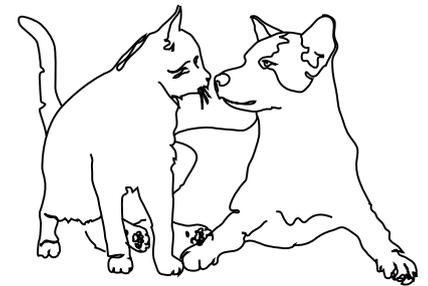


FOOD REACTION TEST (FRT)

Measures immune-mediated reactions induced by food components in dogs and cats

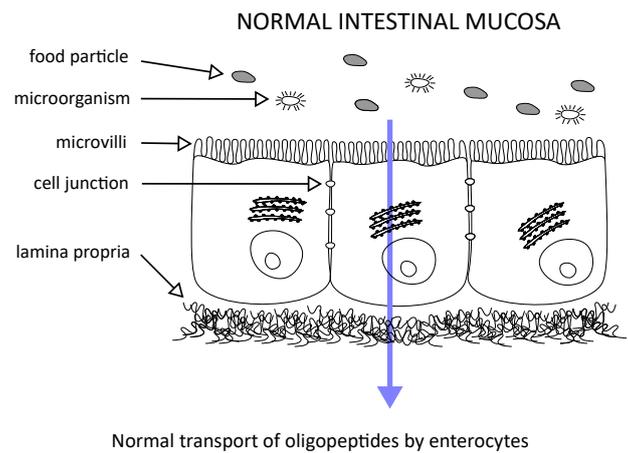


Pathogenesis

The wall of the digestive tract is the largest surface of the body exposed to the environment. The gastrointestinal (GI) tract must differentiate between the nutrients which have to be tolerated and those rejected. The impairment of this function leads patients to immune-mediated reactions.

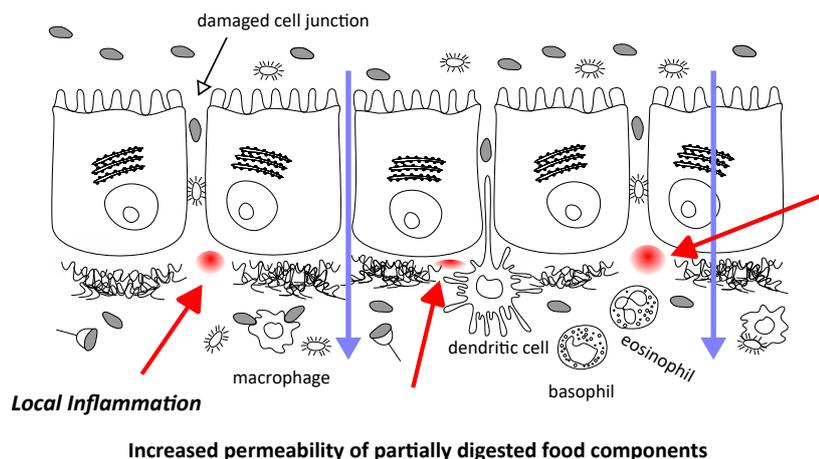
The enterocytes are key factors in the transport of nutrients to the lymphoid tissue. The small intestinal lamina propria contains a mixture of immune related cells. Plasma cells predominantly express IgG but isolated cells produce IgA in the proximal intestine, mast cells carry the IgE.

The tolerance mechanism is assured by the mucosal barrier and the type and magnitude of immune responses. A weakening of the defence system predispose to food sensitivity. The rate of protein absorption depends on the integrity of the mucosal barrier. Different factors contribute to it; the functionality of the enterocytes, presence of IgA, the quality and composition of the food and the presence of inflammation. The penetration of allergens into the lamina propria triggers immune-responses. The consequences are unpredictable but, in most cases, it leads to food sensitivity and inflammation. Immunological food adverse reactions or food sensitivity potentially cause various dermatological and gastro-intestinal signs in the dog and the cat.



The inflammatory mechanism of the intestinal wall

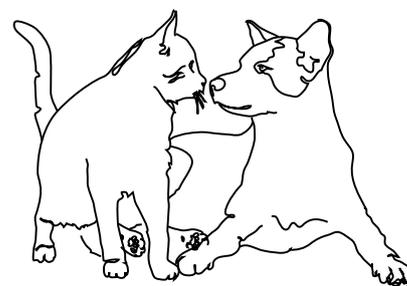
Adverse food reactions are susceptible to damage the microvilli and cell junctions of the intestinal cells allowing the transit of undigested proteins, food particles and microorganisms into the basal membrane. Defense reactions which take place may start an inflammatory process. The illustration below shows a comparative of the normal and a damaged intestine mucosa.



Clinical aspects

The appearance of symptoms depend on the type of the reaction (adverse or intolerance) involved, the degree of sensitivity of the patient and the reactions that are occurring. The most frequent clinical sign is non-seasonal pruritus. However, other GI symptoms may be present such as the loss of appetite, weight loss, abdominal pain, vomiting, diarrhea, among others may also be an indication.

FOOD REACTION TEST results



Technical basis

The FRT is an ELISA based serum test designed to identify immune reactions to food individual components in the dog and in the cat. It measures a combination of immune reactions of IgE, IgG and IgA types.

The FRT test contains 12 animal proteins and 12 plant food components. The sum of all reactivities for each individual food component, are reported in a single result.

In food testing the effect of IgE and IgG anti-CCD (cross reacting carbohydrate determinants) is normally disregarded. However, the prevalence of IgE and IgG anti-CCD affects more than 65% of tested patients. In the FRT test the IgE and IgG reactions anti-CCD are eliminated with the Heska's proprietary blocker.

FRT is a tool that assists in the selection of food components that produce low immune-reactivities in the pets suffering of food sensitivity and gastrointestinal discomfort. This approach may significantly improve gastrointestinal and food adverse related symptoms.

Example of FRT results

The individual FRT-units are scored from lower to higher for each food groups to facilitate the interpretation. Low FRT-units are highlighted to indicate the recommended combinations of animal and carbohydrate sources.

Animal proteins	FRT-units		Carbohydrate sources	FRT-units
Rabbit	2	<i>Low</i> ↓ <i>High</i>	Corn	5
Lamb	5		Wheat	5
Egg (chicken)	7		Carrot	6
Beef	8		Oat	7
Milk (cow)	9		Rice	8
Fish-mix	13		Soybean	10
Pork	16		Barley	12
Turkey	20		Sweet potato	13
Chicken	30		Pea	14
Trout (lake)	32		White potato	21
Tuna	33		Brewers yeast	26
Salmon	45		Green bean	28

In this example, the recommended animal protein sources are rabbit and/or lamb. The recommended carbohydrate sources are corn and/or wheat. Any combinations of these components are expected to be of benefit for the patient. It is recommended to avoid food components giving high FRT-units.

Choice of the diet

Once suitable food components are identified it is recommended maintaining the pet on a home made diet which is generally the best choice during the first 2 to 4 weeks. If the status of the pet improves, it allows supporting the diagnose of the potential food adverse reaction. An appropriate diet will have a beneficial effect in the reduction of the intestinal mucosa inflammation. Once the food condition improves, it is advised to switch to a quality commercial food which are nutritionally designed to take care of the health of the pet in the long term.



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