

1952

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Robin Coon
Iowa State College

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Recommended Citation

Coon, Robin (1952) "Rats Diet Too," *The Iowa Homemaker*: Vol. 32 : No. 1 , Article 5.
Available at: <http://lib.dr.iastate.edu/homemaker/vol32/iss1/5>

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RATS DIET TOO

by *Robin Coon*

Home Economics Freshman

THE scramble of furry white animals, one thousand glittering pink eyes peering from behind wire enclosures and stacks of metal cages — to many this would seem the description of a nightmare, not that of a room in the home economics building — but so it is. Anyone stumbling into this room has discovered the home of Iowa State's own "Mighty Mouse," who, with his four hundred and ninety-nine relatives, is helping the foods and nutrition research department to demonstrate the relation of diet to nutrition.

Family cares multiply

Caring for the five hundred rats is a fulltime job. An exact record of every little rat that enters the colony must be kept. The mother rat produces from nine to fifteen babies. However, on the fourth day after the birthday, the size of the litter is reduced to four males and four females. These eight live with their mother for twenty-eight days, then they are weaned and assume identity. They are given names such as ♀ 50499 RRL. This means that the rat is a female and the 50499th rat to come into the laboratory. The letters RRL mean that it has two small clips in its right ear, and one clip in its left ear for identification purposes. This name, its weight, the names of its father and mother, what experiment it is being used for and when it dies is put into the "Birthday Book".

Another big job is feeding the five hundred hungry mouths every day. Once a day they are fed a meal made of such foods as dried milk, cornmeal, alfalfa-meal, linseedmeal, wheat germ, and dried yeast. Then three times a week they are given a treat of round steak and some green and yellow vegetables.

Laboratory organized

This animal laboratory has been in existence since 1925 when the first rats, five male and fifteen female Wister strain albino rats, were purchased. Of this number, one pair was chosen, and all the rats in the colony are direct descendents of this pair of animals. Each female in the stock colony is given an opportunity to produce three litters, the first and third being used for experimental purposes while the second litter, usually the most uniform, is returned to the stock colony for breeding. Thus all the rats that have been born into the colony are closely related and have similar characteristics.

The rat is invaluable for research work because he eats the same foods as people and responds similarly. Also he is inexpensive and reproduces rapidly. Many

important facts about nutrition could not have been discovered without the help of the rat. In our own Iowa State rat laboratory there is a constant search for new facts about nutrition. Dr. Pearl Swanson is the director of research. One of the studies now being made is the effect of fat upon the nitrogen metabolism in a low protein diet. This work has shown that when these protein starved rats are on a low calorie diet they are in better condition when they are fed some fat. These results may have some application to low calorie reducing diets.

Class experiment

A vivid experiment to show the results of eating habits is carried on by the freshman nutrition classes each quarter. In this experiment four rats are fed different diets. Rat number one is fed our typical American diet — bread, potatoes, meat and apple pie. Rat number two is fed the same with milk added. Rat number three is given everything that little Junior should eat, including vegetables and milk. Rat number four is fed just one-half of what rat number three is fed.

The results of the experiment have always been that rat number one is too weak to stand, his joints are sore, his fur is dull and stringy, his eyes are sore and inflamed, and sometimes he becomes paralyzed. It doesn't speak so well for luscious meals of steak, french fries, and Granny's apple pies. Rat two is quite a contrast. He is strong, has soft fur, and looks alert. Rat number three is the most beautiful, most handsome of all. He got those steel muscles from eating all the things that go into a well balanced diet. Rat number four is a pretty little fellow, yet he is only half the size of rat three and cutting his food in half has made him so nervous that it is difficult to even weigh him. He gnaws constantly at the wires of his cage and weighs only half as much as rat three does. This experiment dramatically shows the difference between a diet with adequate nutrients and one with inadequate nutrients.

Seniors work

Seniors majoring in the field of nutrition are given the chance to work in the research laboratory on special problems to gain some experience in this kind of nutrition research. Peggy Spencer, a senior in Foods and Nutrition with a major in related science, has her hands full of several white fellows which she is using to study the effects of different proteins on growth. While working in the laboratory she has learned that the rats are kept cleaner than many people and that they are very sensitive to their food and surroundings. Still, "mighty is the little mouse." In similar laboratories all over the world, rats are playing an important part in establishing new nutrition facts that will improve the health of the world.