POTTENGER'S CATS: A STUDY IN NUTRITION

Francis M Pottenger, Jr. MD

A book review by Pat McKay

Francis Pottenger, Jr, MD, has given the cat world one of the best books available in the study of carnivore's nutrition. Between the years of 1932 and 1942, he conducted a feeding experiment to determine the effects of heat-processed food on 900 cats. I have to admit I don't like the reason he was doing the study, because it involved adrenalectomies (surgical removal of the adrenal glands) for use in standardizing the hormone content of the adrenal extract he was making. However, the study tells so much about carnivorous cats and their need for raw food that as long as the study has already been done, let's now make this information useful for cats.

Most of what I have written in this article/review is verbatim from his book. The complete 123 page book is available from the Price-Pottenger Nutrition Foundation for $9.95. http://www.ppnf.org/catalog/ppnf/index.htm

The cats in the study were kept in large outdoor pens overlooking the San Gabriel Valley in California, so the weather was moderate for the cats. Each pen had an open air enclosure 12 feet long, 6 feet wide, and 7 feet high which was screened by chicken-wire so the cats had adequate exposure to the sun. A trench 18 inches deep was dug in each enclosure and filled with freshly washed sand. A roofed area approximately 4 feet deep with a wooden floor and bedding extended from the back of each pen to provide shelter for the animals during inclement weather.

All animals were subject to the same routine procedures. Each cat had its own clinical chart and notes were kept through his/her life. At the end of ten years, 600 out of 900 cats studied had complete, recorded health histories.

General Observations

Raw Meat Group

The cats fed a diet of 2/3 raw meat, 1/3 raw milk, and cod liver oil show striking uniformity in their sizes and their skeletal developments. >From generation to generation they maintain a regular, broad face with prominent malar (pertaining to the cheek or cheek bone) and orbital arches, adequate nasal cavities, broad dental arches, and regular dentition. The configuration of the female skull is different from the male skull, and each sex maintains his/her distinct anatomical features. The membranes are firm and of good, pink color with no evidence of infection or degenerative change. Tissue tone is excellent, and the fur is of good quality with very little shedding noted. In the older cats, particularly the males, engaging in fighting, the incisors are often missing, but inflammation and disease of the gums is seldom seen.

The calcium and phosphorus content of their femurs remains consistent, and their internal organs show full development and normal function. Over their life spans, they prove resistant to infections, to fleas, and to various other parasites, and show no signs of allergies. In general, they are gregarious, friendly, and predictable in their behavior patterns, and when thrown or dropped as much as six feet to test their coordination, they always land on their feet and come back for more play. These cats reproduce one homogeneous generation after another with the average weight of the kittens at birth being 119 grams. Miscarriages are rare, and the litters average five kittens with the mother cat nursing her young without difficulty.

Cooked Meat Group

The cats fed a diet of 2/3 cooked meat, 1/3 raw milk, and cod liver oil reproduce a heterogeneous strain of kittens, each kitten in a litter being different in size and skeletal pattern. When comparing the changes in configuration found in their x-rays, there are almost as many variations in the facial and dental structures of the second and third generation

cooked-meat fed animals as there are animals. Evidence of deficiencies is written so plainly on their faces that with a little training, any observer can be almost certain that a given cat has been subjected to a deficient diet or that it comes from a line of cats that has suffered from deficient nutrition.

The long bones of cooked-meat cats tend to increase in length and decrease in diameter with the hind legs commonly increasing in length over the forelegs. The trabeculation (the internal structural mesh of the bones) becomes coarser and shows evidence of less calcium. In the third generation, some of the bones become as soft as rubber, and a true condition of osteogenesis imperfecta (the inherited condition in which bones are abnormally brittle and subject to fractures) is present.

Heart problems; nearsightedness and farsightedness; under activity of the thyroid or inflammation of the thyroid gland; infections of the kidney, of the liver, of the testes, of the ovaries, and of the bladder; arthritis and inflammation of the joints; inflammation of the nervous system with paralysis and meningitis—all occur commonly in these cooked-meat-fed cats. A decrease in visceral volume is evidenced by the diminishing size of their thoracic and abdominal cavities.

Frank infections of the bone appear regularly and often appear to be the case of death. By the time the third deficient generation is born, the cats are so physiologically bankrupt that none survive beyond the sixth month of life, thereby terminating the strain.

A study of the microscopic sections of the lungs of second and third generation deficient cats show abnormal respiratory tissues. The lungs show hyperemia, some edema and partial atelectasis (incomplete expansion of lungs at birth), while the most deficient show bronchitis and pneumonitis (localized acute inflammation of the lungs without toxemia). In several cases, a hypothyroid condition exists with the thyroid gland showing scanty colloid and small acini (plural of acinus—one of the small sacs in a gland lining with secreting cells), again not observable in raw-meat-fed cats.

Cooked-meat-fed cats show much more irritability. Some females are even dangerous to handle and three are named Tiger, Cobra, and Rattlesnake because of their proclivity for biting and scratching. The males, on the other hand, are more docile, often to the point of being unaggressive, and their sex interest is slack or perverted. In essence, there is evidence of a role reversal with the female cats becoming the aggressors and the male cats becoming passive as well as evidence of increasing abnormal activities between the same sexes. Such sexual deviations are not observed among the raw-food cats.

Vermin and intestinal parasites abound. Skin lesions and allergies appear frequently and are progressively worse from one generation to the next. Pneumonia and empyema (accumulation of pus in a cavity of the body, especially the chest) are among the principal causes of death in adult cats while diarrhea followed by pneumonia takes a heavy toll on the kittens.

At autopsy, cooked-meat-fed females frequently present ovarian atrophy and uterine congestion, and the males often show failure in the development of active spermatogenesis (process of formation of spermatazoa). (Spermatazoa (plural of Spermatazoon--male germ cells.) Abortion in pregnant females is common, running about 25 percent in the first deficient generation to about 70 percent in the second generation. Deliveries are generally difficult with many females dying in labor. The mortality rate of the kittens also is high as the kittens are either born dead or are born too frail to nurse. Following delivery, a few mother cats steadily decline in health only to die from some obscure physiological exhaustion in about three months. Other cats show increasing difficulty with their pregnancies, and in many instances, fail to become pregnant. The average weight of the kittens born of cooked-meat-fed mothers is 100 grams, 19 grams less than the raw meat nurtured kittens.

Regenerating Cats

When cats of the first and second generation cooked-meat-fed groups are returned to a raw meat diet, they are classified as regenerating animals of the first and second orders. Their progeny are then maintained on an optimum diet to

measure the time needed to rebuild their health to that of the normal cats. It requires approximately four generations for either order to regenerate to a state of normal health. However, because of the lack of reproductive efficiency, very few deficient animals regain the normal health noted before deficiency was imposed on their line of cats.

Improvement in resistance to disease is noted in the second generation regenerating cat, but allergic manifestations persist into the third generation. In the third generation, skeletal and soft tissue changes are still noticeable, but to a lesser degree; and by the fourth, most of the severe deficiency signs and symptoms disappear—but seldom completely.

One of the experiment's more startling discoveries is that once a female cat is subjected to a deficient diet for a period of 12 to 18 months, her reproductive efficiency is so reduced that she is never again able to give birth to normal kittens. Even after three or four years of eating an optimum diet, her kittens still show signs of deficiency in skeletal and dental development. When her kittens are maintained on an optimum diet, a gradual reversal and regeneration takes place.

The only other portion of this book I want to bring forth just to show the difference in all the types of processed milk and that what we call "milk" now is really no longer a food and can cause serious problems for cats, dogs, and/or people.

The Raw Milk Versus Cooked Milk Feeding Experiment

This feeding experiment involves four groups of cats. One group received a diet of 2/3 raw milk, 1/3 raw meat, and cod liver oil. The other groups receive a diet of either 2/3 pasteurized milk, 2/3 evaporated milk, or 2/3 sweetened condensed milk, plus 1/3 raw meat, and cod liver oil.

The results of this experiment correspond to those of the raw meat versus cooked meat experiment. Animals on raw milk and raw meat reproduce homogeneous litters, and the usual causes of death are old age and injuries suffered in fighting. They are generally healthy animals with normal anatomic measurements and good resistance to disease. Their fur is of good quality with a notable sheen, and they show no signs of allergy.

The cats fed pasteurized milk as the principal item of their diet show skeletal changes, lessened reproductive efficiency, and their kittens present progressive constitutional and respiratory problems as is evident in the first, second, and third generation deficient cats eating cooked meat.

Cats fed evaporated milk show even more damage than their pasteurized counterparts while the most marked deficiencies occur among those fed sweetened condensed milk. The cats on sweetened condensed milk develop much heavier fat deposits and exhibit severe skeletal deformities. They show extreme irritability and pace back and forth in their pens.

Francis M. Pottenger, Jr., M.D.

Pat McKay:
With all the excellent information provided in Dr. Pottenger's ten years of study, it is eminently clear that canned, dry, and cooked foods, including pasteurized and other processed milk, are not for cats. I would also extrapolate this information to include all dogs and other true carnivores.

My basic raw food recipe is as follows:

Pat McKay's Raw Food Basic Recipe

The Raw Food Basic Recipe for preparing meals for your cats and dogs is 75% raw ground meat and 25% raw ground or steamed/mashed vegetables.

To prepare one cup (8 ounces) of food:
3/4 cup (6 ounces) of raw meat and 1/4 cup (2 ounces) of vegetables.

To prepare 4 cups (2 pounds) of food:
3 cups (1 1/2 pounds) of raw meat to 1 cup (8 ounces) of vegetables.

To prepare 8 cups (4 pounds) of food:
6 cups (3 pounds) of raw meat to 2 cups (16 ounces) of vegetables.

You can prepare sufficient amounts for your family of animals on a daily basis or you may prepare large amounts and freeze it in packages containing enough for their daily food.

You may have an animal that eats 1 tablespoon a day or you may have an animal that consumes 6 cups a day. No matter what the size of your animal the 75/25 proportions remain the same.

Proteins: the best to feed are: Raw egg yolks, beef, lamb, chicken, turkey, buffalo, venison, elk, emu, ostrich all fit for human consumption.

Organ meats: Heart, liver, gizzards, kidneys from the same animal as the muscle meat you are feeding should be 20% of the basic meal. If you have problems getting sufficient organ meats, then just do the best you can, and include them in their meal when you can get them.

Vegetables: the best to feed are: broccoli, zucchini and any other squashes, kale, chard, dandelion, Romaine lettuce, celery, parsley, asparagus, and pumpkin. (Even canned pumpkin is fine as long as the label says 100% pure pumpkin.)

The only foods that should pass your cat or dog's lips are raw meat, raw egg yolks, raw poultry and raw or steamed vegetables.

The only treats that should be given to your cats and dogs are tiny pieces of raw meat. For training purposes, you may make an exception and give tiny pieces of roasted meat, because it certainly isn't convenient to carry raw meat in your pocket.

The following are a list of No-No's for dogs and cats:
NO grains, cereals, bread, rice, pasta, dairy, fruit, yeast, pork, rabbit, soy, ground bone, bone meal, egg shells, alfalfa, kelp (or any other herbs), canned/dry foods, dehydrated foods, commercial cat/dog treats, milk bones, rawhide, pigs' ears, nylabones, etc.

NO vegetables with hulls (peas, corn, beans, etc).

NO nightshade vegetables: white potatoes, raw tomatoes, eggplant, peppers, onions, raw garlic, or iceberg lettuce or raw spinach.

When dogs or cats have an illness of any kind:
NO root vegetables (carrots, potatoes, beets, etc). Later on when symptoms are gone, some cats or dogs may have some root vegetables depending on their body's response to them

NO drugs, chemicals, or poisons including vaccines, frontline, advantage, program, heartgard, antihistamines, antibiotics, rimadyl, benadryl, flagyl, steroids, etc