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FREE ACCESS DRY RATION FOR CATS

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AEROSPACE MEDICAL DIVISION  
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## FOREWORD

The study reported herein was conducted by the Veterinary Medical Section of the 6570th Aerospace Medical Research Laboratories. The study was begun in October 1962, and is continuing. The results reported are for the first 6 months of study.

Capt Dean E. Ewing, USAF, VC, has supervised the study and acknowledges the assistance of members of the Section.

## A FREE ACCESS DRY RATION FOR CATS

Donald B. Gisler, DVM, and Dean E. Ewing, DVM

### INTRODUCTION

The purpose of this study has been to obtain a nutritionally adequate diet that cats would find acceptable enough to eat in sufficient quantities to maintain normal body function.

A search of the literature to date does not indicate any attempt to feed cats a free access dry ration. For some time the authors had hoped to find a suitable dry ration that would maintain a cat colony. There are, of course, problems inherent in such a program. The cats in most laboratory colonies are of diverse background; some of ours are feral, some are farm cats, and others are house pets. These cats had previously developed diverse feeding habits. Since cats tend to be creatures of habit, there is great stress involved in bringing them into an unfamiliar environment, putting them through the immunizing, castrating, and cleaning procedures most laboratories employ, and then confining them in group enclosures. The ration must be nutritionally balanced, stable, and acceptable.

Specific requirements for cats have been calculated by various nutritionists. Gershoff (ref. 1) lists the caloric intake for weanling cats as approximately 250 calories per day, per kilogram of body weight, while cats several months old require 150 calories, and inactive adult cats require 60 calories per day, per kilogram of body weight. Another nutritionist, Morris (ref. 2), states that for proper maintenance a 5-pound mature cat requires 200 calories, a 7-, to 8-pound mature cat requires 250 calories per day, and a 10-pound mature cat requires 300 calories. Since the majority of our cats are inactive, mature, medium-size adults, we calculated that to obtain the required 250 calories (60 cal per kg) per cat per day, each should consume between 2 and 2.5 ounces per day of the diets being tested.

## METHODS

Because we lacked facilities for caging the cats individually, the study had to be run on cats divided into two groups. The first group consisted of 15 cats, all in excellent health. The second group consisted of 12 cats in states of health varying from good to poor, with several undergoing treatment throughout the early stages of the study. Both groups of cats had been kept under the same conditions for 6 months before the study. During the 6-month period they had been fed daily a mixture of commercial dog food and cooked horsemeat. Three separate rations were used in this study before we arrived at a suitable properly balanced diet. The first group of cats was initially placed on a commercially available dog food (ingredients are listed below) except that the yeast level of the food was doubled to increase the palatability. The second group of cats was placed on a commercially available diet for mink. Both diets were placed in 4-inch deep galvanized pans approximately 9 inches wide and 14 inches long. The pans were refilled as needed, except that once each week the pans were emptied, sterilized, and refilled with fresh feed.

Both groups of cats used in the program were kept in rooms approximately 8 feet wide by 10 feet long with a 10-foot ceiling. Perches approximately 18 inches wide circled the room in a U-shape at 2 and 4 feet from the floor. Heating was by forced-air, and temperature was maintained at approximately 72° F. However, several times during the study, power failure occurred and temperatures dropped nearly to the freezing point. Each group had access to an outside run of approximately 50 square feet, also furnished with perches 2 and 4 feet off the ground. Both the food and water supply were provided indoors. On any dry ration, cats consume large quantities of water; therefore, a fresh, potable supply was available at all times.

The ingredients and average analysis of the commercial dog food, as furnished by the manufacturer, are given below:

### AVERAGE ANALYSIS

Ingredients: Meat meal (special process): Animal liver and glandular meal; toasted corn and wheat flakes, beet pulp, animal and vegetable fat (preserved with butylated hydroxanisole), brewers dried yeast, Vitamin A palmitate, Vitamin E supplement, Vitamin D3, riboflavin, niacin, choline chloride, DL Methionine, Vitamin B12, salt, D-calcium pantothenate and traces of manganese sulfate, ferrous carbonate, iron oxide, cobalt carbonate, copper oxide, potassium iodide, zinc sulfate, zinc oxide and calcium carbonate.

### CRUDE ANALYSIS

Protein	26.8 %	Ash	9.1%
Fat	17.3	NFE	37.2
Fiber	2.6	Moisture	7.0

### AMINO ACID PATTERN

Grams per 16 Grams Nitrogen

Arginine	6.2	Threonine	4.2
Histidine	2.3	Leucine	7.1
Lysine	6.5	Iso-leucine	4.2
Tryptophane	1.0	Valine	5.0
Phenylalanine	4.2	Glycine	6.9
Methionine	2.5		

### AVERAGE VITAMIN ASSAY PER POUND

Vitamin A	10,000 USP units	d-pantothenic acid	5.6 mg
Vitamin D3	1,000 IC units	niacin	33.1 mg
Vitamin C	28 mg	riboflavin	3.7 mg
Vitamin E	20 int. units	choline chloride	700.0 mg
Vitamin K	2 mg	B-12	.01 mg

Since it was impossible to calculate the intake for each individual cat, the total amount eaten over a period of time was divided by the number of cat days to determine an average number of ounces consumed per cat per day.

### RESULTS

The group of cats on the high yeast diet consumed an average of about 4 ounces per cat per day. At this level of intake, nearly all of the cats gained weight and several of them became actually obese within a 2-week period. At the end of 2 weeks the first group of cats was changed from the high yeast diet to the standard commercial dog food formula given above. After the change, this group of cats ate just under 2.5 ounces per cat per day for the remainder of the study. After 6 months on this diet the cats were in excellent condition. The second group of cats, which was fed the mink diet for 3 weeks, consumed just over 2 ounces per cat per day. The mink feed was of very fine consistency, and the cats had difficulty eating because it balled up and stuck in their mouths. At the end of three weeks this group was also changed to the standard commercial dog food. The consumption for the next 30 days on this ration was about 2.5 ounces per cat per day. It later dropped to between 2 and 2.5 ounces per cat per day, which was calculated as the amount necessary to maintain the cats in proper condition.

## DISCUSSION

Since this study took place in the fall and winter months, the effect of humid summer weather on the acceptability of the commercial dog food formula has not been determined. It is possible that rancidity will be the limiting factor in the length of time a ration may be left without being changed.

According to the manufacturer the major difference between this diet and most other commercial dog and cat foods is a special method for lowering the ash content and providing better amino acid balance, plus the addition of vitamins and minerals.

For an experimental cat colony, especially one maintained for short periods of time, we think that a free access dry ration of the type that was used in this study is both efficient and economical and has many advantages over the presently accepted procedures. Our own colony has been kept in better physical health than at any previous time and we have been able to save at least one-half man day per week of caretaker labor, as well as several hours per month previously required for professional care and maintenance.

## REFERENCES

1. Gershoff, S. N., "The Nutritional Requirements of Cats," Proceedings of the Animal Care Panel, Vol. 11 No. 1, Feb 1961, pp. 49-52.
2. Morris, Mark L., The Key to Prescription Diet, 1959, Hill Packing Company, pp. 14-15.