EXCLUSIVE

ROYAL CANIN Veterinary Diet™/MC

SUMMARY

ROYAL CANIN Veterinary Diet™/MC canine HYPOALLERGENIC HP 19™/MC is a highly palatable, highly digestible, complete, and balanced diet formulated to meet the requirements for canine adult maintenance. This diet is a hydrolyzed soy protein isolate, which is lactose and wheat gluten free and indicated in both the diagnosis and management of adverse reactions to food.

INDICATIONS

- Adverse reactions to food (food hypersensitivity/food allergy) with dermatological and/or gastrointestinal signs
- Inflammatory bowel disease
- Dietary intolerance (lactose intolerance, wheat gluten enteropathy)
- Colitis
- Pancreatic exocrine insufficiency
- Idiopathic diarrhea
- Food elimination trial
- Otitis externa

CONTRAINDICATIONS

- Soy protein isolate hydrolysate hypersensitivity
- Growing puppies
- Pregnant or lactating bitches

NUTRITIONAL DIFFERENCES

(as compared to typical commercial pet foods)

- Limited, low allergen ingredients
  - Hydrolyzed soy protein isolate
  - Single carbohydrate source (rice)
- Highly digestible
- Enriched with ω-3 fatty acids (eicosapentaenoic and docosahexaenoic acids)
- Enriched with gamma-linoleic acid
- Lactose free
- Wheat gluten free
- Enriched with antioxidants, biotin, niacin, pantothenic acid, zinc, and linoleic acid

RATIONALE

Dietary sensitivity, an adverse reaction to food, is a term used to describe a clinically abnormal response to the ingestion of a particular food. Food allergy or hypersensitivity is an immunological response to the food. Most basic food ingredients including proteins, lipoproteins, glycoproteins, and lipopolysaccharides have the potential to induce an allergic response. Proteins are most commonly implicated in dietary sensitivity in dogs. In dogs, cow's milk, beef, and cereal account for many reported cases. When an immunological mechanism cannot be demonstrated, food intolerance is a more appropriate term. Food intolerance may result from pharmacological, metabolic, toxic reactions, or an inability to digest the food.

Adverse reactions to food generally manifest as dermatological or gastrointestinal disease. The most common clinical signs are pruritus, vomiting, and diarrhea. Occasionally, dogs will present with signs involving both systems.

Elimination diets, and subsequent re-challenge with the original diet, are the only way to confirm a diagnosis of food allergies and intolerance in dogs. The aim is to feed a complete and balanced diet while strictly limiting the protein and carbohydrate sources by feeding protein sources to which the dog has never been previously exposed.

The reason an immunological response against a specific protein (or food allergen) is mounted in certain individuals is not fully understood. The lipoprotein fractions of foods are typically implicated in the allergic response. The predominant allergenic glycoproteins are water-soluble, largely heat resistant, acid stable, and commonly in the range of 10 to 60 kDa. Upon initial exposure or sensitization to the allergen, an IgE immune response, rather than the typical IgG response, is mounted. The IgE antibodies bind to high affinity receptors on mast cells. With re-exposure, the protein allergen can bind to the IgE molecules causing mast cell degranulation and the release of inflammatory mediators including histamine, prostaglandins, and leukotrienes. These mediators are ultimately responsible for both the immediate and delayed hypersensitivity reactions typical of food allergy.

Degranulation of the mast cells requires that the allergenic protein contains two binding sites, or epitopes, which must bind and cross link two IgE molecules bound to high affinity receptors on mast cells (and to a lesser degree, basophils and other inflammatory cells).

The antigenicity of dietary proteins can be minimized by enzymatic hydrolysis to produce low molecular weight proteins. Decreasing the size of the proteins that are ingested reduces the chances of immunoglobulin cross-linking and subsequent mast cell degranulation. Protein hydrolysates typically have molecular weights below those commonly eliciting an allergic response.

Genetics, age, poor digestibility of proteins, a defective mucosal barrier, defective oral tolerance, and increased mucosal permeability are all predisposing factors for food allergy.

Proteins that are incompletely digested have more potential to incite an immune response to the residual antigenic proteins and large polypeptides. Highly digestible proteins are completely digested to free amino acids and small peptides which have less potential to elicit an allergic response.

Hydrolyzed soy isolate protein contains highly digestible (> 96%), low molecular proteins which are rapidly digested to free amino acids and small peptides that are likely to evade detection by the immune system.

Fermentable fiber such as beet pulp and fructo-oligosaccharides may have a positive effective on the mucosal barrier by stimulating the growth of beneficial intestinal bacteria and the production of short chain fatty acids. Short chain fatty acids have a trophic role on the intestinal mucosa. Zeolite (sodium silico aluminate), a tetrahedral clay, is capable of absorbing bacterial toxins, bile acids, and gases. By forming a protective film on the intestinal mucosa, zeolite helps to enhance the mucosal barrier against allergen invasion.

Fatty acids such as linolenic (LA), gamma linoleic (GLA), eicosapentaenoic (EPA), and docosahexaenoic (DHA) acid have several important structural, biochemical, and beneficial effects on the skin and hair coat.

It has long been known that the skin provides a barrier to protect the body from potentially damaging environmental influences including contact with allergens. The cornified stratum corneum plays the principal role of barrier defense. The stratum corneum consists of protein rich corneocytes with a lipid matrix consisting of fatty acids, sterols, and ceramides held together in a brick and mortar analogy.

In terms of barrier function, ceramide-1 is thought to be the key component. Ceramide-1 contains linoleic acid as one of its major components. In this respect, linoleic acid is believed to play a crucial role in the barrier function of the skin. Waltham Science has also shown that the addition of biotin, pantothenic acid, nicotinamide, pyridoxine, choline, inositol, proline, and histadine increases the synthesis of ceramides and lipids. The result is an improvement in the barrier effect of the epidermis and a reduction in transepidermal water loss.

Long chain ω-3 and ω-6 polyunsaturated fatty acids are essential for the maintenance of membrane integrity as constituents of membrane phospholipids and the provision of substrates for eicosanoid synthesis; e.g. prostaglandins, thromboxanes, and leukotrienes. With respect to skin disease, both ω-3 and ω-6 appear to be anti-inflammatory. However, the mechanisms of action are different.

The anti-inflammatory effect of the ω-6 fatty acids is related to the synthesis of dihomo -ζ- linolenic acid (DGLA) from dietary GLA (found in high concentrations in borage oil). DGLA can be converted to the less inflammatory PGE_1. In addition, DGLA can be converted to a potent anti-inflammatory hydroxy- fatty acid that blocks the lipoxygenase pathway.

Long chain ω-3 fatty acids, such as eicosapentaenoic acid and docosahexaenoic acid, directly compete with arachidonic acid for the lipoxygenase and cycloxygenase enzymes. Subsequent metabolism of eicosapentaenoic acid generates less inflammatory mediators such as LTB_5, and PGE_3 compared to the metabolism of arachidonic acid. In addition, the metabolism of eicosapentaenoic acid produces hydroxy-fatty acids that block the production of LTB_4, a potent chemotatic factor, from arachidonic acid.

Special Tips

- Many diets which are labeled "hypoallergenic" are not true elimination diets. They may contain many other protein sources including those antigens the owner is trying to avoid. It is important to counsel owners about true elimination diets and advise them to verify a product's ingredients by checking the ingredient list on the label.
- During the initial diagnostic period, it is important that ROYAL CANIN Veterinary Diet™/MC canine HYPOALLERGENIC HP 19™/MC be fed exclusively. Snacks, treats, dietary supplements, and flavored medications may contain allergens. It is important that the owner understands that even minor deviations from a strict limited antigen diet can lead to a recurrence of allergic symptoms.

CANINE

GENERAL FEEDING RECOMMENDATIONS

- Daily feeding recommendations may be divided into two to four meals.
- Fresh water should be available at all times.
- Individual requirements may vary depending on breed, age, sex, environment, and activity level.
- No other protein source should be made available while feeding HYPOALLERGENIC HP 19™/MC.
- The duration of the elimination diet should be 8-12 weeks.

FEEDING GUIDE

FEEDING RECOMMENDATIONS FOR ADULT DOG MAINTENANCE

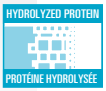
Body Weight		Suggested Caloric Intake	Daily Feeding
lb	kg	kcal/day	Dry Only (8-oz cups/day)
5	2.3	231	2/3
10	4.5	389	1 1/4
20	9.1	653	2
30	13.6	886	2 2/3
40	18.1	1099	3 1/3
50	22.7	1299	4
60	27.2	1489	4 1/2
70	31.8	1672	5
80	36.3	1848	5 2/3
90	40.8	2019	6 1/4
100	45.4	2185	6 2/3
110	49.9	2347	7 1/4
120	54.4	2505	7 2/3
130	59.0	2660	8 1/4
140	63.5	2812	8 2/3
150	68.0	2961	9

PRODUCT DESCRIPTION

ROYAL CANIN Veterinary Diet™ canine HYPOALLERGENIC HP 19™ is highly palatable, highly digestible, lactose and wheat gluten free, hydrolyzed soy protein isolate diet that is specifically formulated to assist the diagnosis and management of adverse reactions to food.

NUTRITION STATEMENT

HYPOALLERGENIC HP 19™ is formulated to meet the nutritional levels established by the AAFCO Dog Food Nutrient Profiles for adult maintenance.



Soy protein isolate digest, which is composed of low molecular weight peptides, is highly digestible and has very low antigenic potential.

The fermentable fibers (beet pulp, FOS) and zeolite help to balance the gastrointestinal microflora and protect the intestinal mucosa. This food is wheat gluten and lactose free.

Very high amounts of biotin, niacin, pantothenic acid, and zinc-linoleic acid complex reduce transepidermal water losses and strengthen the barrier effect of the skin.

Naturally preserved with mixed tocopherols, rosemary extract, and citric acid.

GUARANTEED ANALYSIS

Crude Protein, (min)	19%
Crude Fat, (min)	17%
Crude Fiber, (max)	3.1%
Moisture, (max)	10.5%

METABOLIZABLE ENERGY

From Protein	20.0%
From Fat	40.8%
From Carbohydrate	39.1%

Approximately 327 kcal per 8-oz cup, 419 kcal per 100 g, 78 g per 8-oz cup.

INGREDIENTS

RICE, SOY PROTEIN ISOLATE HYDROLYSATE, CHICKEN FAT, NATURAL FLAVORS, BEET PULP, VEGETABLE OIL, SODIUM SILICO ALUMINATE, DICALCIUM PHOSPHATE, CALCIUM CARBONATE, FISH OIL, INULIN, POTASSIUM CHLORIDE, MONOSODIUM PHOSPHATE, L-TYROSINE, CHOLINE CHLORIDE, TAURINE*, BORAGE OIL, VITAMINS [DL-ALPHA TOCOPHEROL (SOURCE OF VITAMIN E), INOSITOL, NIACIN, L-ASCORBYL-2-POLYPHOSPHATE (SOURCE OF VITAMIN C*), D-CALCIUM PANTOTHENATE, BIOTIN, PYRIDOXINE HYDROCHLORIDE (VITAMIN B6), RIBOFLAVIN (VITAMIN B2), THIAMINE MONONITRATE (VITAMIN B1), VITAMIN A ACETATE, FOLIC ACID, VITAMIN B12 SUPPLEMENT, VITAMIN D3 SUPPLEMENT], TRACE MINERALS [ZINC AMINO ACID CHELATE, ZINC OXIDE, FERROUS SULFATE, MANGANESE AMINO ACID CHELATE, COPPER AMINO ACID CHELATE, COPPER SULFATE, MANGANOUS OXIDE, SODIUM SELENITE, CALCIUM IODATE], MARIGOLD EXTRACT, PRESERVED WITH NATURAL MIXED TOCOPHEROLS, ROSEMARY EXTRACT, AND CITRIC ACID.

*Not recognized as an essential nutrient by the AAFCO Dog Food Nutrient Profiles.

HYPOALLERGENIC HP™/MC 19

CANINE

TYPICAL ANALYSIS

Nutrient	Unit	Per 100 g as fed	Per 1000 kcal
Moisture	g	9	
Protein	g	21.0	50.1
Fat	g	19.0	45.3
Carbohydrate	g	41.0	97.9
Ash	g	7.9	18.9
Crude Fiber	g	2.1	5.0
Total Dietary Fiber	g	5.3	12.6
Minerals			
Calcium	g	1.00	2.39
Phosphorus	g	0.80	1.91
Sodium	g	0.40	0.95
Chloride	g	0.55	1.31
Potassium	g	0.65	1.55
Magnesium	g	0.06	0.14
Copper	mg	3.3	7.9
Iron	mg	19.0	45.3
Zinc	mg	24.0	57.3
Manganese	mg	7.0	16.7
Iodine	mg	0.35	0.84
Selenium	mg	0.035	0.084
Vitamins			
Vitamin A	IU	3500	8353
Vitamin D3	IU	120	286
Vitamin E	mg	60	143
Thiamine (B1)	mg	2.8	6.7
Riboflavin (B2)	mg	4.8	11.5
Niacin	mg	96.5	230.3
Pyridoxine (B6)	mg	7.8	18.6
Pantothenic Acid	mg	14.5	34.6
Folic Acid	mg	1.5	3.6
Cobalamin (B12)	mg	0.017	0.041
Biotin	mg	0.30	0.72
Choline	mg	300	716
Fatty Acids			
Linoleic acid	g	4.8	11.5
Arachidonic acid	g	0.07	0.17
Amino Acids			
Arginine	g	1.5	3.6
Lysine	g	1.1	2.6
Methionine	g	0.65	1.6
Methionine + Cystine	g	0.9	2.1
Taurine	g	0.2	0.5

ORDERING INFORMATION

Bag Size	Weight		Item Code
	lb	kg	
Small	n/a	n/a	n/a
Medium	6	2.72	27606
Large	16.5	7.49	27617
Extra Large	37	16.8	27637

ROYAL CANIN VETERINARY DIET

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NOTES