become worse because yeast is used as the most common commercial sources of natural B vitamins, and yeast is a leading allergen.

Using minerals, I have experienced consistently good results. I believe this may relate to inadequate mineral levels in commercial pet foods. A deficiency of minerals has been involved in at least 10 % of all allergy cases I have treated.

The pet food industry might lack knowledge as to what constitutes good mineral levels for daily animal needs. Also, depletion of minerals in the soil is a problem. According to a 1981 Ford Foundation report on nutrition in America, modern farming methods alone account for much lost nutritional content of food.

"Through intensive farming, poor crop management, increasing use of pesticides, erosion and other abusive factors, the soil in which are crops are raised has been seriously depleted of nutrients."

Such practices rob the food chain of naturally-occurring essential vitamins and minerals. Thus the food you and your animal eat is "short- changed". Illness from these deficiencies can range from subtle to catastrophic.

Over the years, veterinarians have linked deficiency diseases with a wide number of minerals. These include deficiencies in nitrogen, phosphorus, calcium, potassium, magnesium, sodium, iron, chlorine, copper, manganese, zinc, molybdenum, cobalt, iodine and selenium.

Mineral research is a dynamic, rapidly developing science. Sophisticated techniques are being honed to probe the biological roll of "trace minerals" (also known as micronutrients), present in infinitesimal amounts in the environment. These include

dozens of lesser-known minerals with exotic names as yttrium, niobium, ruthenium, tellurium, scandium, osmium, dysprosium, gadolinium and praseodymium. Any of these unheralded elements could be a vital missing link in deficient soils and may mean the difference between good health and disease, even at one part per million or less.

The body's immune system is a particularly complex network that relies on optimal nutrition for good function. If all the ingredients are not present, the system will not work as well. A shortage of minerals can affect the body's enzyme systems, which are responsible for countless numbers of biochemical reactions. Allergy or allergy-like conditions can occur when either of these systems does not receive proper nutrition.

Mineral deficiencies may be involved with many common disorders suffered by dogs and cats. I did not reach this conclusion through sophisticated scientific analysis or advanced technology but rather through the simple medium of supplementing the diets of animals with a trace mineral formula containing all the essential micronutrients.

Results

Based upon observations involving approximately 3,700 dogs and 900 cats, I found the trace mineral compound added to their food or water over a six-month period, the skin and hair coat of these animals showed the following:

- Darker, thicker hair coat, with increased luster.
- Reduced itching and scratching.
- Reduced flaky skin.
- In geriatric dogs and cats, increased activity, weight gain and improved condition of the hair coat.
- Animals with heavy flea and fly infestations appear less attractive to insects after three weeks of supplementation.
- Increased fertility and more viable offspring
- Improvement in overall general health.

In quite a few cases, vitamin supplements, special diets and standard medication did not work satisfactorily until I included trace minerals. On the other hand, I have found the trace mineral approach effective alone or in conjunction with other dietary modifications. It also enhances standard therapy while treating many conditions.

Supplementation with a trace mineral nutrient of the sort found in calcium Montmorillonite clay is clearly a "shot gun" approach. In dogs, mineral supplements have been helpful in controlling food allergies, flea-allergy dermatitis, exocrine pancreatic deficiency (digestive enzyme deficiencies), endocrine immune imbalances, chronic active hepatitis and inhalant allergies. In cats, it has helped control millitary dermatitis, food allergies, flea allergy dermatitis, chronic active hepatitis, leukemia and feline infectious peritonitis.

Clay Protocol

For more information on how to use clay for your pet, see [the protocol for clay use](#) at the end of this article.

How Calcium Montmorillonite Clay Can Help Avians

I have had the opportunity to use this natural compound as an additive to enhance the health of many birds, including chickens.

I had a bird of prey center set up for the US Wildlife Service plus the Department of Fish and Game in the State of California, in the Santa Monica Mountains for many years. This included the treatment of many other native wild birds and mammals. My preserve was called Stone Wood Meadows and was located at the base of Cold Canyon in the hills of Malibu. Cold Creek runs through the property and also provided 10,000 acres of habitat release. Stone Wood Meadows set a coastal standard for wildlife over recreation in the coastal zone in California.

As a veterinary student graduating from The University of California at Davis, I took several classes in avian medicine. My clinical studies, using calcium Montmorillonite clay demonstrated the following:

- Higher egg shell thickness
- Improved egg production
- Less infant mortality
- Better absorption of nutrients. This owes to the negative ion effect that takes the nutrients, vitamin and supplements directly through the cell wall to the mitochondria for increased energy and increased oxygen.
- Binding numerous toxins that all birds may be exposed to when free ranging.
- Better control of bacterial infections due to its desiccating properties. This also helps with organically raised birds which are not subjected to synthetic antibiotics in their food and water.
- Reduction of feather picking
- Visible increases in feather production and color.

My other recommendation is that genetically modified seeds are never used for feed, as these are themselves toxic to the system.

The Need for a Calcium-Balanced Diet in Cats

Whether large or small, domestic or wild, felines need a balanced diet including proper amounts of calcium to avoid developing thin bones with the possibility of pathological fractures.

Over the years, my research has proven that the ratio of calcium to phosphorus is vital in a feline as well as *all* animals (including people) in order to maintain a healthy

skeletal system and avoid unnecessary incidental fractures due to a calcium phosphorus imbalance causing thin bones.

It was realized a number of years ago, that zoo-fed felines given meat only (without bones and skin) developed thin bones. The result was that after jumping from a small height, they would fracture their front legs. In the wild this did not happen. In the wild, felines ate most of their prey including bones and skin which contain calcium and the meat only which contained one part calcium to 20 parts phosphorus.

If only meat is given or eaten, the body of the feline tries to keep a 1:1 or 1:2 ratio between calcium and phosphorus. As the feline ingests the total meat diet, the body tries to keep the proper calcium phosphorous ratio. It does this by removing calcium from the bones causing the thinning and weakening of the bones that lead to the incidental fractures referred to as pathological fractures. This abnormal ratio causes the parathyroid gland to release its hormone which in turn causes this calcium bone depletion.

Senior Project at University of California Davis

While in veterinary school, my senior project found me working with a young mountain lion in Oakland, California. He was a 4 month old, male named, Tigger. Whenever he jumped off an object - even a low chair or mattress - he would fracture the bones in his front legs, referred to as pathological fractures. This was due to the fact that the cortices of his long bones were tissue thin, along with all the other bones in his body. It was the general opinion that he was suffering from osteogenesis imperfect, which in humans, is a genetic disorder that leads to the same kind of pathological fractures as seen in Tigger.

After analyzing Tigger's diet, I found he was being fed a total meat (no bones or skin), diet, which has 20 parts of phosphorus to 1 part calcium. He definitely did **not** have osteogenesis imperfecta, but rather a serious nutritional imbalance. Tigger's daily total meat diet with its 20 to 1 ratio of phosphorus to calcium was his true nemesis.

His body knew it needed to keep a 1:1 or 1:2 ratio between phosphorus and calcium. To do so, his body was forced to remove calcium from his bones, because of the excess release of PTH (parathyroid hormone). In doing so, his bones became very weak and fractured on their own. Upon realizing this, I had the pet owner add calcium and bones to his diet and in the weeks that followed, the recalcification of his skeletal system occurred.

As he felt better, when petting him, he would purr and it sounded like a motor boat. Just to see the look in his eyes now, seemed to justify all his pain and suffering that was now over. And you know what - he knew it.

My paper detailed how his disorder was not, in fact, osteogenesis imperfecta but rather a nutritional hyperparathyroidism. A few years later it was realized that all the big cats in

the zoos and other captive sites also needed to be fed bones with their meat to avoid similar problems. I am pleased with the fact that, after I created my first commercial non-meat, balanced food product for dogs and cats with calcium and phosphorus, it too was adopted for use in zoos.

Clay Protocol

For more information on how to use clay for your pet, see [the protocol for clay use](#) at the end of this article.

How to Care and Feed for Pregnant Dogs and Cats

Once you and your veterinarian have decided your dog or cat is at least 5 weeks pregnant, it is best to offer a third meal at lunch time if your pet is interested. I personally believe it is best to keep protein, carbohydrate and fat in the same ratio.

It is important to increase the nutrition for your pet while pregnant, but not to increase their weight. The increased amount of foods is designed to help her embryos develop to their maximum.

At this same time a calcium, magnesium compound, including a Montmorillonite clay, should be given twice daily and continued two weeks past weaning. This will help guarantee that the mother does not develop low blood calcium, which may lead to excessive shaking and seizures. This is typically found in dogs with large litters, whether the mother is small or large.

If the litter is fairly large, it is best to place the puppies and kittens into two separate groups, which will allow them to nurse at separate times thus avoiding a loss of nutrition to one or more of the offspring. Did you know that 90% of the deaths that occur with normal offspring come from lack of nutrition and reduced body temperature? A proper bed for mom and her offspring is also very important. Unless provided for, it is a known fact that certain large breeds mistakenly lie on their offspring, which can result in death of the babies.

Once the puppies and kittens have reached 2 to 2 ½ weeks of age, it is best to start offering the offspring baby meats, quickly followed by baby meats mixed with canned food. Allowing the offspring to nurse after they reach 3 weeks of age, may be very damaging to their mother and her overall health. Please remember, 48 hours post-delivery, the offspring on mother's milk cannot absorb the antibodies in the milk known as colostrum.

While you are beginning solid food for the offspring, if the mother's breasts continue to fill up with milk, it may be necessary for the pet owner to either milk the glands or allow for short term nursing or have your veterinarian give the mother an injection to dry up the milk.

If this is your pet's first litter, it is always a good idea to speak to your veterinarian for directions. I personally like to do an x-ray at 6 ½ weeks of the pregnancy, to check for the size of the pelvic outlet as compared to the size of the heads of her offspring. Also it is important to know approximately how many offspring are present for delivery, and if the offspring are in the normal position for delivery.

Using Calcium Montmorillonite Clay

A pregnant female must eat a food that will allow her to provide maximum nutrition not only for herself, but also for her unborn offspring, while in-utero. Many people add fresh foods and nutrients to the diet to hopefully provide a complete and better quality food. But is this really enough?

What few of us realize is that we are still facing the perils of the soil. Many of today's available food sources are grown in agriculturally overworked soils. Considering this in combination with the overuse of petrochemical and synthetic fertilizers, it surprises me that many litters appear to be normal at birth.

Micronutrients help fund so many different biological systems in our bodies and the bodies of animals. When there is a deficiency in any one micronutrient, all of our species can suffer from many different diseases including infertility, low sperm count, a reduced size of the litter and even early resorption and/or early loss of part or all of the entire litter.

Calcium Montmorillonite clay has been tested and proven to contain all the necessary micronutrients that may be deficient in our foods that are grown in overworked agricultural soils. Because these micronutrients occur in a chelated form, the body will only absorb what the body needs. This stops the possibility of hyper mineralization from occurring.

It is very safe to give this natural product to very large, pregnant dog breeds without the fear of causing increased, abnormal bone growth in the puppies. This is because the fast-growing puppies - whether in the uterus or outside of mom - will only absorb the amount of chelated calcium that their normal bone growth requires.

Many times, when a dog is pregnant, they can be nauseated and that causes a reduction the amount of food they eat which in turn can reduce the nutrition going to the puppies in the uterus. That in turn can lead to a weak or reduced litter or even a total loss of the litter. Many times I have found that naturally chelated clay would soothe her gut and she would eat more food.

Suggested Clay Protocol

The following suggestions are based on my 40+ year clinical experience. However, you and your veterinarian need to decide what protocol to follow. Clay can be added to drinking water or to wet food.

Internal Use - Cats and Dogs

Adding to Drinking Water

When adding to water, mix clay 1 part clay to 8 parts water in a food grade plastic or glass bottle. Shake well. Fill half the water dish with clay water and half with fresh water. Clay will settle over time. Top water off each day for 2 or 3 days and start fresh on the fourth day. Be sure water dish is glass or ceramic. Plastic is an option, but since plastic is porous, bacteria from the animal's mouth can penetrate the surface and become in itself somewhat toxic.

Adding to Wet Food

Cats in particular need lots of water for good health. Try having a water dish with clear, fresh water and another of clay water available. Animals instinctively know when their body needs support and they will choose whichever they feel they need. Add dry clay on a daily basis to wet food according to the animal's body weight.

Body Weight	Dry Clay to Add
< 20 pounds	½ tsp.
20 – 50 pounds	1 tsp.
50 – 90 pounds	2 tsp.
> 90 pounds	1 Tbsp.

As with people, be sure to have plenty of water available for drinking.

Internal Use - Horses

- Foals should receive one heaping tablespoon sprinkled on their food AM and PM.
- Adult horses should receive two heaping tablespoons sprinkled on their food AM and PM.
- Most foods that are fed to horses happen to be dry so a small amount of water can be sprayed on the food before the clay is sprinkled on the food.
- Pregnant mares should receive three heaping tablespoons AM and PM.
- Horses suffering from various diseases should receive three to four heaping tablespoons AM and PM.
- To reduce bacterial build up and toxins and add clay to the horse's water supply, at a ratio of one cup of dry clay to every 50 gallons of water.

External Use – All Animals

Poultice

Create a clay poultice by combining one part clay to three parts clean water. Stir to a sour cream-like consistency. Allow to stand for 12 to 24 hours to thicken. Apply the poultice directly on skin lesions, hot spots, wounds, bites and sores twice daily for 7 days and beyond as needed, until the skin has healed.

Keeping the clay damp keeps the clay working. If feasible, apply a damp paper towel or damp gauze on top of the poultice. If needed, cover with a plastic bag or plastic wrap.

Clay Baths

For animals with skin and coat issues that are not conducive to clay poultices, clay baths may help ease irritation and itching. Mange and other parasitic infections can also be addressed with clay baths.

Medium to Large Dogs

Pour the tub $\frac{1}{4}$ to $\frac{1}{2}$ full with clean, warm water. Add 1 cup dry clay and mix into bath water. Place animal in the tub and coat the skin with bath water. Work the water well into the coat, saturating it with clay water. Repeat for 10 to 20 minutes or as long as the animal will tolerate it and the water stays warm. Rinse the coat with clean water and towel or air dry.

Small Dogs and Cats

Pour the tub or sink $\frac{1}{4}$ to $\frac{1}{2}$ full with clean, warm water. Add $\frac{1}{4}$ to $\frac{1}{2}$ cup Add 1 cup dry clay and mix into bath water. Place animal in the tub and coat the skin with bath water. Work the water well into the coat, saturating it with clay water. Repeat for 10 to 20 minutes or as long as the animal will tolerate it and the water stays warm. Rinse the coat with clean water and towel or air dry.

Summary

What many people in the world are coming to realize is that the foods we and our pets eat and the environments we live in are exposing both ourselves and our pets to a myriad of toxins, heavy metals and radiation. The negative impact on our health ranges from merely irritating to chronic disease.

It has been proven and documented that calcium Montmorillonite clay will not only bind toxins and heavy metals but will also neutralize radiation. The wonderful natural properties of a calcium Montmorillonite clay can make a huge difference for our families and our pets.

Over 35 years ago I began using calcium Montmorillonite extensively in my practice to treat many different conditions as well as for better overall health for all of my patients including dogs, cats, horses, livestock, birds, wildlife and fish. I recommend daily

supplementation of pet food with calcium Montmorillonite to help reduce the effects of toxins, damaging heavy metals and radiation. I have also used it successfully with my friends and family, our family pets and of course - myself.

[Dr. Al Plechner, DVM](#), is a practicing veterinarian in Los Angeles and the [author of several books](#). He works with pet owners that want to achieve optimal health, maximize their longevity and create a healthy future for themselves and their beloved pets. Dr. Plechner makes his homes in Santa Monica, California and Orofino, Idaho. Learn more about Dr. Plechner at www.drplechner.com.

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