

# Nutrition

Plus environmental exposures



## Essential Vitamin & Mineral Testing

Every pet has specific nutritional needs. Testing helps tailor their care by identifying nutrients they require while also uncovering potential environmental exposures.

**VDI Laboratory**

*The Right Tests for the Right Decisions®*



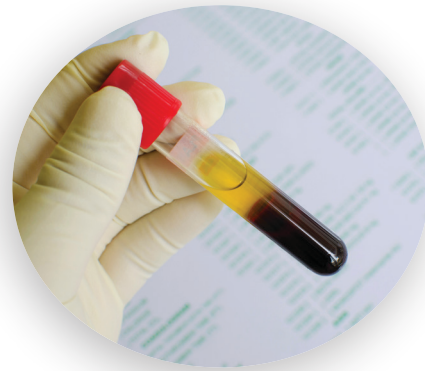
**VDI®**

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# Essential Vitamins – Serum

Testing essential vitamin levels in dogs and cats is a key aspect of preventive healthcare and is critical for assessing their overall well-being. Regular monitoring helps veterinarians evaluate whether pets are receiving a nutritionally balanced diet that supports proper growth, immune function, and organ health. While many commercial pet foods (and home-prepared meals) claim to meet daily nutritional needs, bioavailability—the result of body's ability to absorb and utilize nutrients—can vary widely depending on the quality of ingredients and individual health conditions.

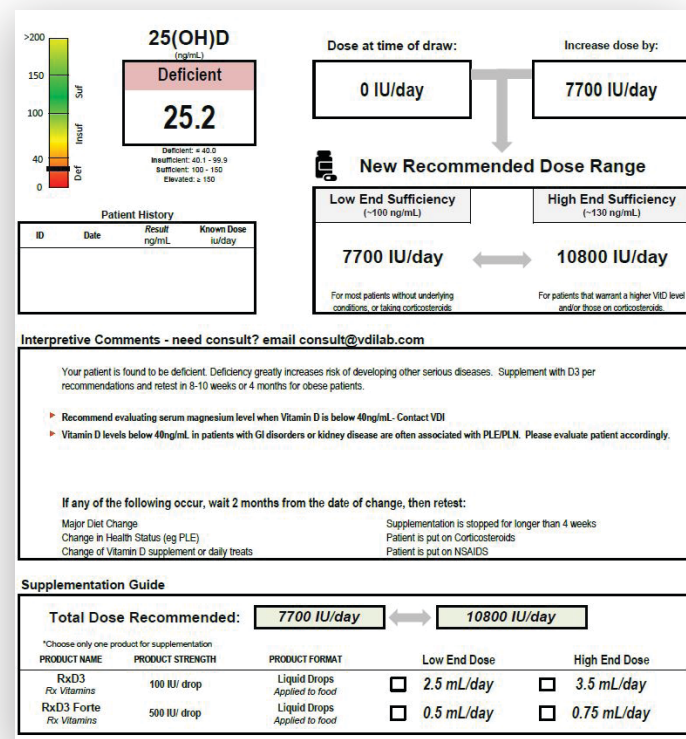


So, evaluating a pet's diet is not only about the quantity & quality of nutrients but also their effectiveness in being metabolized. Factors such as age, breed, lifestyle, and underlying health conditions can all influence how well a pet absorbs vitamins and minerals from their food.

## Test & Treat

Ultimately, the only way to really know what the vitamin levels are is by testing. Regular testing helps ensure that pets are not only consuming the recommended nutrients but also benefiting from them. This proactive approach allows veterinarians to make necessary adjustments, such as dietary changes or supplementation, to prevent long-term health issues and improve a pet's quality of life.

The VDI lab report provides patient-specific dosing guidelines and recommended products, when supplementation is warranted, making it easier to correct deficiencies.

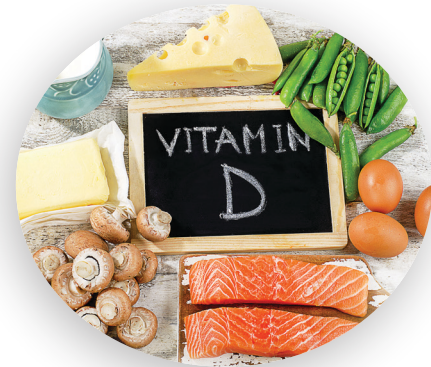


## Vitamin D

Vitamin D is an essential vitamin, however it actually becomes the body's most powerful hormone that supports the innate immune system and a wide range of other functions.

### Why test

Low vitamin D levels have been associated with a wide range of disease, while sufficient levels are anti-inflammatory, pro-differentiating, and anti-proliferative. Over 75% of dogs and cats, without supplementation, are insufficient.



## Magnesium

Magnesium is required for the proper and efficient function of over 600 biological pathways: acting much like motor oil for an engine.

### Why test

Without proper levels of magnesium, all of these 600 processes work less efficiently increasing the chance of dysfunction or impairment. Less than 1% of magnesium is found in blood. This makes hair analysis a great option for determining magnesium levels. Read more on the next page!



## B12 (Cobalamin)

B12 is an important cofactor in a number of important enzymatic reactions, is critical for DNA/RNA synthesis, fatty acid and amino acid metabolism, and general cellular metabolism.

### Why test

B12 deficiencies are associated with anemia, nervous system disorders, immunodeficiencies, cancer, and are an indicator of GI disease. B12 deficiency can cause a "folate trap." Essentially it makes folate unusable in the body.



## Folate

Folate is essential to the production and repair of DNA, amino acid metabolism, brain function, and more.

### Why test

Folate, tested in combination with B12, can provide insights to GI related conditions such as SIBO, Dysbiosis, Cancer, and others. Folate is also produced by the bacteria in the gut. This is another reason gut health (GI microbiome) is so important.





# Mineral Analysis – Fur



## 15 Nutritional Minerals

Identify dietary deficiencies or excesses in the microminerals which are important to a balanced diet.

- Calcium
- Magnesium
- Silicon
- Cobalt
- Manganese
- Sodium
- Chromium
- Phosphorus
- Strontium
- Copper
- Potassium
- Vanadium
- Iron
- Selenium
- Zinc

## 10 Environmental Metals

Metals can be obtained through the environment, by either ingesting, absorbing, or inhaling.

- Silver
- Barium
- Aluminum
- Beryllium
- Gold
- Lithium
- Boron
- Molybdenum
- Nickel
- Tin

## 4 Toxic Metals

Some heavy metals are inherently toxic and great care should be taken to avoid them and eliminate them from the body if present. Proper detox protocols are useful to quickly resolve toxic metal exposure.

- Arsenic
- Mercury
- Cadmium
- Lead

## Metal Accumulation

*Metal accumulation refers to the gradual buildup of metals in the pet, often from industrial or agricultural sources, which can have negative impact on the pet's health.*

### Fact:

Metals don't always get excreted, but rather accumulate.

**16%** of samples that come to VDI for testing have elevated levels of environmental or toxic metals.

### Fact:

Just because a metal is not "toxic" does not mean it does not interfere and cause issues.

Lead, which is similar to other divalent cations like calcium and zinc, can cause them to be deficient when it accumulates.

### Test & Treat:

A range of products are available to help resolve metal accumulation. VDI lab results may recommend products when appropriate to help resolve build up of metals, and support vital organs responsible for eliminating toxins.

# A lot of information from a little bit of fur

## Fur Mineral Ratios

Maintaining proper mineral balance is crucial for the health of dogs and cats. Balanced levels of minerals are necessary for supporting functions like bone strength, nerve transmission, muscle function, and immune response, while an imbalance can lead to various health issues.

- Calcium / Magnesium
- Calcium / Potassium
- Calcium / Phosphorus
- Sodium / Magnesium
- Sodium / Potassium
- Copper / Zinc
- Iron / Copper

## Fur to Serum Ratios

As important as mineral ratios are, even more information can be gathered when both fur and blood tests are performed together. The ratios of these tests, like calcium (fur) to Vitamin D (serum), may provide valuable insight into underlying nutritional deficiencies or certain diseases.

## Mineral & Nutritional Support

Patient-specific recommendations are provided when mineral values are low, metal accumulation is present, or both. Additionally, a list of the minerals that are out of the normal range are provided along with a brief list where they can be naturally found. This can help with balancing the diet and adding fresh food ingredients to improve values.



Product Supplement Guidelines for Posie Nilsen	
For more information, contact Rx Vitamins (800-750-2222) or VDI Laboratory (800-577-6142)	
<p><b>Applicable</b></p> <p><b>Rx Zyme, Rx Vitamins for Pets</b></p> <p>Rx Zyme comes as a high potency, highly palatable powder containing a proprietary mixture of digestive enzymes designed to promote physiologically effective digestive function in dogs and cats.</p> <p>Intended use: Add to digestion of food to improve mineral absorption.</p>	<p><b>DAILY DOSE</b></p> <p><b>1 scoop</b></p> <p>per cup of food</p> <p>Rx Zyme should always be given with food to promote enzymatic digestion.</p>
<p><b>Not Applicable</b></p> <p><b>Rx Clay, Rx Vitamins for Pets</b></p> <p>The clay in Rx Clay has been clinically shown to bind heavy metals in the gastrointestinal tract (GIT) of mammals. While the clay is not absorbed into the body, the presence of Rx Clay in the GIT will bind heavy metals and toxins present in the diet and/or heavy metals and toxins excreted by the liver via the bile duct(s) and lymphatics into the GIT.</p> <p>Intended use: Aid in removal of metals present in the diet or being accumulated from environment, and regulate bowel function.</p>	<p><b>DAILY DOSE</b></p>
<p><b>Applicable</b></p> <p><b>Canine/Feline Minerals, Rx Vitamins for Pets</b></p> <p>Canine Minerals provides macro- and micro-mineral supplementation, specifically calcium for dogs to help balance home-prepared meals and as a general mineral supplement when required.</p> <p>Intended use: Canine Minerals is designed to provide Calcium - Magnesium - Iron - Sodium - Manganese - Strontium - Potassium - Chromium - Phosphorus</p>	<p><b>DAILY DOSE</b></p> <p><b>3.5 scoops</b></p> <p>Split among meals</p> <p>This dose is a total dose for the day. Do not give more than recommended.</p>
<p><b>Supplementing with Canine Minerals:</b></p> <ul style="list-style-type: none"> <li>Supplementation listed above is a total daily dose and should be split among meals to avoid any GI discomfort. If your dog is showing signs of discomfort, excessive flatulence, or other abnormal signs, stop use of the product and consult a veterinarian.</li> <li>The dosage of the individual minerals is very important. Slightly small variations in mineral content in a diet can have significant impact on animal health. Anytime dietary changes are made, it's important to watch for changes in health and behavior, and reset any labwork to ensure proper balance is achieved!</li> <li>This product contains calcium and magnesium, both of which are tightly regulated in the body. If your dog's recent blood work shows abnormal calcium or magnesium levels, consult your veterinarian before starting Canine Minerals. Conversely, if your dog is experiencing issues with the supplement, blood work may be warranted to check blood levels.</li> </ul>	

## Why Fur?

Fur is great for studying a long period of exposure to pollutants or dietary deficiencies for macro and microminerals. Pollutants circulating in the blood, through ingestion or inhalation, are automatically captured by the follicle of the fur when it grows and stays intact. By analyzing fur, we can assess any prolonged exposures to potentially harmful metals, as well as identify any shortcomings the pet's diet may have.

Fur Mineral Analysis is most often indicative of slow, long-term (ie progressive) problems, not acute or transient issues. Additionally, many nutrients are stored in cells, not floating free in the blood, making hair a better representation of total stores of the mineral.



## Detox Protocols

Metal detoxification can be done safely and effectively using a detox protocol. When used in conjunction they can help to remove unwanted toxins from the body and restore the natural ecosystem in the animal. Typical protocols will involve one or both steps below.

### Step 1: Prime

Utilize a chelator to enhance the body's natural elimination of toxins out of cells, while protecting cellular and organ structures that may be vulnerable to the newly released toxins.

### Step 2: Clear

Utilize a binder product to attract the newly released metals and aid in the removal and excretion of the toxins through the gut while protecting the kidneys.



# Testing Recommendations

Knowing when to test vitamins is important to getting the most out the information. Below are some general guidelines for when to test essential vitamins and minerals.



## Healthy pet (routine)

After establishing the adult diet, rechecking levels annually helps ensure the diet is providing enough nutrients to the pet, and helps to make adjustments to supplementation as needed.



## Diet Change

If the diet is changed it is important to recheck essential vitamin and mineral levels. Even small changes to a few ingredients can have an impact to nutrient levels.

## Health Conditions

Certain health conditions may warrant checking vitamin and mineral levels sooner or more frequently than once per year. Some conditions include:

- Chronic GI Issues
- Cancer
- Kidney Disease
- Skin Conditions
- Diabetes
- Heart Disease

## Environmental Exposures

Fur Mineral Analysis may be performed when there is concern of exposure from the pet's environment. Exposures may include:

- Eating food packaging
- Household cleaners/products
- Drinking well water
- Industrial/Manufacturing areas
- At-risk foods (eg. mercury in fish)
- Eating inorganic objects



# Frequently Asked Questions

## I chose/make the best food for my pet, why do I need to test?

Testing ensures that the animal is getting all the nutrients it needs from the diet. A diet can be as perfect as possible, but that doesn't necessarily mean the pet absorbs, stores, and utilizes those nutrients in an effective manner. If you take that much care selecting the best diet, why not be sure it's optimized for the animal?

## There are lots of deficiencies in my results- do I supplement them all?

When multiple nutrients are low, it's usually best to start by selecting a better diet or correcting any contributing conditions like chronic GI disease. Start with those changes and then retest in 2-4 months to see if values improve. Supplement anything that is still low.

## I'm going to change the pet's diet. Should I test?

Testing when you know a diet change will happen doesn't have much value unless you're looking for environmental exposures. It's best to change the diet, wait 2-3 months for the new diet to reach equilibrium, then test to see where you need to supplement or adjust.

## How soon do I retest?

While there are some variables to take into account, here are the general guidelines:

**Essential Vitamins:** 8-10 weeks after diet or supplement change. Once values are normal, yearly retest is fine.  
**Fur Mineral Analysis:** 4-6 months after diet or supplement change.

## Does VDI provide recommendations?

YES! VDI provides recommendations for a number of our tests including Vitamin D, B12, Magnesium, and more. Patient-specific dosing guidelines are provided to give the most accurate supplementation recommendation possible. VDI also provides detox protocols and patient support recommendations.

## Do we have to use the products that are recommended?

No, but we think you should! VDI has selected partners who make products that are shown to be safe and effective - that's why we recommend them. But, if you wish to look at other products, you can use the results of the test, the guidelines we provide, and products of your choosing, to create a plan tailored to each pet.

## Fur Mineral Analysis showed metal accumulation. Now what?

First, see if you can identify the source of the exposure. For example, boron is found in a range of household cleaners. Aluminum is a foil that could be pulled out of the trash (e.g. food wrapper). Do your best to eliminate sources of metal exposure, and when necessary look at detox protocols to help remove it from the body.

## What about Toxic Metals?

VDI provides detox protocols for the toxic metals. Obviously it's necessary to remove the source, but eliminating the toxic metal from the cells is important to do right away.



## Overview

# Nutritional Assessments

**Diet** refers to the food a cat or dog consumes daily, whether it's kibble, raw, or homemade. Each diet varies in protein, fat, and carbohydrate content, typically tailored to their life stage, breed, or health needs. **Nutrition**, on the other hand, focuses on how these nutrients support their overall health, from maintaining energy levels to ensuring proper organ function.

Accurate **testing** is essential because it helps determine the exact nutrient levels an animal has in their system. While a diet might seem balanced, every cat and dog metabolizes nutrients differently. Testing reveals deficiencies or excesses, which can be critical for addressing issues like weight loss, joint health, skin conditions, diabetes, and more. By using information from tests, veterinarians can tailor recommendations, ensuring each animal receives optimal nutrition for their specific health needs.

## Test Options

### Essential Vitamins

#### Serum Blood Test

- Critical Nutrients
- Only obtained through diet
- Deficiency is related to disease
- Sufficiency is preventative

### Minerals & Metals

#### Fur Test

- Micronutrient levels
- Metal accumulation
- Toxic metal (e.g. mercury)
- Evaluates long-term diet

### Other Relevant Tests

- GI Microbiome Panel
- Allergy Panel
- Glyphosate Panel
- Insulin Resistance Panel

*These additional tests may be useful in managing patients with ongoing health conditions, have trouble with the diet & nutrition, or as part of a more integrative approach to care when results are abnormal. Contact VDI to learn more.*

## Contact VDI

**Phone:** 805-577-6742

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