

SUMMARY

ROYAL CANIN Veterinary Diet™/MC feline HYPOALLERGENIC HP 23™/MC is a highly palatable, highly digestible, complete, and balanced diet formulated to meet the requirements for feline growth and maintenance. This diet is a hydrolyzed soy protein isolate, lactose, and wheat gluten free diet that is indicated in both the diagnosis and management of adverse reactions to food.

INDICATIONS

- Adverse reactions to food (food hypersensitivity/food allergy) which may present with the following dermatological signs:
 - Intense pruritus and ulcerative dermatitis of the head and neck
 - Miliary dermatitis-like lesions
 - Eosinophilic granuloma complex
 - Bilaterally symmetrical or localized alopecia

Or with the following gastrointestinal signs:

- Vomiting
- Diarrhea
- Dietary intolerance (e.g., lactose intolerance)
- Pancreatic exocrine insufficiency
- Inflammatory bowel disease
- Idiopathic diarrhea
- Food elimination trial

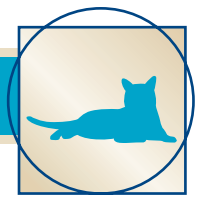
CONTRAINDICATIONS

- Soy protein isolate hydrolysate hypersensitivity

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
- Enriched with 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.

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.

Most basic food ingredients, including proteins, lipoproteins, glycoproteins, and lipopolysaccharides, have the potential to induce an allergic response. However, proteins are most commonly implicated in dietary sensitivity in cats. In cats, cow's milk, beef, and cereal account for many reported cases.

Adverse reactions to food can manifest as dermatological or gastrointestinal signs. The most common dermatological sign is pruritus. Gastrointestinal signs include vomiting, diarrhea, and/or inflammatory bowel disease. Occasionally cats will present with signs involving both systems.

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

It is not fully understood why some cats will mount an abnormal immunological response against a specific protein (or food allergen) in the diet. The glycoprotein 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 is mounted rather than the typical immunological response. The IgE antibodies bind to high affinity receptors on mast cells. With re-exposure to the food, the protein allergen binds 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 to food allergens.

Degranulation of the mast cells requires that the allergenic protein contains two binding sites or epitopes that 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 less than the 10,000-60,000 kDalton molecular weight of common allergens.

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. Highly digestible proteins are completely digested to free amino acids and small peptides, with 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 effect on the mucosal barrier by stimulating both the growth of beneficial intestinal bacteria and the production of short chain fatty acids. Short chain fatty acids have a trophic effect 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 held together with a lipid matrix consisting of fatty acids, sterols, and ceramides, similar to the brick and mortar analogy.

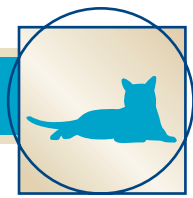
In terms of barrier function, ceramide-1 is thought to be the key component. Ceramide-1 contains linoleic acid as one of its major components. It is in this respect that linoleic acid is believed to play a crucial role in barrier function of the skin. In addition, Waltham Science has shown that the synthesis of ceramides and skin lipids can be enhanced by dietary supplementation with biotin, pantothenic acid, nicotinamide, pyridoxine, choline, inositol, proline, and histidine. The main 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 fatty acids 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 dihomogamma-linolenic acid (DGLA) from dietary gamma-linolenic acid (GLA), found in high concentrations in borage oil. DGLA can eventually be converted to arachidonic acid, a potent inflammatory mediator. However, the conversion process is slow.

DGLA can also be converted to the less inflammatory PGE₁. 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 and docosahexaenoic acid, directly compete with arachidonic acid for the lipoxygenase and cyclooxygenase enzymes. Subsequent metabolism of eicosapentaenoic acid generates less inflammatory mediators such as LTB₅, and PGE₃ compared to the metabolism of arachidonic acid. In addition, the metabolism of eicosapentaenoic acid produces hydroxy fatty acids that block the production of LTB₄, a potent chemotactic factor, from arachidonic acid.



FELINE

Special Tips

- Many diets which are labeled “hypoallergenic” are not really 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 the cat be fed exclusively HYPOALLERGENIC HP 23^{TM/MC}.
- Snacks, treats, dietary supplements, and flavored medications may contain antigens. 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.

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 23^{TM/MC}.
- The duration of the elimination diet should be 8-12 weeks.

FEEDING GUIDE

FEEDING RECOMMENDATIONS FOR FELINE ADULT MAINTENANCE

Body Weight		Suggested Caloric Intake kcal/day	Daily Feeding
lb	kg		Dry Only (8-oz cups/day)
5	2.3	136	1/3
7	3.2	191	1/2
9	4.1	245	3/4
11	5.0	299	3/4
13	5.9	354	1
15	6.8	408	1 1/4
17	7.7	463	1 1/3

FEEDING RECOMMENDATIONS FOR KITTENS

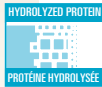
Age (months)	Body Weight		Suggested Caloric Intake kcal/day	Daily Feeding	
	lb	kg		g/day	Dry Only (8-oz cups/day)
1	1.3	0.6	138-180	32-42	1/3 - 1/2
2	1.8	0.8	184-240	43-56	1/2 - 2/3
4	4.4	2.0	260-300	61-70	3/4
6	6.4	2.9	290-334	68-78	3/4 - 1
9	7.3	3.3	330-380	77-89	1 - 1 1/4
12	8.8	4.0	280-360	66-85	3/4 - 1

PRODUCT DESCRIPTION

ROYAL CANIN Veterinary Diet™^{TM/MC} feline HYPOALLERGENIC HP 23™^{TM/MC} is a highly palatable, highly digestible, lactose and wheat gluten free, hydrolyzed soy protein isolate diet that is indicated in the diagnosis and management of adverse reactions to food.

NUTRITION STATEMENT

HYPOALLERGENIC HP 23™^{TM/MC} is formulated to meet the nutritional levels established by the AAFCO Cat Food Nutrient Profiles for growth and adult maintenance.



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



SKIN BARRIER
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.



DIGESTIVE SUPPORT
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.



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

GUARANTEED ANALYSIS

Crude Protein, (min)	23.5%
Crude Fat, (min)	18.0%
Crude Fiber, (max)	5.5%
Moisture, (max)	8.5%

METABOLIZABLE ENERGY

From Protein	23.9%
From Fat	42.3%
From Carbohydrate	33.8%

Approximately 343 kcal per 8-oz cup; 426 kcal per 100 g; 80 g per 8-oz cup.

INGREDIENTS

RICE, SOY PROTEIN ISOLATE HYDROLYSATE, CHICKEN FAT, RICE GLUTEN, CELLULOSE POWDER, NATURAL FLAVORS, BEET PULP, FISH OIL, POTASSIUM CHLORIDE, CALCIUM CARBONATE, DICALCIUM PHOSPHATE, CALCIUM SULFATE, INULIN, VEGETABLE OIL, SODIUM SILICO ALUMINATE, MONOSODIUM PHOSPHATE, CHOLINE CHLORIDE, BORAGE OIL, TAURINE, 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], L-TYROSINE, DL-METHIONINE, 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], MARGIGOLD EXTRACT, PRESERVED WITH NATURAL MIXED TOCOPHEROLS, ROSEMARY EXTRACT, AND CITRIC ACID.

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



TYPICAL ANALYSIS

Nutrient	Unit	Per 100 g as fed	Per 1000 kcal
Moisture	g	7	
Protein	g	25.5	59.9
Fat	g	20.0	46.9
Carbohydrate	g	36.0	84.5
Ash	g	7.0	16.4
Crude Fiber	g	4.5	10.6
Total Dietary Fiber	g	8.0	18.8
Minerals			
Calcium	g	0.90	2.11
Phosphorus	g	0.70	1.64
Sodium	g	0.50	1.17
Chloride	g	0.70	1.64
Potassium	g	0.80	1.88
Magnesium	g	0.05	0.12
Copper	mg	3.3	7.7
Iron	mg	13.0	30.5
Zinc	mg	25.3	59.4
Manganese	mg	6.5	15.3
Iodine	mg	0.35	0.82
Selenium	mg	0.035	0.082
Vitamins			
Vitamin A	IU	2900	6808
Vitamin D3	IU	110	258
Vitamin E	mg	60	141
Thiamine (B1)	mg	2.8	6.6
Riboflavin (B2)	mg	4.8	11.3
Niacin	mg	96.5	226.5
Pyridoxine (B6)	mg	7.8	18.3
Pantothenic Acid	mg	14.5	34.0
Folic Acid	mg	1.5	3.5
Cobalamin (B12)	mg	0.017	0.040
Biotin	mg	0.30	0.70
Choline	mg	300	704
Fatty Acids			
Linoleic acid	g	4.6	10.8
Arachidonic acid	g	0.06	0.14
Amino Acids			
Arginine	g	1.8	4.2
Lysine	g	1.35	3.2
Methionine	g	0.9	2.1
Methionine + Cystine	g	1.2	2.8
Taurine	g	0.2	0.5



FELINE

ORDERING INFORMATION

Bag Size	Weight		Item Code
	lb	kg	
Small	2.5	1.14	27803
Medium	6	2.72	27806
Large	n/a	n/a	n/a

REFERENCES

- Vroom MW, Swinnen CA. A clinical study of a soy protein isolate hydrolysate diet in dogs and cats with adverse reactions to food. Scientific Proceedings Voorjaarsdagen Amsterdam, 2002, p252.

