

SUMMARY

ROYAL CANIN Veterinary Diet™/MC canine EARLY CARDIAC EC 22™/MC is a highly palatable, highly digestible, complete, and balanced diet for adult dogs which has been formulated to aid in the dietary management of Class I-II cardiac disease.

INDICATIONS

- Asymptomatic dogs with heart murmurs or cardiomegaly (with or without concurrent cardiac medications)
- Dogs with mild signs of congestive heart failure (clinical signs of coughing or dyspnea)
- Puppies diagnosed with heart disease
- Adult dog breeds at risk for cardiac disease

CONTRAINDICATIONS

- Healthy growing puppies (i.e. no evidence of cardiac disease)
- Pregnant or lactating bitches

NUTRITIONAL DIFFERENCES

(as compared to typical commercial pet foods)

- Supplemented with arginine, carnitine, and taurine
- Mildly restricted sodium appropriate for Class I-II heart disease
- Appropriate levels of magnesium and potassium
- Moderate protein content
- Enriched with omega-3 fatty acids (eicosapentaenoic acid, docosahexaenoic acid)
- Enhanced B vitamin content
- Enriched with antioxidants (vitamin E, vitamin C, and taurine)



RATIONALE

Canine heart disease is relatively common being present in approximately 11% of dogs in North America. Cardiac diseases are more common in breeds with a genetic predisposition, overweight dogs, and older dogs. Heart disease is defined as any cardiac finding outside of normal limits. Heart failure is defined as an inability of the heart to deliver an adequate blood supply to the tissues. Most dogs with heart disease do not have heart failure at the time of diagnosis. The majority will eventually develop heart failure. The classification of canine heart disease is based on symptom severity. The various classes of heart disease are correlated with life expectancy. Dogs with class I heart disease generally have a life expectancy of 2 to 4 years. Dogs with class II to IV heart disease have an average life expectancy of only a few months.

Classification of Canine Heart Disease

- Class I- No limitations of physical activity: activity does not cause symptoms
- Class II- Slight limitation of physical activity: ordinary activity causes symptoms
- Class III- Marked limitation of physical activity: symptoms occur with less than ordinary activity
- Class IV- Extreme limitation of physical activity: symptoms present at rest.

Until recently, the only diets available for dogs with cardiac disease were designed for dogs with class III or IV heart disease. Diets designed for Class III-IV heart disease are inappropriate for Class I-II cardiac patients for the following reasons:

- Diets appropriate for end-stage heart disease are highly restricted in sodium and significantly restricted in protein. These restrictions are not appropriate for the management of Class I-II heart disease.
- Many diets designed for end-stage heart disease are not compatible with other aspects of medical therapy. For example, ACE inhibitors, which are frequently prescribed in heart disease, may cause hyperkalemia, yet many diets for dogs with end stage heart disease contain high potassium levels. High dietary potassium supplementation is not appropriate for the management of Class I-II heart disease.
- End-stage heart disease diets are designed primarily to provide symptomatic therapy. Dogs with Class I-II heart disease should benefit more from a diet specifically designed to slow disease progression, delay the occurrence of congestive heart failure, and postpone end-stage disease.

Nutritional Goals

The goals of dietary management of dogs with Class I-II cardiac disease differ significantly from those of end-stage heart disease. These goals are to provide:

- Nutrients that may benefit dogs with Class I-II heart disease including arginine, carnitine, and taurine
- Appropriate sodium levels to avoid both excessive sodium intake but also to avoid too severe a restriction
- Appropriate potassium levels to avoid adverse drug-nutrient interactions, such as that seen with ACE inhibitors
- Appropriate protein and energy levels to maintain optimal body weight and preserve lean muscle mass
- Supplementation with ω -3 fatty acids to help support healthy cardiac function.

ACT with SPEED

Class I cardiac disease is difficult to diagnose or the significance of subtle indications is often overlooked. Furthermore, the majority of dogs diagnosed in the initial stage of heart disease are not treated for their disease. ACT with SPEED is an appropriate acronym for cardiac patients. It represents the nutrients important for the dietary management, and is a reminder of the importance of timely diagnosis, proactive intervention, active management and the need to ACT with SPEED to provide appropriate support for dogs with Class I-II cardiac disease.

- **Arginine** is a pre-cursor for the smooth muscle relaxant nitric oxide. Arginine may help improve blood flow and exercise tolerance in dogs with heart disease
- **Carnitine** is found in high concentrations in heart muscle tissue. Carnitine deficiency has been linked to heart disease in dogs (Boxers and possibly Cocker Spaniels). Carnitine supplementation may improve heart muscle function in dogs with heart disease
- **Taurine** has been linked to cardiomyopathy in cats. A percentage of dogs with cardiomyopathy have low blood levels of taurine. Taurine has been shown to benefit some dogs with heart disease.

WITH

- **Sodium and essential minerals.** Sodium should be mildly restricted in Class I-II heart disease. Cardiac diets can be severely restricted in sodium and this is not appropriate for dogs in the initial stages of the disease. Two other important minerals are potassium and magnesium. Potassium deficiency is associated with irregular heart beat and muscle weakness. Magnesium is involved in energy production in heart muscle. It is important to supply the appropriate levels of these essential nutrients.
- **Protein** should not be severely restricted in dogs with cardiac disease. Protein restriction may contribute to cachexia (lean muscle wasting) and exercise intolerance.
- **Energy levels** need to be appropriate to maintain ideal body weight. Excess energy may lead to weight gain and increased cardiac workload. Low energy diets increase the risk of cardiac cachexia.
- **Eicosapentaenoic acid (EPA) and Docosahexaenoic (DHA)** are long chain omega-3 fatty acids. Dogs with cardiac disease can have low circulating levels of these fatty acids. Supplementation with EPA and DHA may help reduce inflammation. This has been associated with a reduced risk of cachexia and arrhythmias.
- **Docosahexaenoic acid (DHA).**

EARLY CARDIAC EC 22^{TM/MC} is the first and only diet specifically designed to support cardiac health in dogs with Class I-II heart disease. It is supplemented with a unique blend of cardio-protective nutrients including taurine, arginine, and L-carnitine. The minerals are balanced for Class I-II heart disease with particular emphasis on sodium, potassium, and magnesium levels. It is enriched with long chain omega 3 fatty acids (eicosapentaenoic acid, docosahexaenoic acid), B-complex vitamins, and antioxidants. The protein content is appropriate to reduce the risk of cardiac cachexia, to promote healthy heart muscle, and exercise tolerance. Finally, it contains appropriate energy to maintain optimal body weight.



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.
- EARLY CARDIAC EC 22^{TM/MC} should be fed as the sole source of food.

FEEDING GUIDE

FEEDING RECOMMENDATIONS FOR ADULT DOGS

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

PRODUCT DESCRIPTION

ROYAL CANIN Veterinary Diet™^{TM/NC} canine EARLY CARDIAC EC 22™^{TM/NC} is a complete, balanced diet suitable for adult maintenance. This diet has been specifically designed to aid the dietary management of dogs with Class I-II cardiac disease.

NUTRITION STATEMENT

Canine EARLY CARDIAC EC 22™^{TM/NC} is formulated to meet the nutritional levels established by the AAFCO Dog Food Nutrient Profiles for maintenance.



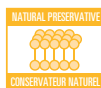
Arginine, Carnitine, Taurine are essential nutrients for optimal cardiovascular function.



Moderate, rather than severe, sodium restriction to reduce the work load on the heart.



Eicosapentaenoic and docosahexaenoic acids are long chain omega-3 fatty acids that modulate inflammatory reactions.



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

GUARANTEED ANALYSIS

Crude Protein, (min)	22%
Crude Fat, (min)	14%
Crude Fiber, (max)	5.6%
Moisture, (max)	10.5%

METABOLIZABLE ENERGY

From Protein	23.5%
From Fat	35.2%
From Carbohydrate	41.3%

Approximately 300 kcal per 8-oz cup, 409 kcal per 100 g, 73 g per cup.

INGREDIENTS

RICE, MENHADEN FISH MEAL, CHICKEN FAT, RICE GLUTEN, CHICKEN MEAL, CELLULOSE POWDER, NATURAL FLAVORS, POTASSIUM CHLORIDE, FISH OIL, CHOLINE CHLORIDE, ARGININE, CALCIUM CARBONATE, SODIUM CHLORIDE, TAURINE*, VITAMINS [DL-ALPHA TOCOPHEROL ACETATE (SOURCE OF VITAMIN E), L-ASCORBYL-2-POLYPHOSPHATE (SOURCE OF VITAMIN C*), NIACIN, BIOTIN, RIBOFLAVIN (VITAMIN B2), D-CALCIUM PANTOTHENATE, PYRIDOXINE HYDROCHLORIDE (VITAMIN B6), THIAMINE MONONITRATE (VITAMIN B1), VITAMIN B12 SUPPLEMENT, VITAMIN A ACETATE, VITAMIN D3 SUPPLEMENT, FOLIC ACID], L-CARNITINE*, TRACE MINERALS [ZINC OXIDE, FERROUS SULFATE, COPPER SULFATE, MANGANOUS OXIDE, SODIUM SELENITE, CALCIUM IODATE], PRESERVED WITH NATURAL MIXED TOCOPHEROLS, ROSEMARY EXTRACT, AND CITRIC ACID.

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



CANINE

TYPICAL ANALYSIS

Nutrient	Unit	Per 100 g as fed	Per 1000 kcal
Moisture	g	9	
Protein	g	24.0	58.7
Fat	g	16.0	39.1
Carbohydrate	g	42.2	103.2
Ash	g	5.2	12.7
Crude Fiber	g	3.6	8.8
Total Dietary Fiber	g	5.5	13.5
Minerals			
Calcium	g	0.80	1.96
Phosphorus	g	0.70	1.71
Sodium	g	0.25	0.61
Chloride	g	0.62	1.52
Potassium	g	0.75	1.83
Magnesium	g	0.07	0.17
Copper	mg	3.2	7.8
Iron	mg	18.9	46.2
Zinc	mg	25.3	61.9
Manganese	mg	8.3	20.3
Iodine	mg	0.47	1.15
Selenium	mg	0.034	0.083
Vitamins			
Vitamin A	IU	2000	4892
Vitamin D3	IU	110	269
Vitamin E	mg	90	220
Thiamine (B1)	mg	1.4	3.4
Riboflavin (B2)	mg	4.9	12.0
Niacin	mg	15.4	37.7
Pyridoxine (B6)	mg	4.1	10.0
Pantothenic Acid	mg	5.5	13.5
Folic Acid	mg	1.2	2.9
Cobalamin (B12)	mg	0.014	0.034
Biotin	mg	0.31	0.76
Choline	mg	400	978
Fatty Acids			
Linoleic acid	g	3.12	7.6
Arachidonic acid	g	0.06	0.15
Amino Acids			
Arginine	g	2.15	5.3
Lysine	g	1.2	2.9
Methionine	g	0.63	1.5
Methionine + Cystine	g	1.0	2.4
Taurine	g	0.2	0.5



ORDERING INFORMATION

Bag Size	Weight		Item Code
	lb	kg	
Small	n/a	n/a	n/a
Medium	5.5	2.5	28206
Large	16.5	7.49	28217
Extra Large	n/a	n/a	n/a

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