



Zinc Deficiency in Sled Dogs

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Zinc Deficiency: the hidden cause of sickness



Does it seem like you spend all of your time at your Vet's office with your Snow dog? Are you and your vet constantly chasing symptoms in your dog but your vet can never quite manage to solve the medical mystery as to what is wrong with your Husky?

While you should always try to consult and work with your vet, today I am going to give you some information that your Vet may not know about unless he has specialized knowledge of Huskies and Malamutes. Today's article is about the part that Zinc plays in the mystery illnesses in Snow Dogs.

DISCLAIMER: If your husky is sick, please ensure you take him to the vet. The information in this article is intended to be complimentary.

In this article I will give you information about Zinc Malabsorption and [Zinc Deficiency Disorder](#). Before you take zinc supplementation into your own hands, learn everything you can about it.

Zinc supplementation, if applied incorrectly or for the wrong reasons, can possibly cause lethal zinc toxicity in your dog. What you should not do is to recklessly begin zinc supplementation or changing your dog's diet without fully understanding the implications of what you are doing.

Wild, reckless, and uninformed choices will only make your dog more ill so please do everything that you can to arm yourself with as much information as you can so that you can make a good informed choice about your dog's treatment options.

Talk to your vet about what you have learned and discuss different treatment options and supplementation schedules with them first. If you feel that your Vet's recommendations or course of treatment does not satisfy you or your dog's needs, then do not hesitate to ask for another opinion from another Vet who has more experience with this specific dog breed.

What Does Zinc Have To Do With My Husky's Illnesses?

It may have everything to do with your Husky's illness. While the Veterinary medical field recognizes and understands that Zinc is the second most commonly used mineral in the body, it does not seem to be very good at connecting the dots when it comes to understanding how the absence of available Zinc in your Husky's body may be behind your dog's constant source of illnesses.

Ask a savvy and experienced breeder of Northern Breed dogs and they will be able to confirm that Northern Breed Dogs' diets require more than average Zinc amounts and that Zinc Deficiency and [malabsorption](#) can cause be the root cause of a host of illnesses in these dogs. And it's not just Northern Breed dogs that have a problem with this issue. This condition can also be a factor in many of the Giant Breed dogs like Great Danes and St. Bernards, and also Dobermans, Beagles, German Shepherds, German Shorthaired Pointers, Bull Terriers, and Poodles too.

What Is Malabsorption?

Malabsorption Syndrome occurs when the body fails to absorb vitamins, minerals, and other nutrients through food that has been placed into the body. There can be a number of causes of nutrients not being able to be used by the body but the two most common factors are, impaired digestion (mal-digestion) and impaired absorption (malabsorption). In Huskies and Malamutes Zinc Malabsorption and Zinc Deficiency are problems primarily attributed to the food that these dogs eat. A quality diet high in Zinc is essential to continued good health for these dogs.

Why Is This Disorder So Hard to Correctly Diagnose?

When it comes to Zinc Deficiency and Malabsorption problems it is likely the most misdiagnosed and the most under diagnosed condition in Huskies and Malamutes. The problem with getting an accurate diagnosis of Zinc Deficiency and Malabsorption is that Vets only attempt to control the problem by just addressing the symptoms of what they see.

The symptoms of this affliction are not only varied, but they will differ according to what level the disorder has reached in your Husky. The longer your dog has been in Zinc deficit, the further along the chain of symptoms your dog will likely be.

Also contributing to the challenge of correct diagnosis and treatment is the ever changing spectrum of symptoms that will occur in your Husky as this disorder runs its course. Sadly, many owners of Snow Dogs are going to join the ranks of people who find themselves paying for endless medical tests and for professional guesstimates of cures only to have new symptoms show up as fast as the old symptoms subside.

Vets that are not familiar with the predispositions of certain breeds to Zinc Malabsorption issues, will not likely make the connection between the presenting symptoms and this disorder. And because this disorder is of a nutritional nature, a vet has to be not only well versed in the complex processes of how nutrition works in dogs, but also in the specialized

nutritional requirements of these specific dog breeds. Even when vets have some understanding about Zinc Deficiency, it is attributed to being a genetic predisposition without any further knowledge or understanding about why this is so.

It is not only important to know what do to make your Husky symptom free, but it is helpful to understand how and why this disorder happens, beyond the explanation of it being a “genetic predisposition” disorder. Education is the key to not only better health for your Husky but it is also the key to minimizing this disorder from further and unnecessarily spreading through the genetic lines of dogs. Huskies and Northern Breed dogs may have a predisposition to this affliction but this does not mean that with education and proactive measures the occurrences of this disorder cannot be kept to a minimum.

What Is Zinc And What Does It Do In The Body?

Zinc is the second most abundant essential trace mineral found in the body after iron and is required in a dog's diet to maintain good health. It is considered to be one of the most powerful anti-oxidants and is involved in a variety of metabolic processes in the body. Zinc works alone and with copper, B-complex vitamins, vitamin A, calcium, and phosphorus in many bodily functions.

Because it performs multiple critical functions, it must be supplied at adequate, consistent levels or deficiency states will result. Since the body has no specialized Zinc storage system, a constant, steady, and adequate supply of Zinc becomes crucial for optimal health.

However, a contributing factor in Zinc Deficiency is that Zinc is not considered to be highly absorbable by the body and studies show that only 15% to 40% of the ingested zinc in the mammalian diet is actually well absorbed.

In dogs with additional Malabsorption issues, these absorption percentages are thought to be even lower. Another problem seems to be that there are some foods that can actually interfere with the absorption of available Zinc in

your dog's body further adding to the deficiency problem.

The Process Of How Zinc Is Used In Your Dog's Body

There is a hierarchy for how Zinc is used in the body. The chain begins at one end of the body processes and it continues on down the line until it arrives at the end processes. Unfortunately if there is either not enough Zinc or when the body processes are left consistently incomplete, the over-all health of the body eventually begins to suffer and erode.

In Huskies and Malamutes the progression of illnesses due to chronic Zinc Deficiency may present as follows:

1. Chronic digestive issues (often mistaken for food allergies), often accompanied by bouts of diarrhea, and lack of appetite (often mistaken for being a picky eater).
2. Raised itchy crusty patches of dermatitis,(ZRD) (often diagnosed as allergies or hot spots) around the nose, mouth, eyes, groin, or paws that may respond temporarily to topically applied Zinc Cream. These crusty patches seem to come back with more intensity each time.
3. A host of seemingly unrelated illnesses that are actually immune system related. Immune system may under function and not respond well to clearing up infections in the body or it may overreact and your dog's immune system may be treating everything as if was an invading force. This issue can lead to the development of cancers.
4. Thyroid gland malfunctioning causes problems with weight gain or loss, increase or decrease in appetite, skin and coat problems including excessive shedding, a constant cycle of secondary infections, and possible on going cough. Hormone levels in the body become out of balance.
5. Major organ failures; liver, kidney, heart from a lack of sufficient support from the Thyroid.
6. The last process in line where Zinc is used is in the brain. Adequate Zinc has to be present in order for Taurine to be used as a neuro transmitter smoother. The end result of inadequate available Zinc can be erratic neurotransmitter firings(seizures).

Note: This is a general overview of the hierarchy of how Zinc is used in the body. However, there are exceptions to the rules. You may find that your Snow Dog shows very few of the first few classic symptoms and skips ahead directly to having epileptic seizures. It can happen.

What Is Really Causing These Medical Issues In Your Snow Dog

Chronic Digestive Issues In Huskies and Malamutes

It is usually here that first signs of Zinc Deficiency show up. Huskies having trouble processing their food is a very common complaint among owners. Vets often advise owners to change foods thinking that dogs must be allergic to something in the food, but this seldom fixes the problem. The dogs continue to have cycles of diarrhea, causing Zinc to leave the body too soon without being absorbed. The more digestive issue the dog has, the less of an appetite they have. Lethargy and failure to thrive become concerns. Many vets fail to see the Zinc cycle that is often behind these digestive issues.

The Real Problem: There is one of two issues happening at this point, the lack of available Zinc through their diet or the Zinc that is present is not being absorbed efficiently in the intestine. Huskies that are on a poor diet of cheap food, filled with meat by-products are not getting enough Zinc in their diet. The best sources of dietary Zinc are found in whole meats and fish. Diets that are low in meat quantity or diets that contain meats that are heavily processed will cause Zinc Deficiency and the problems that are associated with it.

The second problem that occurs in poor diets is Zinc Malabsorption. Diets that are high in corn, wheat, and soy, cause Zinc to be unavailable in the body. As these grains are broken down in the digestion they create phytates and phytic acid binds to available Zinc in the intestine and create a Zinc Deficiency through Malabsorption. It should be remembered that only way to reduce the manufacturing cost of dog kibble is for it to be made with cheap grain filler as one of its primary ingredients. Ongoing Zinc Deficiency through Malabsorption will eventually cause the illnesses that are associated with this

disorder.

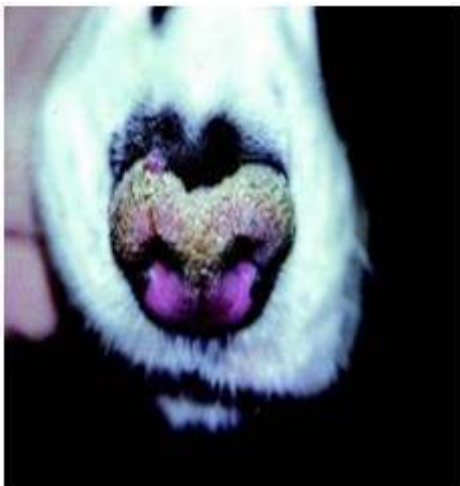
Husky owners who think that they are saving money by feeding their dogs cheap food, will eventually end up losing any money they may have saved on food to ongoing vet bills because of their dog's endless medical issues caused by long term Zinc Deficiency.

Zinc Responsive Dermatitis

These raised patches of hard crusty areas are not only itchy for your dog but they also spread. Far too often vets focus on trying to make the symptoms of this condition go away without fully understanding the root cause behind the problem. These lesions nearly always respond to topical zinc creams but once the cream is no longer administered the lesions return causing yet another trip to the vet.

The Real Problem: The constant unavailability of Zinc begins to causes issues with the skin and coat. This is due to a disruption to normal cell division (another process that requires Zinc) causing the skin to become dry and flaky. Over time, the scaly lesions related to ZRD begin to form and hair growth also can be affected. These skin changes are also attributed to a depressed immune system functioning (another process that uses Zinc) and as well, secondary bacterial skin infections become frequent in dogs with ongoing Zinc Deficiency.

Below are images of how Zinc Responsive Dermatitis (ZRD) commonly appears in Huskies.



Immune System Related Illnesses

One of the cells responsible for good immune system functioning are the T-cells. These cells are responsible for a large part of the immune system functioning. Their job primarily is to help recognize foreign invading cells like bacteria, viruses, and even cancer cells.

Without sufficient T-cells or T-cells that do not function well, the immune system has trouble recognizing normal cells and invading foreign cells. This can cause immune system over-reactions (chronic inflammatory responses) or under - reactions (on going infections and wounds that do not seem to be

able to heal). The constant use of antibiotics to fight ongoing infections only causes more intestinal issues as all the intestinal bacteria is killed off causing digestive issues.

The Real Problem: Zinc is essential for T-cell factor production. Without adequate available Zinc, the dog will have seemingly endless issues with infections and inflammations. Antibiotics and other drugs serve only as band-aids to address the symptoms of a greater root problem. This problem stems from Zinc Deficiency. When Zinc is made available to the body many of the secondary and tertiary immune system problems dissipate. The rampant inflammation process can attack the Thyroid which will cause endless other symptoms in the body.

Thyroid and Thyroid Gland Problems

The Thyroid Glands are a pair of butterfly shaped glands located at the base of the neck. It is found nestled where the trachea enters the chest. The job of the Thyroid gland is to send a signal to the Thyroid to produce hormones and to secrete and regulate the hormones that are ultimately responsible for metabolism and organ function.

When there is a Thyroid deficiency or when the body's immune system mistakenly attacks the Thyroid glands, a host of symptoms begin to manifest in your dog including: brittle hair, hair loss patterns, dry flakey skin, weight issues, persistent infections, organ failure, and digestive issues with lack of normal stool. Your Vet will begin chasing and treating the symptoms as they appear in your dog but unless the root issue is addressed, the dog will continue having endless medical issues.

The Real Problem: In the hierarchy of how Zinc is used in the body, Thyroid is in the middle of the group. Once available daily Zinc supplies have been depleted, the rest of the body processes remain incomplete. This occurs as a direct result of an attempt for the body to remain in Homeostasis (balance body). The body pulls available Zinc to where it feels it is most vitally needed leaving other body processes incomplete.

Eventually the Thyroid gland cannot signal the Thyroid to produce hormones

and the Thyroid no longer has the ability to produce adequate hormones. Long term hormonal imbalance takes its toll on the health and well being of the body. With sufficient available Zinc levels, this chain of symptoms can be avoided.

Note: It has been discussed in previous articles how neck collars and dogs constantly pulling against the leash can cause trauma to the Thyroid which in turn can cause Thyroid failure. Make sure you protect your dog's Thyroid by avoiding the use of neck collars on dogs that pull against the leash.

Major Organ Failure

As you move down the hierarchical list of how and where Zinc is used in the body, the support to major organs is nearing the bottom of list. If other body processes are in long term deficit and in a state of incompleteness, then they are not able to further support the functioning and well being of the major organs.

As already mentioned, Vets will tend to focus on and treat the symptoms being exhibited by the failing organs. This will be a band-aid effort at best as continued lack of sufficient Zinc causes more and more symptoms to appear in your Husky.

The Real Problem: Without adequate and available daily Zinc to complete all the body processes, over time, the health of body organs will begin to suffer. Often one of the pre-cursors to organ failure was the Thyroid not functioning well.

Trying to treat the individual symptoms of each individual organ without addressing the root cause of the issues, Zinc Deficiency, and the lack of sufficient hormone secretions from the Thyroid, will not solve the medical issues. As a matter of fact, as this disorder progresses, the symptoms will continue to mutate and advance, creating more and more medical issues as overall health and well being declines.

Epileptic Seizures and Idiopathic Seizures Activity

While some vets will tell you that some Huskies and Malamutes are predisposed to having epileptic seizures, not too many of them can explain to you why this is so since there really is no definitive gene marker for this issue making it a true genetic disease. But at the same time it seems that [Epilepsy](#) and Seizure Disorder do run in certain genetic lines. Veterinary medicine can tell you the process by which a seizure happens (neuroreceptors in the brain firing erratically) but they know very little about how to control it.

There are a host of drug therapies that are commonly prescribed and they seem to work inconsistently. Even with the introduction of prescribed anti-seizure medication there are no guarantees that your dog's seizures will be controlled. At best, attempts are made to manage this disorder.

The Real Problem: One part of the problem is that without adequate available Zinc, Taurine uptake is impeded. Without adequate Taurine in the brain, neurotransmitters in the brain are over excited and may fire randomly, causing a seizure episode. Seizures can be very minor (momentary fixed staring) (Petite Mal) to full seizures with loss of consciousness (Gran Mal). Having adequate Zinc available may help in at least part with limiting seizures from happening.

The other part of the problem is that your Huskies genetic makeup and health are primarily inherited from the parent dogs, especially from the mother. Since we know that Zinc needs to be present for DNA and RNA replication and for normal cell division to take place, puppies born to parents with Zinc Deficiency are very likely to already have faulty genes that further predisposes them to the illnesses that were discussed earlier in this article. So it is that Zinc Deficiency can have far reaching effects that can be passed on to future generations of offspring.

This one of the main reasons why breeding of Huskies and Malamutes should only be done by seasoned well informed ethical breeders, who are well aware of the heavy Zinc requirements of this breed. The issue of Epilepsy and Idiopathic seizures in Huskies are best addressed by the prevention of the condition through ethical and knowledgeable breeding practices and by not breeding any dogs that present with symptoms of Zinc Malabsorption.

The other strategy is for potential Husky owners not to purchase or get dogs from back yard breeders and Puppy Mills who have no knowledge of how to support the mothers while the puppies are gestating. The only “cure” for this issue lies in prevention of the problem. Once the problem manifests itself all we have at our disposal are methods of managing the problem.

Correcting Zinc Deficiency



In the first part of this eBook I talked about how Zinc Deficiency and Malabsorption were often the root cause for many of the mystery illnesses and conditions that we see in our Snow Dogs.

These problems are often misdiagnosed or not understood by vets who are not familiar with the specialized needs of our Snow Dogs. In this chapter I discuss how through diet and supplementation, you can often correct these medical issues in your Snow Dog. But before you begin this protocol please ensure you've read the first chapter.

Why Is It Many Vet's Don't Know This Information?

I often get challenged by people who feel that if the information that I am presenting to them were valid or had merit, then their Vets would be already be aware of it. Sadly, this is not necessarily true.

When you take your dog to a licensed Veterinarian, they have gone to school to learn Veterinary Medicine. The information they learn is based on not

necessarily what is true or possible, but what has been acceptably proven and accepted by the College of Veterinary Medicine. When their treatment protocols are followed, it means that there is a medical precedent for a certain treatment and the use of a medicine as the cure can be medically proven *to their standards of satisfaction*.

And here begins the problem; it does not matter if a supplement or alternative medical protocol is effective in helping a dog with their medical issue. If it has not been tested and scientifically proven to the satisfaction of the Allopathic Medical community, then to them the protocol is unproven and has no legitimacy. It does not matter that the proof is self evident when a dog's health begins to improve after using an alternative treatment protocol. All that will matter is that the protocol has not been "proven" to be effective as far as they are concerned.

While I have no issues with the need for quality control, testing, and legitimacy when it comes to issues of health and medicine, there comes a point where every vet should be questioning their own ethics and medical practices. When your job is to give medications that cause more harm than good and you prescribe them without question because it is the "medically accepted form of treatment", this now starts to fly in the face of what it is that we want and need from our medical professionals when our beloved animals become sick.

Thank goodness that there seems to be a growing trend among vets whereby they see the limitations caused by the Medical Model their profession is required to follow and they are striving to change the face of modern Veterinary Practice. There are already a few notable internet vets who are actively trying to incorporate Holistic Healing and Allopathic Medicine such as [Dr. Karen Becker](#), [Dr. Peter Dobias](#) and [Dr. Richard Pitcairn](#). There is a place for both of these Medical Models. Used together, they can truly help our dogs in their greatest time of need.

But for now, many of us feel frustrated by the current level of understanding that our Vets have when it comes to our dogs, especially our Snow Dogs and their specialized needs. Many of us have had to become advocates for our

dogs' health. However, I don't recommend nor advocate for people to begin randomly giving their dog supplements without fully understanding the principles and the science of what they are doing. Alternative medical interventions can and do work but people must educate themselves before they begin implementing these protocols with their dogs.

Zinc And The Husky Diet

In the previous chapter I discussed the common ailments caused by the absence of sufficient Zinc. Chronic Digestive Issues, picky eating, Zinc Responsive Dermatitis, Immune system illnesses, Thyroid issues, organ failings, and Seizure Activity all have a common factor, Zinc Deficiency as the catalyst for these problems. While it makes sense to add sufficient Zinc levels back to the diet of the Husky in an effort to overcome Zinc Deficiency, it makes even better sense to make sure that we find the best and easiest to absorb forms of Zinc for our Snow Dogs.

While every Snow Dog needs a higher than "average" amount of Zinc in their diet, not every husky diet automatically needs massive amounts of Zinc supplementation. If your Snow Dog shows the symptoms that I discussed in the previous chapter, you may be able to rightly assume that your Husky's diet could indeed use some extra supplementation. How much Zinc does your dog need and how best to introduce it to your dog's diet?

High Zinc Needs For Northern Breed Dogs

It is really not understood why these Snow Dogs have such a high Zinc requirement but it is commonly believed that it has something to do with the [Prey Model diet](#). A wild canine's diet is rich in fish, meats, and offal. While we may have domesticated dogs, the dietary requirements of some breeds still heavily reflect their origins.

Before resorting to mineral supplementation, check your dog's diet to see if improvements can be made there first.

Things you should be aware of regarding your dog's diet:

- Make sure that your Snow Dog is on a grain free diet. Kibble diets that are high in wheat, corn, or soy will tie up available Zinc and can be one of the largest contributing factors to the Zinc Deficiency problem. Sometimes removing this one factor is enough to correct the Zinc Deficiency in your Husky.
- Not all protein bases will yield the same amounts of Zinc in your dog's diet. Kibble diets that rely on meat by-product or heavily processed meat as their protein base will NOT yield sufficient daily Zinc total. Diets that use whole meats as their protein base yield much more available Zinc to your dog. Adding fresh meat to your dog's diet can increase Zinc levels naturally. Just adding 100 grams of beef, salmon, or chicken can supply 100mgs of Zinc to your dog.
- Mediocre dog food manufacturers add zinc to dog food but they add a cheap source of Zinc Oxide or Sulphate to their food. These forms are not easily absorbed or used by the body so it can be easy to assume that your dog is getting enough Zinc in his diet because of what it says on the dog food label.

[Dog food Advisor](#) is a great source of information regarding your dogs food, they review the majority of commercially available foods.

Foods That Are Naturally High In Zinc

- Most meats, 100 grams yield 100 mgs of Zinc (beef, chicken, duck, pork, salmon)
- 100 grams of the following foods yield Zinc in the following quantities:
- Turkey 120mgs
- Lamb 150mgs
- Liver 130mgs
- Tuna in oil 120 mgs
- Eggs 70mgs
- Apples, blackberries, and strawberries 100mgs
- Plain yogurt 200mgs
- Carrots (raw) 50 mgs
- Potato (baked) 120 mgs
- Pumpkin 100 mgs

- Sweet potato and yams 100mgs
- Peanuts(raw) 5 = 25 mgs

Adding Kelp and Seaweed To Your Husky's Diet

Kelp and other green food products are beneficial to your dog's diet as they provide not only Zinc (100gr = 1.23 mgs of Zinc) but a wide range of other vitamins, minerals, and nutrients. By adding a tablespoon of this green food to your dog's diet 2 or 3 times a week you can help naturally support your Snow Dog's thyroid and top up his Zinc levels.

Adding Fish Oil

Because fish naturally contains Zinc, so will fish oil. Along with the Essential Fatty Acids found in oil, this is a wonderful nutritional additive for the Snow Dog diet. However, there is such a thing as too much fish oil. More oil is not necessarily better for your dog. Healthy doses of this oil should remain 100 mgs to 150 mgs per 10 pounds of dog weight administered 2 or 3 times a week.

Too much fish oil can deplete necessary Vitamin E in the body causing other health problems, can supply too much Vitamin A to the body causing other health problems, and cause an imbalance between critical omega 3 and 6 fatty acids ratios in the body also causing other health problems. Remember to factor in the all the other sources of Essential Fatty Acids in your dog's daily diet when choosing how much fish oil to give your dog.

Adding A Zinc Supplement

If you have adjusted your dog's diet and you have not seen any improvement you may want to consider adding a Zinc supplement to your dog's diet. There are several types of supplements for you to choose from.

Zinpro

There is a commercially produced product used for supplementing Zinc to a Husky's diet. Zinpro is an organic supplement that links Methionine with Zinc to create Zinc Methionine. This product is easily absorbed directly into the

blood stream. This product also helps to produce and support healthy coat and skin in Snow Dogs.

Adding A Zinc Mineral Supplement

Before you add a Zinc Mineral supplement to your Snow Dog's there are some things that you need to know about Zinc.

Things You Need To Know About Zinc

Zinc is the second most utilized trace mineral in the body, second only to iron. The body does not really have a way to store or bank Zinc so sufficient daily levels must be introduced. Dogs need more daily Zinc than humans do. A human being needs only 15 mgs of daily Zinc, while dogs, especially Huskies, need substantially more of mineral in their diet, sometime up to 100mgs. Calculating how much Zinc your Snow Dog gets in his diet is a complicated thing to figure out and this amount seems to vary slightly between Huskies.

Usually the only way to know that your Husky is not getting enough Zinc is when they develop one of the aforementioned illness or health conditions. Before supplementing Zinc, you also need to know how Zinc interacts with other nutrients in the body.

Nutrient Interactions With Zinc

Adding the mineral Zinc to your dog's diet, when done incorrectly and for the wrong reasons, can cause other medical problems in your dog because Zinc will interact with the copper, iron, calcium, and Vitamin A levels in your dog's system.

- High Zinc levels can cause problems with copper availability and absorption. Copper is needed in a number of body processes. It aids in the absorption of iron, in the development of red blood cells, and assists with the formation of collagen, bone, and connective tissue. It also acts like an antioxidant in the body.
- Iron and Calcium levels are affected by too much Zinc, and too much Zinc

affects the iron and calcium levels in your Husky's body. Too many raw bones fed can cause too much calcium in the diet. Calcium is necessary for strong bone health. It also helps the heart muscle to contract efficiently, helps with nerve transmission, and with hormone secretion. The primary function of iron is that it combines with copper and protein to create haemoglobin to oxygenate red blood cells. Iron also works synergistically with some enzymes to create and maintain many normal body functions.

- Vitamin A and Zinc also work synergistically. Zinc is a component of a retinol-binding protein that is necessary to transport Vitamin A in the blood. This protein is also necessary for the eye to be able to see well in low light conditions.
- Feeding a Raw Diet that is not well balanced can further cause a problem with Zinc, calcium, and copper levels in your Husky. Feeding a disproportionate amount of raw bone, liver, and heart will cause adverse interactions between these minerals so make sure you understand how to feed a well balanced Raw Food Diet.

Zinc Toxicity Levels

Zinc does have a toxicity level in the body but because there is no way to store Zinc in the vital organs, toxic levels of Zinc come from one time large doses. Single doses of 225mgs to 450 mgs will cause vomiting in a dog. Lethal doses of Zinc begin at about 900mgs.

The signs of Zinc toxicity in dogs are vomiting, diarrhea, lethargy, jaundice, excessive panting, rapid breathing with rapid or erratic heart rate. They will also have excessive haemoglobin levels in their blood and urine. Emergency medical intervention is necessary to deal with the rapid destruction of red blood cells and the high possibility of organ failure so make sure that you keep Zinc tablets out of the reach of dogs.

Do All Forms Of Zinc Work Equally Well For My Husky?

No, not all forms of Zinc work as well to add available Zinc to your dog's diet. There are several different forms of Zinc that you could use. Know which forms work well and which ones work less well.

Zinc forms ranked from best to worst:

- Zinc citrate, picolinate and gluconate are very easily absorbable and well utilized by your dog's body. (25mgs up to 100mgs daily)
- Chelated Zinc does not bind to iron so it tends to upset the stomach less than some other forms of Zinc but maybe slightly less absorbable than picolinate and gluconate forms.(dosage is the same as above)
- Zinc Methionine combines Zinc with Methionine and is reasonably well utilized in most dogs. (40 mgs daily dosage)
- Zinc Sulphate tends to be very hard on the stomach causing unnecessary stomach upset. For that reason it is recommended that it be crushed and added in with food but this also makes it less absorbable. (200mgs daily dosage)
- Zinc Oxide is a very cheap and highly un-absorbable form of Zinc. Sadly this is the form of Zinc being used by most mid to low end dog food manufacturers. No wonder so many Snow Dogs suffer from Zinc Deficiency.

Did you know: while Zinc is less likely to cause stomach upset when given after food is in the stomach, it works best when it is given 4 hours after a meal has been eaten. The reason for this is has to do with calcium interfering with the efficiency of Zinc absorption. So try giving the Zinc supplement just before the evening bedtime. There will be food in the stomach but it will be far enough into the digestive process that calcium will not interfere with Zinc absorption.

Calculations For Adding A Zinc Mineral Supplement To Your Husky's Diet

The actual calculation formula for Zinc dosage is a complicated mathematical process guaranteed to leave anyone without a Mathematics degree scratching their heads. But I will share it with you none the less.

The National Research Council recommends the following protocol for arriving at the Recommended Daily Allowance for dietary zinc for dogs.

It is 2.0 mgs/ KGbw/0.75.

For those folks who like a challenge, here are the instructions of how to use this number to arrive at the dosing rate for Zinc:

To figure out the individual dog doses for Zinc, take the body weight in kilograms to the power of 0.75 and then multiply this number by 2.0 (used for Zinc) These numbers are used to calculate all dietary requirements, including energy.

For a 50 pound dog that would be Pounds = 50, and pounds to kgs = 22.68 kilograms.

1. Now take that number to the power of 0.75 – using a calculator set to Scientific, that function looks like this: x^y
2. Now you have the “magic number” – 10.39.
3. Next, multiply this number by 2.0 and you have 20.78 mgs. For ease use 21 mgs daily.

OR you can just use the average rule of thumb that says to use about 25mgs of Zinc per 50 pounds of dog weight. Since Zinc toxicity levels, even mild ones, do not really start till after 220mgs and lethal toxicity doses occur after 900mgs, you really do not need precise totals for this process.

Start your Zinc dosages at this level and if you have made all the other dietary adjustments and you have tried adding 25 mgs of mineral Zinc and you still do not see an improvement in your dog in six weeks, you can move the daily dosage up to 50mgs or in some cases you may need closer to 100mgs daily to see marked improvement.

Please, use good judgement when adjusting your dog’s diet or adding supplements to your dog’s nutritional intake. Whenever possible check with your Vet before adding any of these interventions to assure your dog’s safety and well being.

Zinc Deficiency And Seizures



Jhett

December 06, 2009 – April 18, 2014

This week I have been discussing the implications of Zinc Deficiency and Malabsorption in Huskies. Today I will be discussing another issue that has its roots firmly planted in Zinc Deficiency and Malabsorption, seizures in Huskies.

Whether your dogs have been diagnosed as having Epilepsy or Idiopathic Seizures, there is no more heartbreaking sight than to be forced to stand by helplessly watching your Husky convulsing on the floor having a seizure. I will be discussing what seizures are, how Zinc plays a part in this issue for Huskies, and I will give you interventions that you can use to either lessen your dog's condition or lessen the chances that your dog will ever have a seizure.

There Has To Be A Better Way

As you may, or may not know, one of my Siberian Huskies, Jhett, was diagnosed with Idiopathic Seizure activity when he was only 14 months old.

When I took him to the Vet she determined that he did most likely have a Gran Mal seizure. I had no question that he had a Gran Mal seizure because sadly Jhett was not my first Husky to have seizures. I knew without a doubt what had happened.

My very first Husky, over thirty years ago also had seizures but Misty really did not start having seizures until she was five years old. I did not start medicating her until she was the age of seven. I had hoped that I would never have to be dealing with this issue again and yet here I was, standing in the Vet's office, and basically hearing the same few tired options for treating and dealing with seizures being laid out to me again.

The Same Old Thing

How was it that in over 30 years of medical advancements this condition in Huskies was no better understood now than it was then, nor were there any real advances made as far as solutions to this problem were concerned? Are all Husky owners just relegated to being at the mercy of this condition? Are we just doomed to keep waiting and wondering if it will leap out at our dog from behind the bushes like some terrifying Boogie Man? Why does no one offer us Husky owners any new answers or information as to what we can do to save our dogs from this fate?

I was not satisfied hearing the old tired pat answer of "predisposed" being tossed around by the Veterinary Community. Vets will tell you that Epilepsy is not a genetic condition and yet breeders and experienced Husky owners will tell you that this condition does tend to run in certain lines. So if there is no gene marker for this condition then why does it run in certain lines? There has to be some explanation as to why this happens in a portion of these dogs. And if this condition is not truly gene linked then there must be something that we can do to prevent this condition from manifesting in our dogs.

Searching For Answers

With my first Husky I followed my Vet's instructions and medicated my dog using Phenobarbital after the seizures started happening more frequently. I really had no appreciation for how lucky I was with my dog because she only

needed a small amount of this drug daily and she never had other seizures again. Not everyone is so lucky. It did however take its toll on her liver. She passed away at eleven years old but I feel that if it were not for the effects of the meds on her liver, she would have had a few more years of life left in her.

With Jhett being only 14 months old I was very reluctant to start medicating him with anticonvulsive drugs so I decided that if the Vet could not give me better answers I would have to find them myself.

And so began a 4 month long regime of looking for answers from everywhere. I read breeder blogs. I asked questions. I looked for patterns. I compared notes. I read books on genetics, biology, animal husbandry, homeopathy, and medicine. I was determined to find answers to how this non-genetic condition manifests itself like an inherited disease in our Snow Dogs.

Luckily, I have a diverse background in Science and Alternative Medicine that allowed me to have a very good understanding of these fields and that allowed me to start slowly and painstakingly start piecing together a picture of what is truly at the root of this issue for Snow Dogs. This is where I first started to make the Zinc Deficiency and Malabsorption connection and to realize how pervasive and important this issue is for this breed of dog.

Zinc And Seizures

In the previous two chapters, Zinc Deficiency: The Hidden Cause Of Chronic Sickness In Huskies and Correcting Zinc Deficiency In Huskies, I discussed the issue of how a lack of Zinc causes so many of the medical problems that can plague Huskies.

Epileptic Seizures or Idiopathic Seizures are one those conditions that can be caused by insufficient available Zinc to complete body processes. The “end of the line” body process calls for Zinc to be present to help with Taurine (an amino acid) uptake, which among other things, works to smooth over neurotransmitters in the brain. When Taurine cannot do its job due to a lack of available Zinc, the outcome over time is the brain starts firing irritated electrical impulses randomly and erratically. This is a very simplified description of a seizure.

In the previous chapters I also described how there are two major issues for Zinc Deficiency in Huskies: either there is an insufficient amount of Zinc contained in the Husky diet via poor quality food OR there is sufficient quantities of Zinc in the body but it cannot be properly absorbed in the intestine and utilized by the body. Both cases result in Zinc not being available to fully supply the daily amounts needed to complete all the body processes. Long term Zinc Deficiency is a very strong catalyst for many of the common medical conditions that exist in Huskies and Malamutes, one of those conditions being Seizures.

My Husky Had A Seizure. Now What Do I Do?

If your dog has had a seizure event your Vet will want to make an accurate diagnosis. Unfortunately, seizure activity is diagnosed in an odd way. The Vet will test to rule out other contributing factors for the seizures and if they do not find evidence of other underlying factors, then Idiopathic Seizure activity becomes the diagnosis. Once the seizures begin happening with some regularity (more often than once a month), then the diagnosis changes from Idiopathic (seizures with unknown causes) to that of Epilepsy. For the diagnosis of Epilepsy to be made the seizures must happen often and the episodes must be similar in nature.

If your dog has begun to have seizures you will want to start keeping a detailed log about your dog's seizures. Document the date, the dog's behaviours leading up to the seizure, a description of the actual seizure, and the dog's behaviours after the seizure.

What Is A Seizure?

A seizure is a temporary convulsion due to erratic and uncontrolled bursts of neurological firings in the brain. These firings can be localized and show up in just one limb or the face or they can have an effect on the whole body causing twitching, paddling, or jerking of the limbs.

Different Types Of Seizures

Grand Mal Seizure

The most recognized type of seizure is the Gran Mal Seizure. In this type of seizure the whole body stiffens and alternatively contracts in cycles (tonic/clonic action). During these seizures the dog will not be conscious, will drool, twitch, jerk, and it may urinate and defecate. These seizures can vary in length. They can also appear singly or in multiples called (clusters) where the animal's twitching abates and then starts again into another seizure.

Partial Seizures

This kind of seizure originates in a localized area of the brain so it tends to only involve limited regions of the body. There is no loss of consciousness, only loss of control of the affected body part.

Psychomotor Seizures

This kind of seizure manifests itself with the animal doing certain involuntary behaviours like whining, barking, howling, snapping at the air, or walking in circles. At times this Psychomotor Seizure may be followed by a full Generalized Grand Mal Seizure.

The Stages of Seizure

Most seizures follow a set pattern:

- First, many dogs become agitated or restless because they can feel that something is not right their body and their head (an aura). Some dogs try to hide or they may seek out their owners to look for help. This stage is called the pre-ictal phase.
- Then the dog may start to tremble. His eyes may glaze over. He may jump up and start to grimace or twitch.
- Then (if the dog is having a Gran Mal seizure) he will fall over on to his side, stiffen and begin to paddle his legs. He will twitch, convulse, and contort his body violently. His teeth will clench and clamp down. He will salivate, snort or gasp for air, and he may have trouble breathing. This stage, called the ictal stage, will last for varying amounts of time depending on the dog and

his specific seizure pattern.

- At some point the convulsing ceases and dog starts to regain consciousness (referred to as the postictal phase). However he will not regain all of his senses right away. They may not be able to see well or hear for some time after the seizures. They will often pace, pant heavily, and seem extremely agitated and disoriented. The foggy state can last anywhere from an hour or up to two days.
- Once the postictal phase has passed, most dogs are exhausted and just want to sleep in a darkened room while their brain recovers from this experience.

How To Care For Your Dog During and After A Seizure

During

It is vitally important that you help keep your dog safe before and after this experience. Because a dog has no real control of his seizures, that means that when a seizure strikes he will fall over and have the seizure regardless of where he is at the time. You may have to move the dog to a place where he can be safe while he has the seizure. Move him away from furniture that he can bang into. Move him to the floor so he will not fall off from furniture during the seizure. Make sure that there is nothing for him to get his teeth caught on during the seizure.

Jhett once had a seizure in his wire crate. He often ran to hide in his crate if he felt a seizure coming on. He fell over in his crate sideways and his teeth clamped down on the wire bars of his crate as the seizure struck. Because of the violent nature of the convulsions, I had to dive into his crate with him (good thing it was a large crate) and hold his head as still as I could so that he would not break off his teeth during the thrashing that is associated with the convulsions.

After

After the convulsing stops and the dog begins to regain consciousness, you have to supervise them to keep them physically safe during the post-ictal

stage. Because there can be some temporary blindness and deafness, these dogs can easily hurt themselves by running into walls, furniture, or by falling down the stairs but because these dogs will also feel the need to pace during this phase you really cannot just put them into their crates to keep them safe. Barricade off any stairways and keep doors closed to keep them contained to a small area of the house and allow them to pace until they are ready to stop.

At this time you may need to administer drugs or remedies to the dog. Never try to place something into the dog's mouth during the seizure. Your dog will clamp down on your fingers and you may be injured. It is thought that after a seizure it helps to give the brain some much needed energy so you can rub some honey his gums. When the trashing stops just lift up the skin on his lips and rub honey on his gums. Your dog may feel hot so some cold packs may be held onto the back of his neck or back when the dog stops pacing.

When the dog is ready to lie down and rest he will appreciate a quiet darkened room or crate. Bright light and noise is not welcomed by a brain that just had a seizure. Also make sure to monitor your dog to make sure that he is breathing easily and that another seizure is not about to happen. Some dogs' seizure pattern includes clustering so they may have several seizures in a row with little or no break in between.

Jhett's Final Seizure

While it is believed that most seizures are not lethal for your dog, some are. In April of 2014, after being seizure free for a record 89 days, Jhett had a seizure while he was sleeping on the couch. I ran to help him but instead of his normal seizure pattern he began to have back to back cluster of seizures.

He had a cluster of 13 seizures in under 30 minutes and he died in my arms. I had no chance to take him to the hospital. I had no chance to say good bye to him. I felt helpless and useless as stood by watching him have seizure after seizure. Jhett endured 33 seizures (not counting the final 13) in the 4.5 years of his young life.

Common Treatment Protocols Offered By

Veterinary Medicine

It may come as surprise to many owners of Epileptic dogs that seizures are rarely completely eliminated by the use of anti-convulsant drugs. The intent of using a therapeutic drug protocol is merely to attempt to reduce the frequency and the intensity of the seizures so that a dog can live a more comfortable life. There is no “cure” for this condition. It can only be managed.

Drugs that your Vet may consider using for your Epileptic Husky:

Phenobarbital is probably the most commonly prescribed barbiturate drug. This drug can take a few weeks to build up blood levels where it is able to suppress seizures in your dog. This drug is not without side effects. It has a sedative effect on your dog and it tends to collect in the liver and can cause liver damage. If your dog is taking this drug, regular blood tests will need to be done to check your dog's liver function. This drug tends to also cause excessive thirst and appetite in the dogs who take this medication.

Owners are very surprised to discover that 20% to 30% of dogs' seizures cannot be controlled by only using Phenobarbital. They may also need to use Potassium Bromide, long-acting benzodiazepine. This drug will may be given in addition to Phenobarbital if blood levels show that the Phenobarbital alone has not been effective at stopping the seizures. Potassium Bromide alone is less effective at treating seizures but is not known to cause liver damage though there is evidence that this drug can cause hind end leg stiffness.

It is believed that 25% to 30% of dogs who take a combination of Phenobarbital and Potassium Bromide will still not have their seizures completely controlled by these drugs. If your Husky is still having seizures your Vet may suggest using some of these other anti-seizure drugs:

Primidone

A drug that gets converted to Phenobarbital in the blood stream but has more side effects than the Phenobarbital and it is more expensive.

Dilantin

Used in human Epilepsy but has only a limited function in treating Epilepsy in dogs. It works in the same way that Valium does. It is not recommended for long term use in dogs.

Clorazepate

This drug is related to Diazepam and works in emergencies when seizing is out of control. There is tolerance that will be developed so dosage will need to be constantly increased.

Felbamate

While it is low in side effects, it is very expensive as it requires multiple daily doses.

Gabapentin

This is another expensive drug that requires multiple daily doses.

Levetiracetam

This has minimal side effects but is also expensive due to the multiple daily dosing requirement.

Zonisamide

This is a sulfa class anti seizure drug that can work well with more traditional therapies. It has many of the same side effects that you would come to expect from other sulpha drugs.

Alternative Treatment Protocols For Treating Or Managing Seizures

There are many supplements that you may wish to consider giving your Epileptic Husky. Many of these can be given in conjunction with anti-convulsive medications. Always check with your Vet for possible drug interactions.

Fish oil can be added to your dog's diet. Essential Fatty acids help with good brain functioning. Anything that allows your Husky's brain to function more optimally is likely to be helpful in this situation. You can safely add 1000mgs – 1200mgs of fish or krill oil to your dog's diet.

Taurine can be supplemented to help with calming down synaptic firings in the brain. You can try adding 500mgs – 1000mgs of L-Taurine to your dog's daily diet.

Zinc can be added to your dog's diet to help bring available levels up in the body. Use picolinate, gluconate, chelated forms or methionine forms. Avoid sulphate or oxide forms. Starting dosages are 25 mgs per 50 pounds of dog weight given once daily. These dosages can be incrementally increased to 50mgs and then up to 100mgs given once daily. Mild Zinc toxicity starts at just over 200 mgs as a one time dose. Lethal toxic doses begin at 900 mgs.

You may wish to add nutraceutical products that add Zinc to the diet like Zinpro and Nutrazinc.

You may also consider using a herbal combination like Neuroplex, to aid in brain functioning.

There are many Homeopathic Remedies that work to support brain functioning but because Homeopathy work very specifically with individual constitutions, you really should consult a qualified Homeopathic Doctor to help you choose the best remedy that matches your Husky's presenting constitutional issues.

My long time good friend and Jhett's doctor is Dr. Terezihna Jones. Dr. Jones has many years of experience in this field and she also teaches Homeopathy for the British Institute of Homeopathy. Many consults can be done over the telephone and remedies will be mailed out to you usually the same day. You can contact Dr. Jones here, <https://www.facebook.com/ZihnLight>.

Canine Chiropractors are often not thought of when it comes to Epilepsy but due to the violent nature of the convulsions the neck and head are often out of alignment. Nearly everyone who has violent seizures will have C1 jammed

up into Axis in the skull. When the spine is out of alignment it interferes with how electric impulses travel in the body.

Diet Considerations

You are what you eat holds true for dogs too. To make sure that the brain functions optimally, a good diet is a must. Foods should be high quality food, with good protein sources, no animal by-product, and no chemical preservatives.

As wheat, corn and soy, create phytates in the digestion and phytic acid binds to Zinc making it unavailable to the body, these grains should be removed from your Husky's diet.

Make sure that you add lots of foods that naturally high in Zinc. A detailed list of these foods can be found in the second chapter, Correcting Zinc Deficiency In Huskies.

Lastly, if you are feeding an all Raw Diet or a Home Cooked Diet make sure that you understand how to feed a diet that is properly balanced in vitamins and minerals to avoid creating a zinc deficiency in your dog. Please refer to my article, The Husky Diet: Raw Food and Cooked Homemade Diets for more information on this topic.

Prevention Rather Than Management

Once your Husky has this condition you are now relegated to managing it as there is no known cure. You can use one of the many protocols listed above to help manage your dog's condition. You may even be lucky enough that a management protocol will be enough to keep your dog from having more seizures. However, if your dog has this condition he will ALWAYS be predisposed to Zinc Deficiency and this will make him predisposed to having seizures.

The best way to avoid the heartache of being relegated to your managing this disease in your Husky is to avoid the circumstances that yield Zinc Deficient Huskies. Prevention of this condition is crucial to having a healthy husky. If

you are thinking of obtaining a Husky and it comes from one of following situations, rethink your purchase!

Prevention Of Predisposition To Zinc Related Issues Is The Key

- The **only way** to prevent a dog from being predisposed to Zinc issues and for seizures is not to pass on the condition of predisposition.
- Never breed dogs that have seizures in their lines. Scientific test breeding of epileptic dogs was done and it showed that 38% of dogs born to one epileptic parent also had the condition. And 100% of the dogs born to two epileptic parents were also epileptic. These dogs should never be used for breeding. If breeder is breeding known epileptic Huskies, walk away very quickly from the deal. No deal is worth having to manage a sick dog.
- Never buy puppies from lines that have Epilepsy in them. Reputable breeders don't produce poor quality puppies but unscrupulous breeders to sell these dogs. Do your homework and run a check on the breeding lines before purchasing a puppy from a breeder.
- Never buy dogs from inexperienced backyard breeders or puppy mills. Your puppy's health will only be as good as the health of the parent. If the Mother is fed a Zinc poor diet, the puppies are automatically going to be predisposed to having a Zinc Deficiency and all the conditions that go along with this condition. That means that when you buy a poorly bred Husky you are automatically in danger of buying a dog who will be also be predisposed to having seizures.
- Before committing to buying a dog from a breeder, ask about the diet he feeds his Huskies. If he feeds a diet full of grains, a poor quality diet, or a Zinc poor diet, pass on buying a dog from them. These puppies will most likely be predisposed to Zinc Deficiency.

How To Spot A Husky Who Is Predisposed To Zinc Deficiency

The common characteristics of Huskies that are predisposed to Zinc Deficiency:

- The Husky may be smaller in size than is considered normal for the breed. It

may be very fine boned. This occurs because Zinc Deficiency is related to incidence of Dwarfism.

- The Husky has constant issues with digestion, elimination, or with very poor appetite or a failure to thrive.
- The coat is dry, brittle, or patchy instead of deep, soft, and luxurious.
- The Husky has raised crusty patches of dermatosis around the nose, eyes, mouth, groin area, or on the paw pads.
- The Husky has Thyroid issues.
- The Husky has seizures.

What You Can Do To Prevent Your Husky From Becoming Zinc Deficient

If your Husky shows no signs of being Zinc Deficient here are some things to do to keep them from becoming Zinc Deficient:

- Feed your Husky a breed appropriate diet right from the start.
- Make sure that the protein sources in his diet come from whole meat and not from meat by-product. Use no food that is filled with chemicals and preservatives.
- Feed foods that are naturally high in Zinc so that your Husky never falls into Zinc deficit.
- Feed a no grain diet as wheat, corn, and soy make Zinc unavailable to the body.
- Be an informed Snow Dog Owner. Know the special requirements of this breed to prevent problems from every happening in the first place.

It is my fondest hope that this eBook serves to inform the public about the devastating affects of Zinc Deficiency in Huskies and Malamutes. If I can prevent this horrible condition from manifesting itself in your Snow Dog then Jhett's condition will served a higher purpose.



Helping ALL Snow Dogs ... one owner at a time.

Link index

Zinc Deficiency: the hidden cause of sickness

http://en.wikipedia.org/wiki/Zinc_deficiency

<http://www.nlm.nih.gov/medlineplus/ency/article/000299.htm>

<http://en.wikipedia.org/wiki/Epilepsy>

Correcting Zinc Deficiency

<http://healthypets.mercola.com/sites/healthypets/dr-karen-becker.aspx>

<http://peterdobias.com/>

<http://www.drpitcairn.com/>

<http://rawfeddogs.org/rawguide.html>

<http://www.dogfoodadvisor.com/>

Zinc Deficiency And Seizures

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