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From the Leash Down

INSIDE

[K-9 health care]

Scent Performance & Protection

The Future of K-9 Scent Performance and Protection

by Lacey Crispigna & Noa Martinsen

No matter what type of scent specialist your dog is (tracking, trailing, air scent), all K-9s face a common threat — progressive diminished scent capability.

The sensitivity of the canine olfactory system is extraordinary. Almost 12% of the dog's brain, and 50% of the nasal chambers are devoted to the sense of smell. In comparison, the olfactory lobes of the human brain are much smaller. In humans, the receptor site contains approximately 5 million cells. Compare this to a German Shepherd, who has approximately 220 million olfactory receptor cells.

Trainers and handlers know that an animal's biology is just part of the scent scenario.

Behavior is equally significant in the performance and success of a task. Here are two examples of what at first glance might seem to be reduced scent ability, but are actually training or handling issues:

1. Experienced trainers know that uninteresting, poorly designed training regimes, over time, will result in the dog becoming so bored that it may appear that their scent ability is failing or otherwise compromised (it's not, they are just bored).

2. A seasoned handler knows that properly managing an animal's performance is one of the most critical and challenging factors leading to the success of a mission. Not understanding the importance of allowing a scent dog the leeway to approach the mission in the way that they excel (and are most comfortable) may actually result in teaching the dog to rely on an overly controlling handler's direction. That is, the dog follows the handler's lead, rather than working to solve a difficult problem on their own. This too may appear to be diminished scent ability. It is not. This is an example learned behavior.

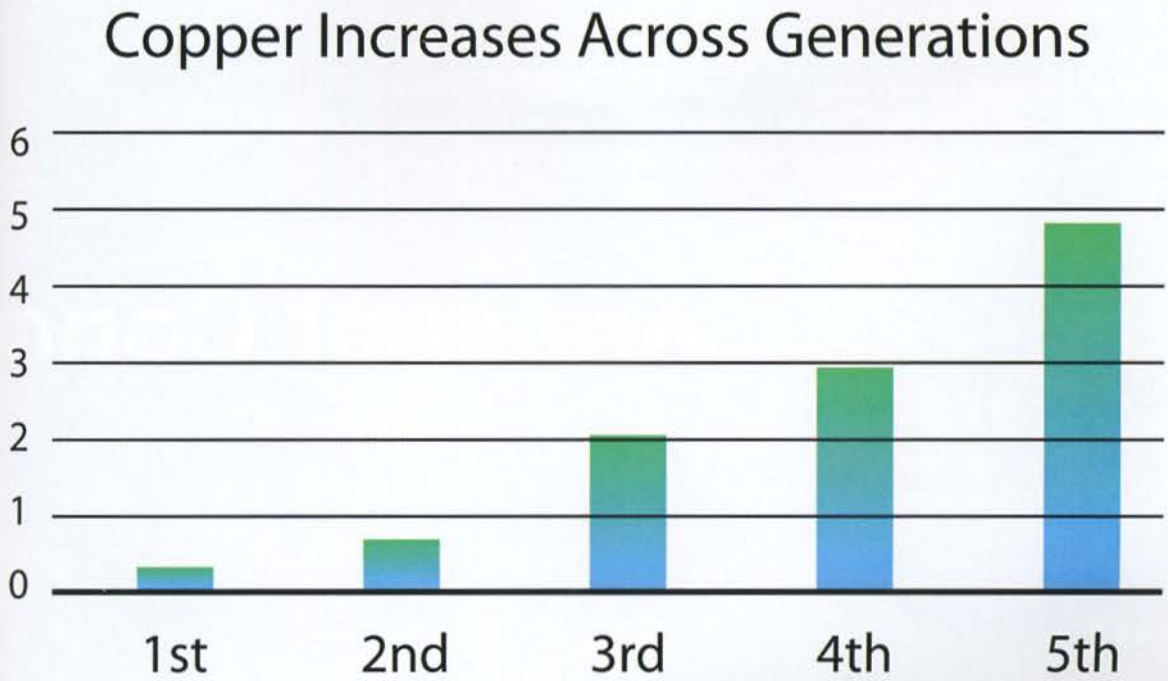
There is another more insidious reason for diminished scent and reduced job performance. One that even the most skilled and experienced trainer or handler cannot address through behavioral education. The remainder of this article will introduce you to the problem of persistent low-level exposure to environmental toxicity.

"Because of the canine's fast metabolic rate, small stature, proximity to the ground and short life span, they suffer the consequences of exposure to environmental toxins relatively quickly."

The Importance of Toxicovigilance

Because of the canine's fast metabolic rate, small stature, proximity to the ground and short life span, they suffer the consequences of exposure to environmental toxins relatively quickly. Everything is made up of molecules (atoms bonded together). At the molecular level, there are unrestricted interactions going on between these toxins and your canine's biology. These interactions create a vast array of subtle (and not so subtle) symptomatic reactions that may fluctuate mysteriously, confounding diagnosis. Symptoms can range from diminished scent ability, fear, confusion, behavior swings and agitation, to physical problems such as skin disorders, digestive problems and all forms of cancer. In fact, cancer is now the leading cause of death in canines two years of age and older.

Toxicovigilance is based on the in-depth medical assessment of acute or chronic toxic exposure. Validation of this medical information must primarily be based on toxicological expertise to help identify causal links between otherwise unexplained pathological conditions and documented toxic exposures. Thus, toxicovigilance can contribute to hazard identification and risk assessment by providing medically validated data, which is often overlooked in the process of risk assessment.



Toxin levels in body tissues increase with every generation, even when exposure levels stay the same. This is because the growing embryo is far more vulnerable than the adult and most toxins pass through the placenta. Since dogs have a much shorter lifespan than humans, increased concentration of toxicity over generations happens more quickly. Dogs also live close to the ground, rolling around, licking and ingesting these toxins and heavy metals that have settled onto our lawns, streets, parks and floors.

Toxicity Threatens Scent Performance

Toxicity poses a serious threat to scent performance, but this threat can be neutralized safely and effectively with the applied science tissue mineral analysis (TMA). A simple, non-invasive lab test can be used to identify evidence of specific toxins in the body by using hair as the tissue sample. The Environmental Protection Agency uses hair TMA to detect heavy metal toxicity as a preferred test method. In addition, hair TMA data can be used to guide a nutrition and supplementation protocol designed to remove toxicity and optimize biochemistry. Hair TMA is an important new tool that allows us to improve the future of canine health. Most of the toxic minerals analyzed in hair TMA tests are known to harm the central nervous system. Thus, these toxins will have a detrimental affect on the brain's processing of scent information.

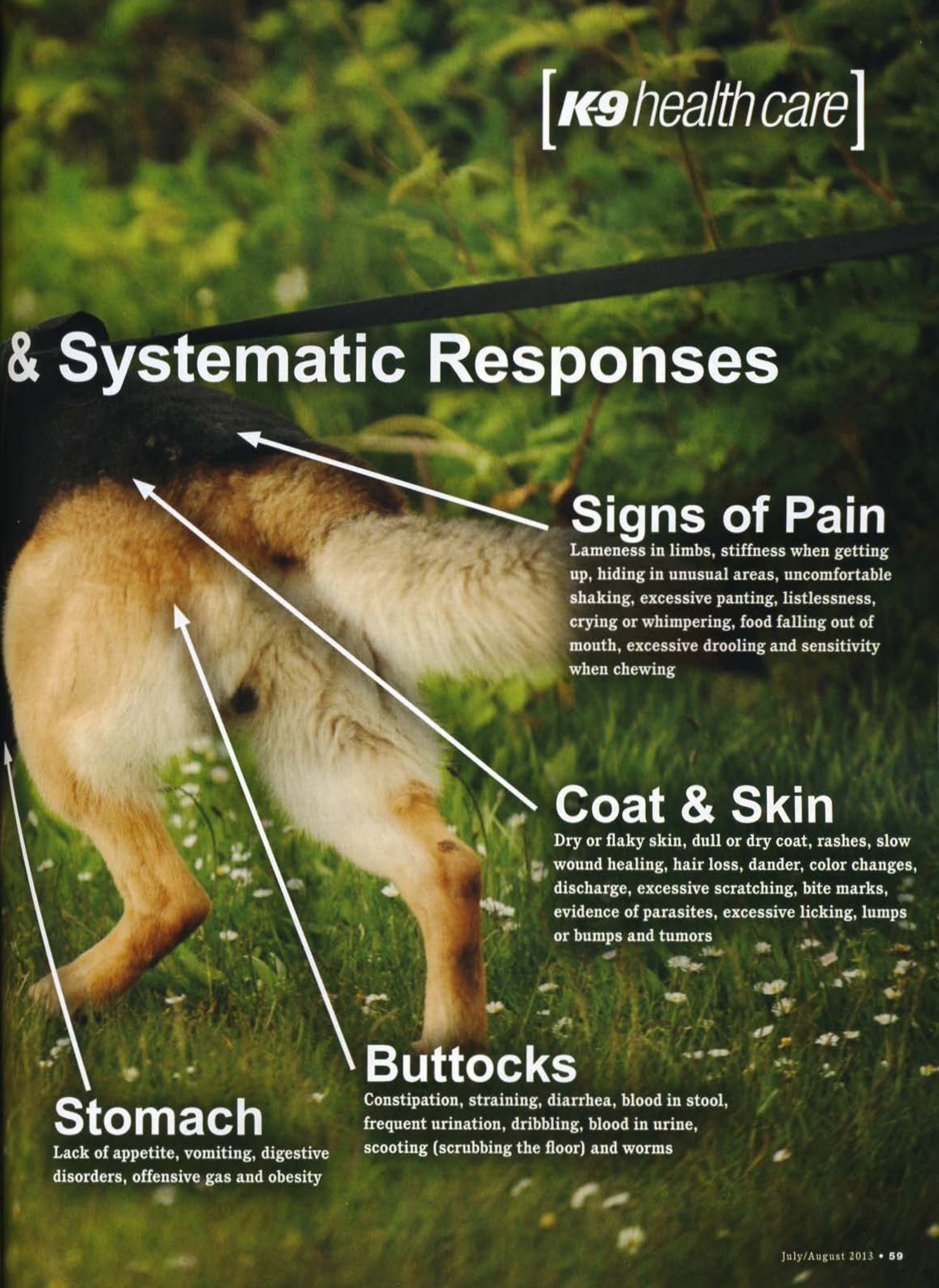
Additionally, these toxic heavy metals cause allergic responses which can result in swelling or plugging of the nasal passages, reducing scenting performance.


photo by Derek Cain

Chronic low-level toxic exposure rarely presents in the form of acute symptoms or reactions. Any of the symptoms listed below could be an indicator that your dog has a toxic body burden that may be affecting his sense of smell (note: some listings also are perfectly normal behaviors, in these instances we are asking if there is new abnormality within these normal behaviors or a gradually occurring problem with no obvious causation):

photo by Derek Cain - derekcainphotography.com

& Systematic Responses



Signs of Pain

Lameness in limbs, stiffness when getting up, hiding in unusual areas, uncomfortable shaking, excessive panting, listlessness, crying or whimpering, food falling out of mouth, excessive drooling and sensitivity when chewing

Coat & Skin

Dry or flaky skin, dull or dry coat, rashes, slow wound healing, hair loss, dander, color changes, discharge, excessive scratching, bite marks, evidence of parasites, excessive licking, lumps or bumps and tumors

Buttocks

Constipation, straining, diarrhea, blood in stool, frequent urination, dribbling, blood in urine, scooting (scrubbing the floor) and worms

Stomach

Lack of appetite, vomiting, digestive disorders, offensive gas and obesity

A Simple Solution

Hair TMA is a non-toxic, non-invasive, and inexpensive health screen that has long been accepted as a routine test for toxic metal screening and investigations of environmental contamination and disease. For decades, hair TMA has been used extensively for nutritional studies in humans and animals.[Jenkins, D. (1980). Biological Monitoring of Toxic Trace Metals]

A canine-specific hair TMA and interpretation of the results can provide valuable information about your dog's health status. The lab report goes beyond simple toxicological testing (as shown in figures 1 and 2) to include analysis of nutrient elements (figure 3) and ratios. Also provided are recommendations for corrective nutritional supplementation. These recommendations are the result of research data from thousands of canine hair TMAs. This scientifically guided and individualized nutritional protocol replaces the more common guesswork approach to nutrition prescriptions. In other words, using hair TMA, results can be scientifically monitored and the protocol can be modified based on the data, rather than a nutritional hunch.

It is important to note that animals with elevated toxic levels may not always exhibit clinical symptoms associated with those particular toxic minerals. However, research verifies that toxic minerals can produce an antagonistic effect on various essential minerals, eventually leading to disturbances in their metabolic utilization. This can be analyzed by looking at toxic ratios (figure 2).

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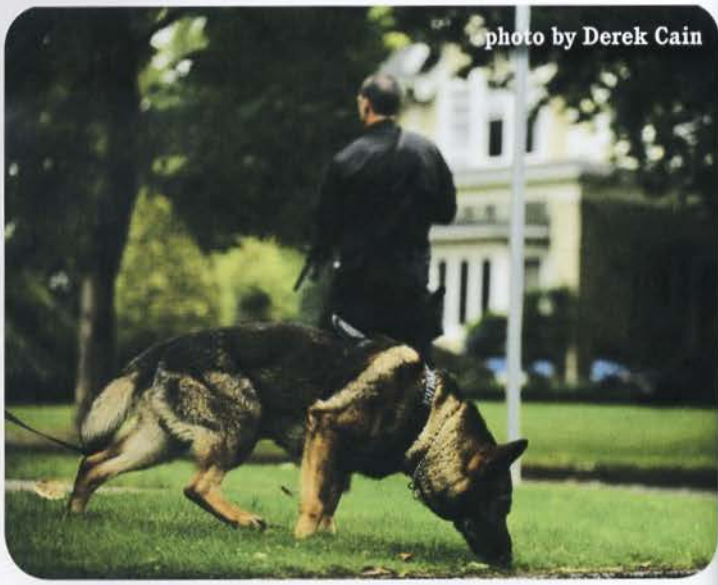
photo by Derek Cain

When nutrient levels and ratios are closest to ideal, the immune system and metabolism are functioning at an optimum state. High-performance and robust health are consequences of biochemical balance. Applying the science of hair TMA is really quite simple. Heres how:

1. First, you provide your hair TMA testing service provider with information about your dog's health and work performance requirements, along with a properly obtained hair sample. The sample is sent to the lab for analysis.

2. Test results guide a clinical nutritional protocol designed to support healing and optimize biochemistry. This consists of specific food and supplement recommendations to help correct any biochemical imbalances and remove toxicity.

3. Your hair TMA service provider also will help educate you, so you are able to identify and uncover toxic exposure sources, they will suggest ways for you to eliminate, avoid or mitigate these problem areas.

4. Finally, hair TMA evaluation tests allow you to monitor the progress of toxin removal and biochemical rebalancing. Follow-up tests guide necessary adjustments due to the changes that occur while your dog's health improves.

All animals are exposed to toxic metals to some degree. The retention of these toxic metals, however, is dependent upon the animal's susceptibility and immune function health.

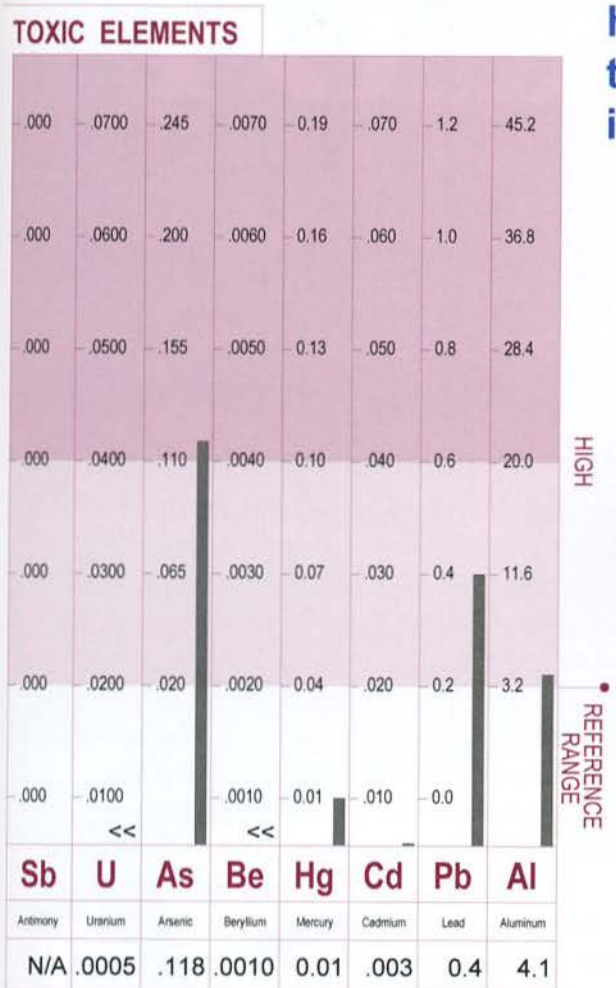

Figure 1 - Toxic Elements

Example of a five year old canine's hair TMA result. It is preferable that all toxic levels be as low as possible and within the lower reference range. The toxic elements shown in the chart are known for their interference with normal biochemical function, are common, and therefore present to some degree in all biological systems. These elements clearly pose a concern for toxicity when tissue accumulation occurs to excess.

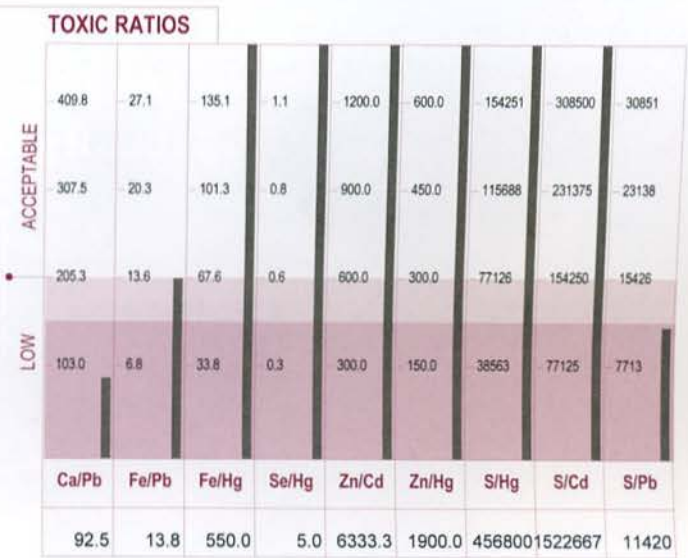

Figure 2 - Toxic Ratios

This chart shows the ratio of the toxic metals to the available protective nutrient minerals. Ideally, each ratio should appear in the upper area of the graph, the higher up the better. Toxic ratios that fall within the darker area often indicate an interference of that toxic metal on the nutritional element. All animals are exposed to toxic metals to some degree. The retention of these toxic metals, however, is dependent upon the animal's susceptibility and immune function health. The balance of the protective nutrient minerals within the body in relation to the heavy metals can frequently be the determining factor to this susceptibility. By examining the toxic metal levels in relation to the protective minerals, the extent to which the heavy metals may be involved in abnormal chemistry can frequently be seen. This is done by examining the toxic ratios.

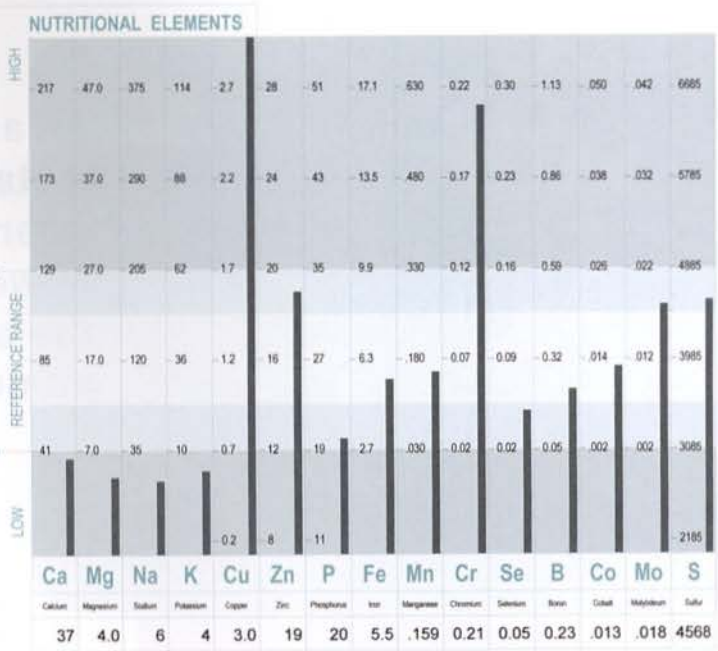

Figure 3 - Nutrient Elements

This chart shows nutritional mineral levels that may reveal moderate or significant deviations from normal. The light area of the graph's mineral levels represent the established reference ranges as determined from statistical analysis of healthy canines. A mineral level that is outside the reference range can be identified. This example shows excess copper. When in excess, copper may decrease optimum performance, due to its suppressing effect upon endocrine activity, especially the thyroid gland which is responsible for sustained energy production. One of the most common sources of excessive copper intake is from water.


photo by Derek Cain

"Clinical nutritional therapy is a safe and effective protection strategy against persistent, low-level chronic exposure to toxins."

Clinical Nutrition for Toxin Management

Clinical nutritional therapy is a safe and effective protection strategy against persistent, low-level chronic exposure to toxins. Statistical evidence demonstrates that even very low levels of lead exposure has adverse effects on neurological function, and has been linked to aggression. Low mercury levels negatively affect fetal development. In fact, all toxic metals have adverse effects on health at low levels. This is why hair TMA is an invaluable screening tool for toxicological analysis.

Undernourishment also is associated with increased heavy metal accumulation. Nutritional improvements can relieve and prevent low-level metal toxicities and the disorders that accompany them. When nutrient minerals are available at the optimal levels and ratios, they not only help protect against the absorption of toxic metals, they also hasten their removal by supporting the body's detoxification functions.

You can incorporate simple changes into your dog's life that will help protect them from, and avoid exposure to harmful toxins. Hair TMA provides the information needed to detect and correct deranged mineral imbalances and optimize metabolism. Follow-up lab tests allow you to evaluate and monitor the progress of toxin removal. Properly balanced mineral ratios, and the accompanying robust metabolism, will ensure that your K-9 can enjoy and express maximum physical and emotional health.■

CONTRIBUTORS

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Steven Hartov was born in New London, Connecticut, attended public schools in New England and earned a Bachelor of Fine Arts degree from Boston University. In 1973, he joined the U.S. Merchant Marine Military Sealift Command, beginning a series of adventures that would later appear in his non-fiction pieces and fictional works.

In 1977, he volunteered for the Israel Defense Forces Airborne Corps, serving first as a paratrooper and later in a Special Operations branch of Israeli Military Intelligence. He subsequently spent 13 more years as a reservist in the IDF, and currently serves as an officer in the New York Guard.

In the mid-1980s, he began writing a series of espionage novels based in the Middle East. In 2003, he co-authored the New York Times non-fiction best seller, "In the Company of Heroes," and most recently co-authored "The Night Stalkers."

He is the former Editor-In-Chief of Special Operations Report, a professional journal on military and law enforcement special tactics. His works are recommended readings by the U.S. Army War College. www.stevenhartov.com

Janet Singleton

Janet Singleton is self-employed at Cardinal Business Equipment Company of St. Louis and the President of Canine Search and Rescue Association. Her volunteer career began very shortly after that terrible day of 9/11. She found a local team and devoted her first 2 years to learning everything about Field Support and Flanking a K-9/Handler Team. She received her Amateur license (KC0SUD) and got a dog.

The discipline of her choosing was Tracking/Trailing...and still is to this day. She is a hard working dog that is determined to make the find. There is a special bond between a handler and a dog that makes a great team. It's what it takes to hopefully bring the missing home!

For more information on our team and dedicated members, please visit our website at: www.searchk9team.com

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