

NUTRITION

Pets Must Get Proper Diet

Studies of nutrition requirements for animals help to raise healthier pets and increase knowledge of human dietary needs.

By HELEN M. DAVIS

► ARE YOUR PETS getting enough vitamins? Has your pup enough pep? Do you know what to feed the white mice Junior brought home from school? Are you prepared to take on the nutrition problems of even stranger animals, if yours is one of those households that tends to acquire a private zoo?

If you were successful in raising the chicks and rabbits that well-meaning friends gave your children last Easter, you may by this time be considering a backyard live-stock project to augment the family food supply.

Whether you raise them for food or for fun, you will want your animal family to have a well-balanced diet, with the proper vitamin content. Your problems will be, on a smaller scale, those of the laboratory people who raise small animals generation after generation, to learn which foods are best for health, for growth and for raising better babies.

Studies of the vitamin requirements of animals aid in solving not only the problems of raising the animals themselves, but also problems of human nu-

trition. We can learn from rats and mice what kinds of food we should eat. Monkeys can show us how to avoid anemia. Hamsters offer suggestions on the care of our teeth.

Small furry animals beloved by children had their day at Chicago recently when nutrition chemists held a symposium on their food needs at the meeting of the American Chemical Society. Vitamins necessary to the health and happiness of dogs and guinea pigs, white rats and mice, and their wilder cousins, cotton rats and hamsters, were the concern of experts from agricultural experiment stations, pharmaceutical factories and government laboratories. Even monkeys and chickens were included in the list of animals whose dietary needs were examined.

Animals Need Vitamins

It is interesting to see that the vitamins required by the animals are the same as those now recognized as essential for human nutrition. Just as the careful housewife selects a well-balanced diet for her family and her pets with reasonable assurance that a varied diet of fresh foods will assure an adequate

vitamin allowance, so the people who are in charge of planning regular diets for flourishing animal colonies would employ the same system.

The people who work out the effects of single vitamin factors on diet use as a basis a diet which is completely free from vitamins so that the pure crystalline forms of the vitamin can be varied one at a time and the results studied.

It is obviously not necessary to buy vitamin pills at the drug store for your pets unless your veterinarian finds something wrong with their nutrition, but reputable manufacturers of prepared foods for animals realize the need for these food factors and the vitamin content of the animal food is usually stated on the label.

Healthy animals with bright eyes and sleek coats are the goal of nutritionists seeking complete diets. But, strange to say, although the guinea pig is the traditional laboratory animal, nobody knows exactly what its complete vitamin requirements are.

One reason for this is the individuality of the guinea pigs themselves. One pig will thrive on a diet which makes another droopy or susceptible to infections. Also, the experts believe, there are food factors not yet isolated which complicate the picture.

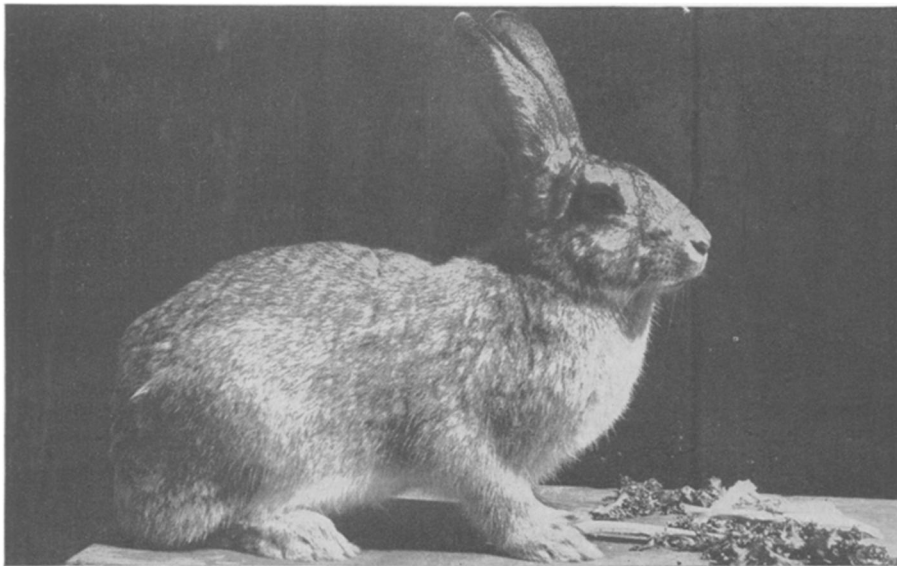
Rats Favorable for Study

Rats and mice are favorites for nutrition studies because they have lived so long in the same houses with people that they eat the same diet. If what is good for a man is good for a mouse, the opposite should also be true. A diet that keeps a mouse in excellent condition should give us ideas about feeding habits for the human species.

"Synthetic diets" for the mouse "can be prepared with adequate supplements of known pure vitamins which give excellent growth and maintenance of adult weight," says Dr. Harold P. Morris of the National Cancer Institute, Bethesda, Md.

Of the water-soluble vitamins, thiamin, riboflavin, pantothenic acid and pyridoxin are essential for growth and maintenance of adult weight. Other factors were discussed, and symptoms were described by which both acute and chronic vitamin deficiencies may be recognized.

Like the mouse, the rat has been used



HEALTHY BUNNY—Pet rabbits need a well-balanced diet if they are to have bright eyes and a sleek coat.

extensively for dietary studies, and many lists of rat diets have been published. Drs. R. A. Brown and M. Sturtevant of the research laboratories of Parke Davis found wide variation in the kinds and amounts of vitamins recommended by different authors. Some of these factors are essential to the welfare of the animals, these investigators believe, while others have in some cases been added "to forestall criticism by other workers."

They find that it makes considerable difference in some cases whether the vitamin preparation is swallowed or is injected under the skin, but that the result is not the same for all vitamins. It has been found, they report, "that vitamins A and D, when injected in an oil solution, are not utilized as well as when given by mouth. Thiamin and riboflavin at low doses are utilized more efficiently by the parenteral route than by oral administration. Pyridoxin or pantothenic acid give equal response whether they are injected or given by mouth."

Vitamins for Chickens

Considering the importance of chickens in human diet, it is not surprising that the importance of vitamins in the diet of chickens has received detailed attention. Dr. H. R. Bird of the Department of Agriculture's Bureau of Animal Industry lists quantities of vitamins recommended by various experimenters to be included per 100 grams of diet as: vitamin A 160 International units, vitamin D 25 A.O.A.C. units, thiamin 170 micrograms, riboflavin 300 micrograms, pantothenic acid 900 micrograms, nicotinic acid 1500 micrograms, pyridoxin 300 micrograms, biotin 10 micrograms, vitamin K 40 micrograms, and choline 130 mg.

At least 14 vitamins which have been isolated and crystallized have been found essential to the diet of the dog, reported Dr. Walter C. Russell of the New Jersey Agricultural Experiment Station's Department of Agricultural Chemistry, located at Rutgers University.

How the Monkey Helps

Monkeys, of late, have received increasing attention as laboratory animals, and the problem of keeping them in good health on a standardized diet was discussed by Drs. C. A. Elvehjem and K. B. McCall of the Department of Biochemistry of the University of Wisconsin.

Young Rhesus monkeys grow and develop satisfactorily when they are allowed to help themselves to a purified diet consisting of 73 parts sucrose, 18 parts vita-



LABORATORY PETS—Rats such as those shown drinking water are favorites for nutrition studies since they thrive on the same food as man.

min-free casein, 4 parts of certain mineral salts, 3 parts cod liver oil and 2 parts corn oil, supplemented by thiamin, riboflavin, pyridoxin, calcium pantothenate, niacin, vitamin C and a few other vitamin chemicals.

If they continue for a long period on this super-refined diet, however, they become slightly anemic, and, like their human cousins, find their red blood count improved by the addition of liver. Monkeys in the wild state do not, of course, use liver in their diets. But neither do they live on the kind of refined, vitamin-free diet given as the basis of experimental diets so that measured amounts of crystallized vitamins may be added to observe the difference they make in the condition of the animals.

Each vitamin removed from the monkey's diet shows up as a distinct kind of imbalance, which can be cured by putting back the specific vitamin required. If, after a long period on such a highly artificial diet, the monkey becomes anemic, the researchers find they can cure it by adding either liver or fresh milk to the menu.

New Animals Used

Among the newer animals grown as laboratory colonies, are cotton rats and hamsters. These small rodents, used for dental caries, virus and diphtheria studies, are reported to be more excitable than white rats, and therefore to need more careful handling. The hamster,

which has been studied by Dr. B. S. Schweigert of the Nutrition Laboratory of the Texas Agricultural Experiment Station, is reported to grow satisfactorily on thiamin, riboflavin, pantothenic acid and vitamin B₆, but to require additional vitamins for successful reproduction and lactation.

Science News Letter, November 2, 1946

ATOMIC ENERGY CONTROL

The official text of the First Report on the Scientific and Technical Aspects of the Problem of Control, as prepared by the Scientific and Technical Committee of the United Nations Atomic Energy Commission.

With a special introduction, two charts, and an appendix of popular definitions of scientific terms.

At your bookstore or newsstand

25¢

A United Nations Publication
Columbia University Press
Morningside Heights, N. Y. 27