# Diagnostic Testing for Food Sensitivity & Intolerance

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Chronic food sensitivity or intolerance is a common problem in dogs, cats and people. It is caused by an abnormal immunological reaction to food proteins that occurs in the liver and bowel. The whole body becomes unhealthy, when the gut is unhealthy. The ensuing disease process is typically chronic or intermittent and often involves the gut and skin, as well as internal organs such as the liver. In animals, veterinarians and companion animal caregivers need to concentrate on more long term control of chronic food-related health issues in animals, such as an itchy skin and "leaky gut", rather than the more immediate acute or sub-acute hypersensitivities, known as allergies. Otherwise, the animals will not sustain good health. Newly developed diagnostic testing using saliva or feces rather than the traditional serum testing is being employed to address this problem in both humans and animals.

Serum-based tests have high sensitivity but lower individual specificity and measure more immediate-type food reactions, but they were poorly correlated with patient clinical signs. The newer testing for food sensitivity using saliva or feces identifies IgA or IgM antibodies to foods and offer excellent clinical correlation. In fact, antibodies to food ingredients can appear in the saliva before the clinical or gastrointestinal biopsy diagnosis of inflammatory bowel disease (IBD) or "leaky gut syndrome" is made. Saliva testing can thus reveal the latent or pre-clinical form of food sensitivity.

It can be difficult to connect the clinical symptoms of delayed food sensitivities with an ingested food or foods, because these usually occur as soon as 2 hours or as long as 72 hours

afterwards. However, a very high correlation is seen between delayed food sensitivity and the amount and frequency of food consumed.

But, many animals with gluten or other food sensitivity or intolerance do not have diarrhea or weight loss, and instead commonly exhibit signs of itching , “hot spots”, chewing on the coat and licking the feet or anus. They can also exhibit other signs and symptoms such as vague abdominal pain, nausea, abdominal bloating, flatulence, chronic fatigue, constipation, poor growth and maturity, iron deficiency anemia, osteoporosis, seizures or other neurologic disorders, or even just elevated serum liver enzyme levels. Affected animals may even be asymptomatic.

**The Nutriscan Experience**

The Nutriscan saliva-based test is novel and patented for dogs, cats and horses, and does *not* test for food allergies, but rather tests for food sensitivities and intolerance. Food allergy, a more immediate reaction, is mediated by production of IgE and IgG antibodies, typically measured in serum. Food sensitivity and intolerance, by contrast, measures a more delayed body response to offending foods by measuring production of IgA and IgM antibodies primarily in mucosal secretions from the bowel. We have tested nearly 6,000 canine samples by the spring of 2014, and since starting cats at the end of September, 2013, we have tested over 100.

This test measures antibodies to certain foods in dog saliva. High antibody levels indicate that the dog has a food sensitivity and intolerance to that food or foods. It is <u>not</u> a DNA cheek swab test.

Nutriscan clinical trials for dogs were conducted with six primary food allergens (beef, corn, egg, milk , soy and wheat ) in 2011. A detailed analysis of 566 sequential canine clinical case samples and 29 healthy canine controls was performed. This analysis compared results

from 208 healthy dogs, 289 suspected food intolerant dogs, and 98 proven food intolerant dogs. Results showed an unequivocal, progressive increase in the food reactivities measured in each group, respectively. Statistically significant differences were found, as would be expected based on the clinical classification of these three case cohorts. Follow up Nutriscan profiles were obtained for 80 of the suspected and proven food intolerant cases; results showed a marked decrease in the reactivities once the offending foods had been removed from the diet. These data clearly affirmed the validation of our results and the clinical utility of the test.

Since then, the number of tested purified food extracts tested by Nutriscan has been increased to 24. More specific information can be found on the Nutriscan web site. (www.nutriscan.org).

Food sensitivity can run in families, so it is wise not to breed dogs with these problems together , but instead , if they are of good quality and temperament, to select away from the problem by breeding to mates that have never expressed food intolerance issues. Affected dogs cause a major headache for the dog and the caregivers, so this issue should be taken seriously.

For clarification, puppies will have increasing levels of total IgA and IgM as they grow into adults, but not for the specific IgA anf IgM antibodies that may be directed at certain antigens they react adversely too, like specific foods, inhalants, or vaccines etc.

Also, for the information of the readers, some misinformation about our Nutriscan test has been circulating around. Please let me explain: At our invitation, a so-called "double blind" clinical trial of Nutriscan was conducted for a veterinary dermatologist. Unbeknownst to us, however, this colleague included non-saliva samples that interfered with the electrophoretic mobility across the ELISA assay plate, which ruined all the samples on it. Our findings were then broadcast to other veterinary dermatology specialists stating that that our test didn't work.

Even after I explained to this colleague what occurred because of the inclusion of non-saliva specimens, the posting was apparently never corrected.

Results indicated that the majority of these specimens were unacceptable as they included insufficient volume, non-bodily fluids, and non-canine saliva specimens. Invalid results were caused by alteration of pH of ELISA immunoassay plate from inclusion of non-body fluid samples, which caused unacceptable coefficients of variation (CV) on the optical density (OD) readings of replicate sample wells. As many of these samples had insufficient saliva volume to assay, they had to be diluted with saline, which further compromised the buffering capacity of the saliva samples, and the accuracy of the OD assay readings.